

CENSUS OF INDIA 1961

VOLUME VII

KERALA

PART VII A

SELECTED CRAFTS OF KERALA

M. K. DEVASSY, B. A., B. L.
OF THE INDIAN ADMINISTRATIVE SERVICE
Superintendent of Census Operations, Kerala
and
the Union Territory of Laccadive, Minicoy and Amindivi Islands

1964

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With the compliments of

The Superintendent of Census Operations

Kerala



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FOREWORD

One of the first steps to be taken in the First Five Year Plan was the establishment of six Boards for the promotion of handicrafts, village and small industries : (1) The Khadi and Village Industries Board ; (2) The All-India Handicrafts Board ; (3) The All-India Handloom Board ; (4) The Central Silk Board ; (5) The Coir Board ; and (6) The Small Industries Board.

The rapid expansion of the activities of these Boards which concentrated not only on production and techniques, but also on organisation, extension, credit, marketing, and export, consolidated and enlarged the position that the household industries sector had so long enjoyed in the nation's economic life. It was this fact that forced itself upon the preparations for the 1961 Census and demanded that household industry should be separately investigated for a proper accounting of the nation's manpower, resources and its specific contribution to the national income. The 1961 Census therefore asked a special series of questions on household industry, input of family and hired labour, and the periods over which household industry is conducted. It was felt, however, that an enumeration of the total number of establishments and their industrial classification would be incomplete without a proper description of what they produce and how they produce. It was important to make an assessment of the limits of rigidity within which traditional skill operates. This could be obtained by studying the caste, occupational, social and economic stratifications, the limitations of credit and marketing facilities, the dominance of custom over contract, the persistence of traditional tools and design forms, the physical limitations of transport, communication and mobility, the inability to adopt new lines or adapt to changing circumstances. It was important also to make an assessment of the limits of flexibility that traditional skill is capable of, because the transformation of traditional skills to modern skills is easier said than done and a thorough study may well reveal that it is perhaps cheaper from the social point of view to develop industrial skills from scratch than to try to graft traditional skill on alien soil. A rather tragic case of failure to make what would on the face of it seem a minor adjustment cast its heavy shadow on the nation when it was discovered that goldsmiths used to working on 22-carat gold all their lives felt sadly helpless when asked to work on 14 carat, so narrow and unadaptable were the limits of their skill and proficiency and so rudimentary the tools and equipment with which they and their forefathers had worked. This fiscal accident revealed that tools are even more important than skills.

An early opportunity was therefore taken in February 1960 to suggest to State Census Superintendents that the Census provided a unique opportunity for conducting and documenting a survey of this kind. As such a survey was quite outside the usual terms of reference of Census work it was thought prudent cautiously to feel one's way with the thin end of the wedge of what would, it was hoped, prove to be an exciting pursuit. It was therefore considered the wiser course to wait until the State Census Offices felt so interested that they would no longer take the inquiry as an imposition but rather want to do it on their own and ask for the necessary staff and equipment. This office, too, in its turn, could make use of the

interval to organise and elaborate the design of inquiry in order to feed the appetite that work in progress would serve to whet. Because it was a labour of love, sought to be unobtrusively thrust on one's colleagues and because the inquiry itself was so vast that normally it would demand in any country as big a set-up, if separately established, as the Census organisation itself and that over a much longer period, and because it was almost a pioneer venture, nothing like it having been undertaken since the 1880's, it was decided to move towards a build-up by stages, to let the inquiry unfold itself only as fast as my colleagues chose to ask for more.

Thus, in the first circular of 18 February 1960, it was suggested that the inquiry might be conducted through the agency of the Development Department, the State Director of Industries, the Director of Tribal Welfare, the Registrar of Co-operative Societies and other organisations concerned with the promotion of household industry. A draft questionnaire containing 30 questions in three parts was recommended for canvassing. It was suggested that information on this questionnaire, village by village and area by area, might either be obtained through the regular departmental channels of the State Government, or through the newly set up Census organisation, or through the hierarchy of the newly-created Panchayats. Stress was laid on the need of photographic documentation and illustration of designs, shapes and forms not only by photographs but with the help of line drawings or sketches together with a full description of the materials used.

Almost the whole of 1960 and the first half of 1961 were spent in organising and taking the census count, although several States even during this period had not allowed the grass to grow under their feet but made exploratory studies and decided in their minds how the inquiry should be organised. A series of regional conferences held in Trivandrum, Darjeeling and Srinagar in May and June 1961 revealed much enthusiasm among State Superintendents to proceed with the survey, but the need of separate staff and equipment was felt at the same time as the realization dawned that this was much too serious an inquiry to be treated casually and left to be achieved through the usual administrative channels and State Census Superintendents proceeded to augment their staff with qualified research and investigating officers, technical persons, photographers, artists, draughtsmen and other trained personnel.

This was followed by rapid progress in coordination between the Central and State Census offices in the matter of exchange and processing of information, documentation and investigation, of assisting each other with trained investigators and in editing and finalizing drafts, layouts, presentations.

Mention has been made of a questionnaire in three parts and thirty questions. The idea was to make a beginning with empirical, analytical studies based on a structured questionnaire which would replace general descriptive accounts that had obtained so far. The primary aim was to obtain a picture as much of the artisan himself as of his craft, to obtain a perspective of the artisan and his craft in his social and economic setting, the extent to which tradition bound him and the winds of change ruffled him, the extent of his mobility and immobility, the conditions of market, credit, new contacts and designs in which he operated, the frame of new as well as traditional producer-customer relationships in which he still worked, and how far he was ready to pierce his own caste-tribe socio-economic cocoon and make a break through to new opportunities promised by the Five Year Plans. The aim

was to hold up the mirror to hereditary skills struggling with the dialectics of tradition and change.

Thus the first part of the questionnaire, purporting to be a village schedule, sought to take account of the size and population of the village, its remoteness from or proximity to centres of trade and commerce, in short, the degree of isolation in which the artisan worked, and the relative strengths of various communities in the village which would afford clues to social interdependence and the prevalence of the *jajmani* system. The second part was devoted to artisan communities in the village : the several castes of artisans, the number of families in each, the total number of workers, males and females, the extent of co-operative activity among them, the extent of dependence upon employers and of wage or contract labour. There were questions on the raw materials used, the means of their procurement, the possible extent of dependence on others for raw materials, the extent of the material that artisans can handle within the limits of their skill. There were other questions on the exchange and flow of designs, the use of colours, the ancientness of the craft and legends associated, the colonization of the craftsman, on patrons and customers and on social and economic contact with the world inside and outside the village. There were specific questions on the workshop itself and particularly the tools and the source of supply of these tools, because it was felt that tools decide everything and are the surest index of inertness or flexibility. Separate blocks of questions were designed to bring out the ramifications of artisan castes throughout the country and the ways they sustained themselves, the type of clientele they catered for, the extent to which they operated on money or barter or service, how specialized their craft was, how wide the market, how dependent they were on their socially preordained clientele and how restricted the latter was by the seemingly unalterable laws of social custom; the extent to which they could operate in the open market, the range of their wares and the sizes to which these were ordinarily restricted either by the limits of their own skill or the length of their customers' pursestrings. Inquiries were to be made about the operation of middlemen and of co-operative societies, the people who gave new designs and demanded new products. Finally the several stages of production of the articles themselves were to be fully described including the final and finishing stage and a list of very skilled craftsmen of each community was to be furnished. The third part was devoted specially to tribal communities and designed to find out how self-sufficient or dependent they were on the production and supply of manufactured goods, the extent to which they produced themselves or depended on others, their contacts with other communities and the specific forms of production and commerce through which these contacts were maintained.

Particular emphasis was laid on the need of obtaining as full an account as possible of unique regional design differentiations as they reflect not only the very culture patterns of the country but the persistent inventive faculties of the craftsmen. The importance was emphasised of giving full attention to articles of domestic use as it is in their shapes, designs and forms that the culture patterns and traditional skills persist most tenaciously.

Simultaneously with the investigation of specific crafts, State Superintendents proceeded to compile a comprehensive list of all types of handicrafts obtaining in their State. As for the specific crafts to be investigated several tables were devised from the structured questionnaire in order to guide investigators toward pointed observation and analysis, to

unable them to write, not just general descriptions, but with their eye on the object and on facts.

Investigations conducted between September 1961 and May 1962, including a study group of all States and the Social Studies Division in December 1961 at Delhi, stimulated many of the States into going in for a much enlarged schedule. The revised village schedule itself, the counterpart of the first part of the February 1960 schedule, contained 19 large sections containing elaborate and probing questions. The family Schedule for practising artisan families similarly contained 19 main questions each subdivided into many questions. The Family Schedule for non-practising artisan families contained 21 questions. There were schedules for the study of co-operative societies, of production-cum-training centres, and of consumer's preference. This enlarged schedule of investigation, in the formulation of which the States themselves actively assisted, was greatly welcomed. The surveys that will appear in this series will therefore consist of two main types; (a) those based on the original short schedule and (b) those based on the much enlarged schedule. In some cases Census Superintendents felt enthused enough to scarp the work based on the original short shedule and do it over again on the enlarged schedule. In the meantime much experience was gained on the analysis of facts and figures to clothe each observation with plenty of authentic information so that the reader could make his own judgement instead of being expected to see all the time through another pair of eyes.

This programme of survey of handicrafts and household industries has been fortified by several ancillary surveys, each one of which would deserve major attention. Along with the survey a compilation has been made of all handicraft centres in each State and an inventory prepared of skilled craftsmen. Photographic and other documentation has been built up to constitute what may now be regarded as the most considerable repository in the country. Elaborate and accurate maps of craft centres in taluks, tehsils and districts are either ready or under preparation. A full census of all fairs and festivals, weekly hats and markets, throughout India, has been taken and is being published for the first time. Andhra Pradesh has embarked upon a project of chronicling the social and religious antiquity and uniqueness of every fair and festival. A separate volume will be devoted to each district which promises to be of the utmost value to sociologists and orientalists. A full and complete inventory, replete with sketches and measurements of every object, has been prepared of exhibits in museums of tribal crafts in India. There has been a fairly satisfactory survey of houses and buildings, indigenous architectural designs and use of local building material of the whole country. All this has been entirely a labour of love, patiently organised and executed under great strain and in disregard of health and comfort, for which I take this opportunity of expressing my appreciation and greatful thanks to my colleagues.

New Delhi,
July 30, 1964

ASOK MITRA,
Registrar General, India

PREFACE

In this part of the Census Report is presented a descriptive account of seventeen selected crafts of Kerala. Of these, the first six crafts, viz. bell-metal industry, costumes and accessories in Kathakali, coir industry, ivory carving, kora grass mats and wood carving have been dealt with in some detail and the rest in the form of short notes. Only crafts which have contributed to artistic excellence have been included in the series.

2. The procedure followed in the study of these crafts which slightly differs from the pattern described in the foreword may be briefly set forth as follows :-

The selection of the crafts for study was made from a list of crafts furnished by the Director of Industries and Commerce, Kerala. Instead of circulating a questionnaire, field investigations were held by me and/or my research staff on each craft by visiting typical centres of concentration of the craft. The data regarding the number of establishments and workers engaged in the respective crafts were collected from the houselists and household schedules prepared for the 1961 Census. As the main purpose of the study is to focus the attention on small scale industries, only establishments engaging less than five workers have been included in the tables. Consequent on this, centres where large scale establishments alone are located do not find a place in the monographs and tables. In the case of some crafts covered by this report, separate tables have not been given, the number of establishments in them being too small to merit such tables. The particulars of establishments in respect of them have, however, been given in the running matter of the monographs. As the establishments engaged in wood carving are often mixed up with those engaged in carpentry alone it was not possible to prepare a list for wood carving. Mention has, indeed, been made in the monograph of those centres where establishments have exclusively specialised in wood carving like the manufacture of wooden statues. Subject to the above exceptions, tables have been given showing the number of household industries engaging less than five workers and the number of workers in them in the respective centres. No tables have been prepared for crafts which are not covered by this report.

3. Of the monographs covered by this report it is only the first six dealing with the crafts taken up for detailed study that have been written by me. As observed by the Registrar General of India in the foreword given supra this was a 'labour of love'. There was the main Census work always hanging over my head like the sword of Damocles throughout the period this ancillary piece of work was being attended to. Added to this, there is the lack of familiarity in dealing with a subject of this kind. Working under such limitations one is hardly in a position to claim for this product as much thoroughness and perfection expected of it. In writing these six monographs I have received invaluable help from my Senior Research Assistant Shri N. Sankara Mannadiar whose probe into the literature on these crafts has helped in no small measure in giving them the present shape. In the short notes series the monographs on all the crafts except 'Koftgari Work' and 'Rattan Work' have

been written by Shri Mannadiar and the rest two mentioned above by my Junior Research Assistant Shri M. Muhamed Usman. I have great pleasure in acknowledging their valuable contribution to this work.

4. Let me take this opportunity to express my deep sense of gratitude to the Government of Kerala for the unstinted co-operation and help extended to me in the study of these crafts, especially to Shri Pattom A. Thanu Pillai, Governor of Andhra Pradesh and Shri A. G. Menon, I. A. S., who were the Chief Minister and the Chief Secretary to the Government of Kerala respectively during the major period of the handicraft survey and Shri R. Sankar, ex-Chief Minister, Shri K. P. K. Menon, I. A. S., ex-Chief Secretary to the Government and Shri N. M. Patnaik, I. A. S., the present Chief Secretary to the Government who were in charge of the Census portfolio during the later period of the survey.

5. These monographs have been in no small measure enriched by the various photographs given in them. The entire work of photography with very few exceptions was done by the Department of Public Relations of the Government of Kerala free of cost, the conveyance and a few films alone being provided by the Census Department. I am deeply grateful to Shri V. R. Narayanan Nair, ex-Director of Public Relations of the Government of Kerala for the enthusiasm, co-operation and goodwill extended by him in implementing the above programme through his photographers Sarvashri T. M. Joseph and K. V. Ravindranathan Nair.

6. Of the paintings, drawings and sketches appearing in these monographs all except those in the monographs on ' Lacquer Work' and ' Lapidary Work ' and Pls. 7 and 8 in 'Ivory Carving' were done by Shri. K. Krishna Pillai and those in the monographs on ' Lacquer Work ' and ' Lapidary Work ' and Pls. 7 and 8 in 'Ivory carving ' and all the maps by Shri S. Krishna Pillai, both draftsmen of my office. I am happy to acknowledge their valuable work and particularly the sketches and drawings by the former given in the monographs on the ' Coir Industry', ' Art in Kerala Wood Carving' and 'Ivory Carving'.

7. The study of the costumes and accessories in Kathakali was greatly facilitated by the hearty co-operation extended by the Kerala Kala Mandalam, Cheruthuruthy and particularly by Shri C. V. Subramonia Iyer, Secretary of the Kerala Kala Mandalam and Shri Vazhengada Kunchu Nair of the Kala Mandalam. The services of Shri V. V. Rama Warrier who was then the Master Craftsman, Kathakali Costume Training Centre, Cheruthuruthy, were also of immense help in studying the various aspects of the production of the costumes and accessories in Kathakali. I also owe the appendices A and B to the monograph on the ' Costumes and Accessories in Kathakali ' to Shri Rama Warrier who prepared them in consultation with Shri Vazhengada Kunchu Nair.

8. A good deal of useful information regarding the coir industry was furnished by Shri G. Gangadharan, Special Officer for Coir, Kerala. My discussions with Shri M. P. Pillai Research Scholar in charge of the Census of Handicrafts, 1960, have also been of considerable use. I express my sincere thanks to the above.

9. I acknowledge with gratitude the following sources from where special photographs have been received for this work.

Source	No. of the block	Monograph
Mrs. Ruth Reeves, Hony. Adviser Handicrafts, Office of the Registrar General, India.	Pl. 3	The Coir Industry
	Pls. 4 & 7	Kora Grass Mats
	Pls. 4, 8 & 9	Screw-pine Mats
Registrar General, India	Pls. 12 & 13	The Coir Industry
	Pls. 1 to 4	Ivory Carving
	Pl. 1	Kora Grass Mats
	Pl. 1	Rattan Work
	Pl. 13	Screw-pine Mats
Coir Board, Ernakulam	Pls. 4 and 11	The Coir Industry
Corporation, Trivandrum	Pl. 16	Ivory Carving
The Cochin Central Co-operative Handicrafts Society, Trichur	Pl. 10	Kora Grass Mats
	Pl. 42	Art in Kerala Wood Carving
	Pls. 6 & 7	Reed Mats
Vicar, St. George's Church, Edappally	Pl. 34	Art in Kerala Wood Carving

10. I have also great pleasure in recording my gratitude to the Director of Industries and Commerce, Kerala for furnishing the list of crafts of Kerala, the Director of Archaeology, Kerala, for giving permission to sketch the wood carvings of the Padmanabhapuram Palace, the Superintendent, Archaeological Survey of India, Southern Circle, Madras, for granting permission to sketch the ivory palanquin in the Mattancherry Palace, the Director of Museums and Zoos, Kerala for granting permission to photograph the various items in the public museums of Trivandrum and Trichur and the authorities of the School of Arts, Trivandrum, the Sree Mulam Shashtyabdapoorthi Memorial Institute, Trivandrum, the Research and Design Centre, Trivandrum and the Cochin Central Co-operative Handicrafts Society, Trichur and the proprietors of various shops and workshops who have permitted the photography of the various handicraft products with them for this report.

11. For writing the monographs on Art in Kerala Wood Carving, Bell-metal Industry and Granite Work several churches had to be visited by me and serveral temples by my Senior Research Assistant. Several photographs were also taken and sketches prepared where photographs were not sufficient. I take this opportunity to express my heart-felt thanks to the authorities of the various temples and churches for the warm co-operation extended by them in this work. I also thank the Travancore Devaswom Board for instructing the temple authorities under them to extend their co-operation in this behalf.

12. In connection with the writing of these monographs quite a large number of references were necessary. I acknowledge with gratitude the hearty co-operation extended by the authorities of the Legislature Library, the Kerala University Library, the Public Library, Trivandrum and the Museum Library, Trivandrum, in this behalf.

13. All the four-colour blocks in the monograph on 'Costumes and Accessories in Kathakali', the blocks covered by Pls. 12 and 13 in 'Coir Industry', Pl. in 1 'Kora Grass Mats', Pl. 5 in 'Embroidered Liturgical Vestments', Pl. 1 in 'Rattan Work' and Pl. 13 in

'Screw-pine Mats' have been done by M/s. Klein and Peyerl, Madras. All the blocks in Bell-metal Industry, all halftone single colour blocks in 'Costumes and Accessories in Kathakali', the blocks covered by Pls. 1 to 11 and line blocks at pp. 85-90 in 'Coir Industry', Pls. 9 to 12, 14 and 15 in 'Ivory Carving', Pls. 2 to 7 in 'Kora Grass Mats', Pls. 3 to 5, 38 to 41, 43 to 45 and the line block at p. 179 in 'Art in Kerala Wood Carving', Pls. 1 to 7, 9 and 10 in Cocoanut Shell Wares', Pls. 1 to 4 and 6 to 8 in 'Embroidered Liturgical Vestments', Pls. 1 to 5 in 'Granite Works', Pls. 1 to 4 in 'Koftgari Work', Pls. 2 to 5 in 'Lacquer Work', Pls. 1 to 4 in 'Marquetry Work in Wood', Pls. 1 to 5 in 'Reed Mats', Pls. 2, 3, 5 to 7 and 10 to 12 in 'Screw-pine Mats', and Pls. 1 and 2 in 'Straw Pictures' have been done by M/s. Malayala Rajyam Process Studio, Quilon. All other blocks except Pls. 6 (a) and 6 (b) in 'Ivory Carving' have been done by M/s. Printers Blocks, Trivandrum. All the above process studios have bestowed great care in supplying these blocks promptly and efficiently.

14. The printing of a profusely illustrated book of this type requires a good deal of experience and diligence. The St. Joseph's Press, Trivandrum, under the able guidance of Rev. Brother Fidelis, O. C. D., has executed the work quite efficiently.

15. Throughout the handicraft survey Shri Asok Mitra, I. C. S., Registrar General and ex-officio Census Commissioner of India and Dr. Roy Burman, Officer on Special Duty (Handicrafts and Social Studies) have helped me in various ways especially by technical advice and guidance. I take this opportunity to acknowledge with gratitude the great help I have received at their hands.

16. The statements made and the conclusions drawn in these monographs are author's own and do not necessarily represent the views of the government.

Trivandrum,
20th December 1964.

M. K. DEVASSY, I. A. S.,
Superintendent of Census Operations.

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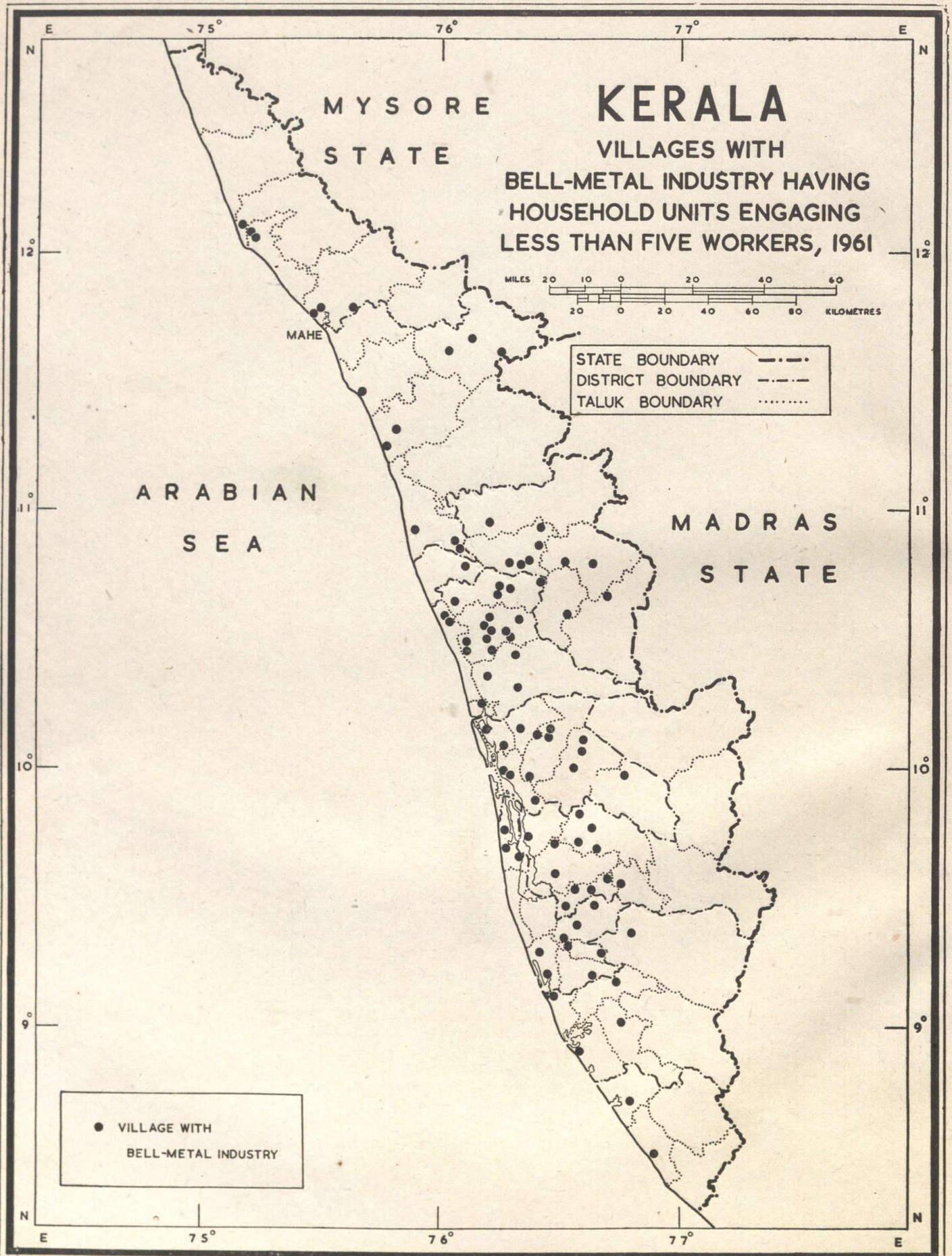
KERALA
VILLAGES WITH
BELL-METAL INDUSTRY HAVING
HOUSEHOLD UNITS ENGAGING
LESS THAN FIVE WORKERS, 1961
MILES 20 10 0 20 40 60
20 0 20 40 60 80 KILOMETRES
STATE BOUNDARY
DISTRICT BOUNDARY
TALUK BOUNDARY
MYSORE
STATE
MAHE
ARABIAN
SEA
MADRAS
STATE
VILLAGE WITH
BELL-METAL INDUSTRY
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BELL-METAL INDUSTRY

CHAPTER I

INTRODUCTION

Tradition of the Industry

In common parlance the term bell-metal is understood to include not merely an alloy of copper and tin which constitutes bell-metal in the technical sense but also all known malleable alloys of copper with tin or zinc or both. It is in this wider sense of the term that bell-metal is conceived for purposes of this treatise.

2. "Copper and bronze were the oldest metals shaped into tools. They go back to the end of the Neolithicum and mark the beginnings of the Bronze Age when the art of mixing copper with tin into a new alloy—bronze—was invented. This technique was known in Crete as early as during the end of the fourth pre-Christian millennium, but it was spread over so many other regions of the globe that the location of its first appearance cannot be determined today. 5,000 furnaces stood on the plateaux around Potosi in the bronze manufacturing regions of ancient Bolivia. And in China the bronzes of the Shang dynasty (1766–1122 B. C.) followed in their execution the firmly established rules of artistic tradition."[1]

3. The art of casting bell-metal by the *cire perdue* process in India is seen ascribed to the 10th century A. D., by some who believed that India would have borrowed it from Europe.[2] That this is incorrect and the *cire perdue* process in India has a more ancient origin is doubtless. The Karanagama attributed to the 7th century A. D., which contains a direct reference to the *cire perdue* process that 'if images have to be cast in metal the wax must first be melted and poured out of the mould and all defects removed with cloth' was relied upon to show that metal casting by *cire perdue* process was known to India at that time. But there are a number of earlier references to *cire perdue* casting in India. Matsyapurana ascribed to A. D. 450 contains portions dealing with the method of casting bronze images. The image of Buddha 7½' in height excavated in 1862 at Sultanganj is cast in pure copper in two layers, the inner layer melted on an earthy cinder-like core composed of a mixture of sand, clay, charcoal and paddy husks and the outer layer of copper supposed to have been cast over the inner one presumably by the *cire perdue* process.[3] Judged by the style of the image and the discovery in an adjoining *stupa* of a coin of the last Western Satrap of Saurashtra and one issued by the conqueror Chandragupta II, Vikramaditya, who annexed the dominions around A. D. 390, the period ascribed to this image of Buddha is around A. D. 400.[4] The well-known silver casket of Kanishka's time (A. D. 78–120) is 'an outstanding specimen of early metal craft in India' and the figure of Yakshi in the early Kushan style is a fine example of the workmanship in bronze of the period between the first and second century A. D. The findings of Sir John Marshal at Taxila where Alexander the Great halted just before the battle with Porus ascribed to the close of the 4th century B. C. indicate that *cire perdue* metal casting techniques were known and used in India during this period.[5] Earlier still, the period about B. C. 1500 abounds in

(1) 'The Origin of Things' by Julius E. Lips, page 141
(2) Elements of Hindu Iconography by T. A. Gopinatha Rao, Volume 1, page 50
(3) Dr. Rajendra Lal Mitra in the Journal of Asiatic Society of Bengal, Calcutta in 1864
(4) Cire Perdue Casting in India by Mrs. Ruth Reeves, pages 21–22
(5) Ibid, page 20

Vedic literature consisting of the Rig Veda, Sama Veda, Yajur Veda and the Atharva Veda, besides the Brahmanas and the Aranyakas including the Upanishads and Sutras which *inter alia* refer to the technological problems which the Copper and Bronze Ages had presented the Vedic man 'as a result of the revolutionary inventions for smelting and alloying copper to produce and cast bronze into survival implements, utensils, and images of his anthropomorphically conceived gods'. Above all, the discovery of the image of a dancing girl in bronze at Mohanjo-Daro eclipses the rest. This image 'characterised by negroid facial features and executed in some primitive vigour', her hair 'gathered in a heavy coil over the right shoulder', the right hand resting lightly on her hip, the other hand resting upon the left leg just above the knee with the arm almost entirely covered with bracelets, 'eyes half closed and her face suggesting an expression of disdain' is estimated to belong to some period between B.C. 3000 and 2000. According to Dr. B. B. Lal, Archaeological Chemist in India, "the modelling and profile of the dancing girl datable to about the third millennium B. C., would show that the statuette was fabricated by casting; hammering and forging alone could not have produced the intricate patterns and details noticeable on the head and arms. The evidence is only circumstantial as this particular bronze image does not appear to have been examined metallographically for determining its microstructure. *Cire perdue* process was probably employed for casting this bronze, but direct evidence on this point also is not available. The excavations of Mohenjo-Daro have not yielded any moulds used for casting bronze and in the absence of such finds it is difficult to be precise about the actual method of casting viz., direct casting from moulds or the casting by *cire perdue* process. The intricate patterns and designs reproduced in casting the dancing girl would, however, indicate that most probably the lost-wax process was employed as direct casting from a mould would not produce a bronze of such a fine finish." Dr. Stella Kramrisch, Chintamoni Kar and Ajit Mukerjee have accepted the opinion that the image of the dancing girl was made by *cire perdue* casting.

4. It could thus be said without much fear of contradiction that the *cire perdue* casting was known to India not only much earlier than the 10th century A. D. but even earlier than the bronzes of the Shang dynasty in China and going as far back as the third millennium of the pre-Christian era. Coming to the later periods, the 8th to 11th century bronzes found in the ruins of a monastery in Madhya Pradesh represent 'the massive wave of bronze and copper images executed in both hollow and solid casting technics which the Pala dynasty that ruled in Bengal and Bihar between c 750 and 1100 A. D. encouraged to continue'. The hollow and solid cast copper and bronze images of Buddha 'which poured out of the foundries of the Buddhist monasteries' at Nalanda during the 8th to 9th century and paved the way for 'the handsome copper gilt bronzes of Buddha with their elegant *prabhavali* (Nimbus completely surrounding the figure)' developed during the 8th to 12th centuries at Kurkihar in Bihar are of great aesthetic and technical importance.[1] The most creative era of South Indian image making was the Chola period from 9th to 13th century. But the Pallava period from 5th to 9th century A. D. also has left no less brilliant record of the art of casting images although the number of such images left to the posterity has been much less compared to those of other periods. With the decline of the Cholas the period of metal image art merged as far as design styles were concerned into the Vijayanagar period represented by the 14th to 16th century A. D.

5. Some of the images preserved in museums and worshipped in the temples of Kerala, resembling as they do in their iconographical features and technique the Pallava works of sculpture, are traced to the 8th

(1) Cire Perdue casting in India by Mrs. Ruth Reeves, page 23

century A. D., if not earlier. During the long period since then, not a few bell-metal products of Kerala have evoked the delight and admiration of the lovers of arts and crafts. Rich in imagination and elegant in execution, the several metal images of Kerala, the prolific variety of the traditional lamps, ornamental articles, ceremonial and other utensils of elaborate designs and artistic excellence, cooking vessels ranging from tiny ones to those of incredibly large dimensions and a number of other products, represent a genius of such high order and ancient origin that the bell-metal craft of Kerala can rightly claim a heritage of pride.

Location of Establishments and Volume of Employment

6. The bell-metal industry in Kerala is found all over the State, the exact area of location falling in 21 towns and 70 rural areas spread over 41 taluks. The total number of establishments having less than five workers comes to 264 of which 104 are in urban areas and 160 in rural areas.[1] The volume of employment in these establishments comes to 552 persons of whom 204 are employed in urban areas and 348 in rural areas.

A few ancient Bell-Metal Products of Kerala

Images

7. The materials prescribed by the *Agamas* for the production of images are metal, wood, stone, precious gems and earth or a combination of two of the above. To these, ivory and *kadi-sarkara* have been added by some. Of the three kinds of images, *chala* (movable), *achala* (immovable) and *chalachala* (movable-immovable), most of the movable images used to be produced in bronze. These consist of *kautuka-beras* meant for *archanas*, *bali-beras* and *snapaka beras* meant for daily services, *bali* and bathing and *utsava beras* for taking out in processions. *Dhruva-beras* or images set up permanently for worship in the central shrine are seldom made in metal. The metal images in Kerala are not so abundant in the numerical sense as in the temples of the east coast. At the same time, they have established a reputation for their distinctive and impressive qualities.

8. Of the earliest two metal images of Vishnu preserved in the Government Museum, Trivandrum, one is cast in copper and the other in bronze. The one in bronze is larger in size, its height being 1 foot 9½ inches (Plate 1). With the body somewhat summarily shaped, long ear-lobes adorned with *makara kundala*, flat nose, radiant eyes inlaid with gold and shining crystals in the centre, the *yajnopavitha* (sacred thread) drawn towards the right arm and passing over it, long and conical *kiritamakuta* tipped with gold at the top, delicately finished ear-rings, necklace, bracelets on the wrists and the upper portion of the arms and *udarabandha* over the abdomen, the image is a typical one of the Pallava period. The smaller one is cast in pure copper and hence not dealt with here.

9. A bronze image of goddess Parvati excavated from the environs of the Padmanabhapuram Palace is representative of 'the psychological combination of power and placidity attributed by the Hindu mind to the cosmic powers'. It is supposd to belong to an era beyond two centuries ago and depicts the skill of the craftsman in the 'fundamental shaping of the image and the working of symbolical and decorative details'.

10. The bronze image of Sasta of the Trivandrum Museum (Plate 2) attributed to the 17th century by the Museum authorities but to the 19th century by some of the art-critics, and said to have been recovered from an old temple at Kulathupuzha, is supposed to be highly symbolical of the characteristic features of god Sasta. It is a hollow casting in metal of the god Sasta in a sitting pose. In the words of Dr. J. H. Cousins, "this image is notable for the admirable modelling of the body which suggests strength without heaviness", typical

(1) There are also establishments of larger size. But they are excluded from the above figures as this book deals only with handicrafts.

of a hunter deity. The body of the image is ornamented in abundance by jewelled bands in strict accordance with the traditional art. Yet the image is natural in appearance unlike some others of the period. The volume of this image exceeds its tangible shape.

11. The craftsmen of Kerala have succeeded in no small measure in giving 'the far seeing, beyond looking gaze' to the images both in metal and in stone. This is a distinctive feature of the Kerala art of icon-making for about a millennium from the 8th century. The *dwarapala* (door-keeper) (Plate 3) images in the Trichur Museum collections represent the supreme achievement of this school.

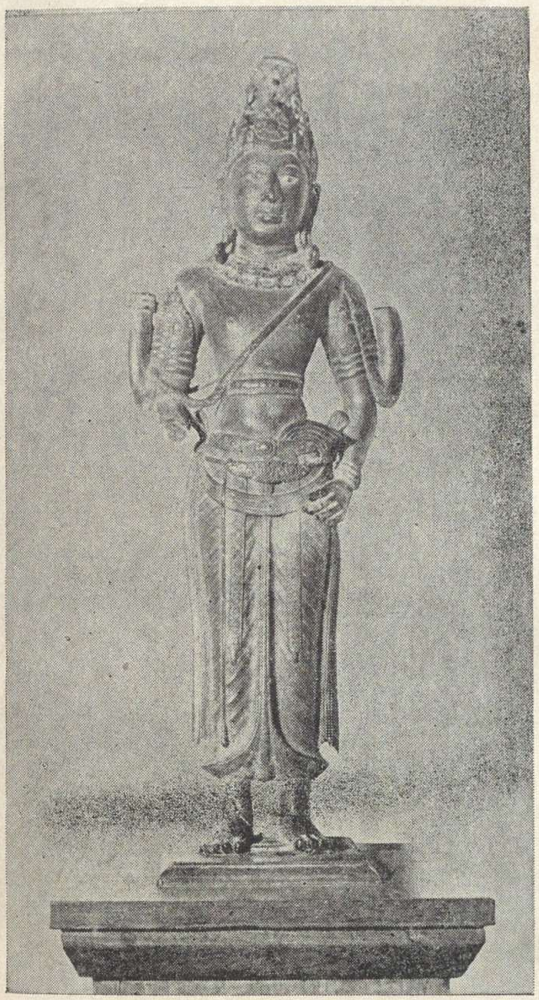
12. A few examples of the 13th and 14th century images in bronze are found in three rafter shoes,[1] one with the image of Siva and another of Siva and Parvati on the same pedestal, now housed in the Trivandrum Museum. All these rafter shoes originally belonged to the ancient temple at Ponmana and were rescued from destruction by chance. Nataraja is seen dancing with Parvati on the left side and a devotee on the right. The upper left hand holds a deer while the lower left is in the *abhayamudra* (pose of protection). A battle axe is held in the upper right hand while the lower one holds a ring. Parvati holds a lotus bud. A devotee is seen clanging cymbals. On the other side of the rafter shoe is the image of Vishnu with the figures of Sreedevi and Bhoodevi, both consorts of Vishnu. The image of Narasimha killing Hiranyakasipu (demon-natured king) is seen on the second rafter shoe. The third rafter shoe gives the figure of Brahma seated in meditation. All the three rafter shoes are richly engraved with lotus and floral designs. Evidently only some master craftsmen capable of leaving their impress and contributing to the perfection of the metal craft alone could have produced these marvellous pieces of art.

13. *Ardhanariswara*, an image exhibited in the Trivandrum Museum, is a single image of Siva and Parvati (Plate 4). From the top to bottom of the image, half the portion depicts half of Siva and the other half of Parvati. The image is 3 feet 8 inches in height. The right side is devoted to Siva and the left to Parvati. The right half of the head shows the *jatamakuta* of Siva with the crescent moon, goddess Ganga and the lotus. The left half shows the locks of Parvati. The right eye is smaller than the left depicting a masculine eye. The left eye is long, typical of the sculptural depiction of a female eye. On the right ear is the *makara-kundala* (alligator shape) of Siva and on the left the *patrakundala* (leaf shape) of Parvati. A snake is shown on the right shoulder and on the left an ornamental chain. The right chest is masculine and the left one feminine. The right hand is lean and plain and the left one plumpy and ornamented. The sacred thread is confined to the right portion of the body alone, as the left portion is of Parvati. The right leg is lean and naked while the left one is ornamented with fine and delicate drapery. There are anklets on the left leg as distinguished from the right one. The upper right hand holds the axe of Siva and the lower right one is in *abhaya* pose. Parvati has only one hand. The image represents the spiritual unity of man and woman.

14. One of the most artistic images in the Trivandrum Museum is *Somaskanta*. Siva, Parvati and Balasubramonia are seen on the same pedestal. The pedestal is 24 inches long. The figure of Siva is 21 inches in height and of Parvati 17 inches. The figure of Balasubramonia is much smaller. The upper right hand of Siva bears the axe, while the upper left hand holds a deer. The lower right hand is in the *abhaya* pose and the lower left hand in *kataka* pose. The drapery on the legs is unique in its exquisite and delicate finish.

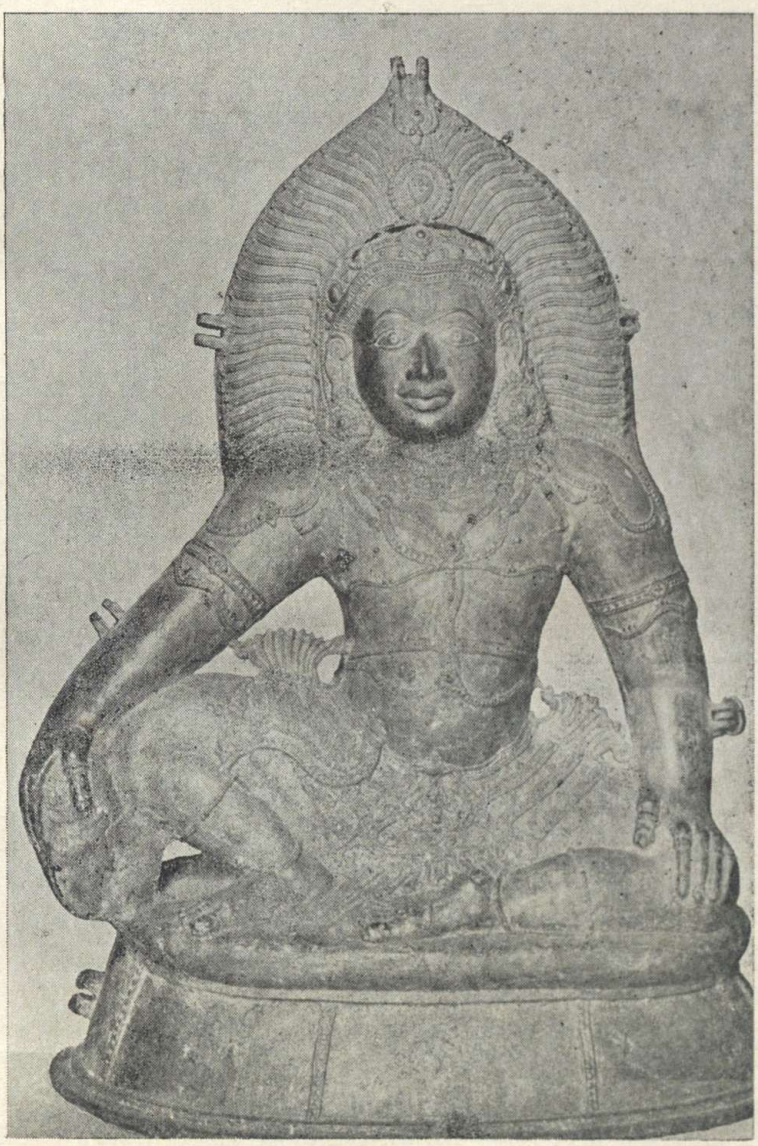
15. Several images of Siva in dancing pose are exhibited in the Trivandrum museum. Of these, the Nataraja dance

(1) A rafter shoe is a piece of ornamental (in this case bronze) covering fitted to the outer end of a rafter as a protection against fire.



(Left) Pl. 1. VISHNU

Hollow casting but filled with charcoal : Height 1 ft. 9 1/2 in. : Trivandrum Museum



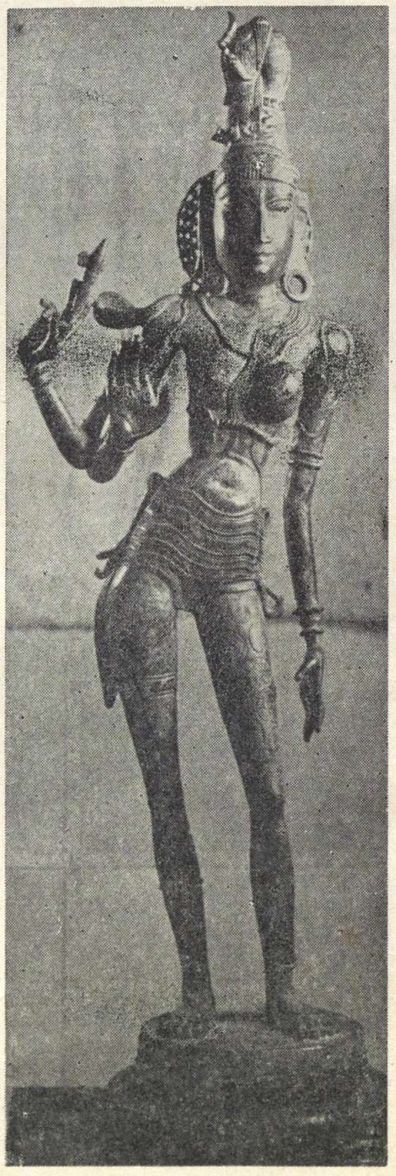
(Right) Pl. 2. SASTA

Hollow casting : Height 2 ft. 2 1/4 in. : Attributed to 17th or 19th century: Said to have been recovered from an old temple at Kulathupuzha : Now in Trivandrum Museum



(Left) Pl. 3. THE DWARAPALA (Door-keeper)

Discovered while cleaning a well near Iranikulam temple and brought to the Trichur Museum in 1916, this image is reported to have originally belonged to the Thekkedath temple from where it was removed at the time of Tippu's invasion. It is believed to have been cast in *panchaloha* (alloy of five metals).



(Right) Pl. 4. ARDHANARISWARA

A single image depicting a combination of the vertical halves of the figures of Lord Siva and Parvati: Height 3 ft. 8 in. : Trivandrum Museum

over *Apasmaramurti* (incarnation of evils) is one (Plate 5). The dance represents the suppression of evil by Siva. The upper right hand holds the drum while the lower right hand is in *abhaya* pose. The upper left hand holds fire and the lower left hand is in *gajahasta* pose. The image is 3 feet 9 inches in height. The figure is encircled by a *prabhavali* (ring of light) in oval shape with a number of *jvalas* or protruding tongues of flame along the ring.

16. Another image of Siva in dancing pose is of Siva and Sathi (Plate 6). This image of Siva is 2 feet 6 inches in height. Siva is dancing with the dead body of his wife Sathi on the left shoulder. An attendant is seen by his left foot. The emotional figure of Siva depicts his poignant grief and revengeful spirit over the death of his spouse consequent on the insult offered by her father.

17. The image of mendicant Siva standing on a pair of sandals (Plate 7) exhibited in the Trivandrum Museum is depicted with a drum in the upper right hand, a broken piece of bone in the upper left hand, grass in the lower right hand held to feed the deer looking upwards from his feet and a skull in the lower left hand. The skull is the begging bowl. The image is nude. A snake passes round the waist. The *jata* (matted hair) is flowing along either side of the neck. The lotus, the crescent moon and Ganga are on the head. The imagination with which the artist has featured a mendicant is of supreme order. The image is 3 feet 2 inches in height.

18. An image of Krishna, supposed to be of the Chola period, with the right hand in *kataka* pose and left hand shown as if leaning on a cow but without the figure of the cow, is exhibited in the Trivandrum Museum. The figure is plain and simple, ornamentation being limited to the necklace. The *kiritamakuta* is throughout conical. The complexion of Krishna depicted in the image slightly differs from the usual one. But the *Sreevatsa* shown on the right chest facilitates identification beyond doubt.

19. The images of saints preserved in the Trivandrum museum depicted in bronze are noted for the expression of their 'perfect simplicity, pure devotion and surrender, associated with saints'. The images of *Garuda* (Plate 8), *Agni* and *Surya* found in the same museum are likewise remarkable works.

20. It is impossible to exhaust, nor is it the intention to do so, the numerous images found in Kerala, almost all of which maintain a high standard of artistic excellence.

Lamps

21. Next to images the brass and bronze lamps mark the glory of ancient art in bell-metal. The innumerable patterns of these are capable of classification into four groups, hanging, floor, wall and hand lamps.

22. Perhaps, the most well-known and oft-quoted one is the Greek Lamp (Plate 10). It resembles a bird in shape, the head portion holding the oil and the wick, the body serving as a reservoir for storing oil and the tail, the handle to hold the lamp. A spoon is suspended on a chain connected to the reservoir. The oil from the reservoir is taken in the spoon for feeding the head portion. This lamp is used for processions in temples and also held before Maharajas when they go out in procession.

23. Among hanging lamps one which is both simple and artistic, is the well-known horse lamp. This is associated with the knightly atmosphere of the times of the ancient rulers when frequent conflicts between them was a usual feature. The lamp is characterised by a circular recess forming the base edged with a fluted rim at one end of which the figure of a horse in galloping pose with a knight riding on it is fixed. The head of the horse comes exactly over the centre of the recess to ensure perfect balance when the lamp is suspended by the chain. There is an ornamental screw somewhat in the shape of a lotus flower that links the bottom of the chain with the head of the horse. The position of the lamp can be adjusted by turning the screw to any position one likes. The chain is a marvellous

construction of continuous links loosely knit together in single mould. This type of lamp is found not only in temples but also in several houses. The moulding of the lamp is sometimes done in two parts, one for the recess and the other for the horse and the chain together. Lamps of a single mould are extremely rare and can be had only at an exorbitant cost if it is available at all. The oil is poured into the recess in which the wick is conveniently placed, and lit. This type of lamp is noted for its extreme simplicity and fine finish.

24. There are quite a large number of other types of hanging lamps some of which are much more ornamental than the horse lamp. In some, instead of the horse, the figures of *hamsa* (swan), elephants pouring cosmic energy over goddess Lekshmi (Plate 13), *garuda,* serpent and other animals are found. The figures in some cases are hollow when they are used as reservoirs for storing the oil from which the latter flows through a tube connecting it with the recess. The flow is adjusted to the capacity of the recess by automatic process. The swan is popular as it symbolises swift flight characteristic of light. The Hindu concept underlying the selection of motifs is that the carrier or mount of the particular image worshipped is a pet of that deity and hence a suitable medium for conveying the devotee's gift of the flame which represents his symbolical prayer to the deity. An ornamental lamp with the elephant, its rider on its back and a retainer sitting behind found in the collections of the Trichur Museum, is an exquisite work of art (Plate 12). The massive bell tied with a heavy chain round the back of the elephant, and the smaller bells tied to its neck are impressive. The large bell is a useful adjunct to the elephants used in the service of temples as it would give warning to the passers-by of the approaching elephant. Two other hanging lamps found in the Trichur museum represent more than ordinary skill in this ornamental metal art. The one in which the elephants are seen taking water from the recess is more attractive than the other (Plate 11). The shape of the recess itself is a departure from the circular one usually found, giving it the appearance of a fountain. There are also hanging lamps with more than one recess. In their case the chain is punctuated at intervals by recesses. Some such lamps often have a series of recesses ranging from two to ten. These lamps are at once simple and beautiful and are generally used in front of the central shrine in temples.

25. The floor lamps which form another category are also prolific in variety and some of them are elaborately ornamented. The recess is placed on a stem which often is of ornamental design. The oil is poured into the recess and the wicks are placed in the petals of the recess. At the top of the recess the figures of birds are found in some cases. (Plate 14). Where the birds are hollow-cast they are used as reservoirs for oil which drips into the recess through an inner tube to replenish the oil in the recess. In some, the stem is cylindrical and the recess is inserted into it through a central hole in the recess. The position of the recess could be adjusted anywhere on the stem with the aid of a key or the spiral lines carved on the stem in appropriate places.

26. The *Kathakali* lamp is another type of floor lamp (Plate 15). It is a large sized plain type of floor lamp used on the *Kathakali* stage (dance-drama). The height is often a little below the height of a human figure as the precise purpose of the lamp is to radiate the light on the faces of the actors on the stage.

27. The *vanchi* lamp is still another type with a boat-shaped basin at the top of the stem. Five or six circular depressions at appropriate distances on the recess serve as receptacles for the oil and wick. These are connected with each other through an internal tube. If oil is poured in one of the receptacles it passes into others with the result that all are simultaneously fed.

28. The *sthamba* lamp is another type. A number of circular recesses are placed on a central stem. These receptacles are of



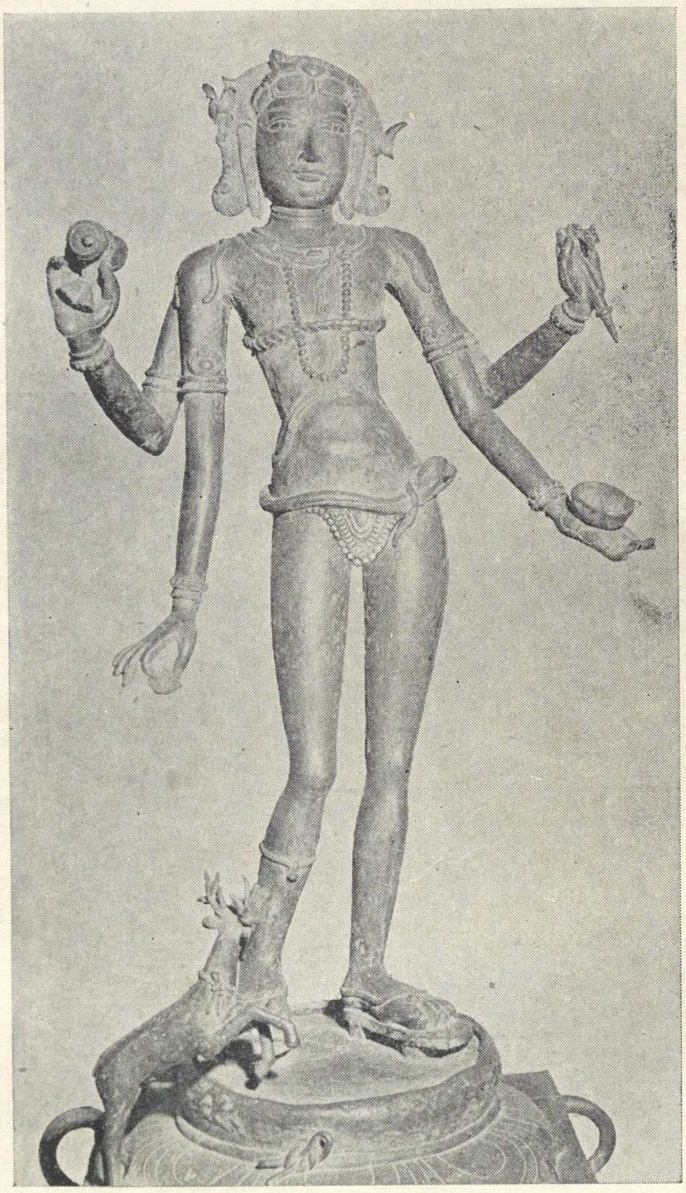
(Left) Pl. 5. NATARAJA DANCING OVER APASMARAMURTI

This image which represents the suppression of evil by Siva is 3 ft. 9 in. in height': A ring of light surrounds the image: Trivandrum Museum



(Right) Pl. 6. SIVA AND SATHI

Height 2 ft. 6 in.: Trivandrum Museum



Pl. 7. MENDICANT SIVA

Bell-metal image of Siva as mendicant:
Height 3 ft. 2 in. : Trivandrum Museum



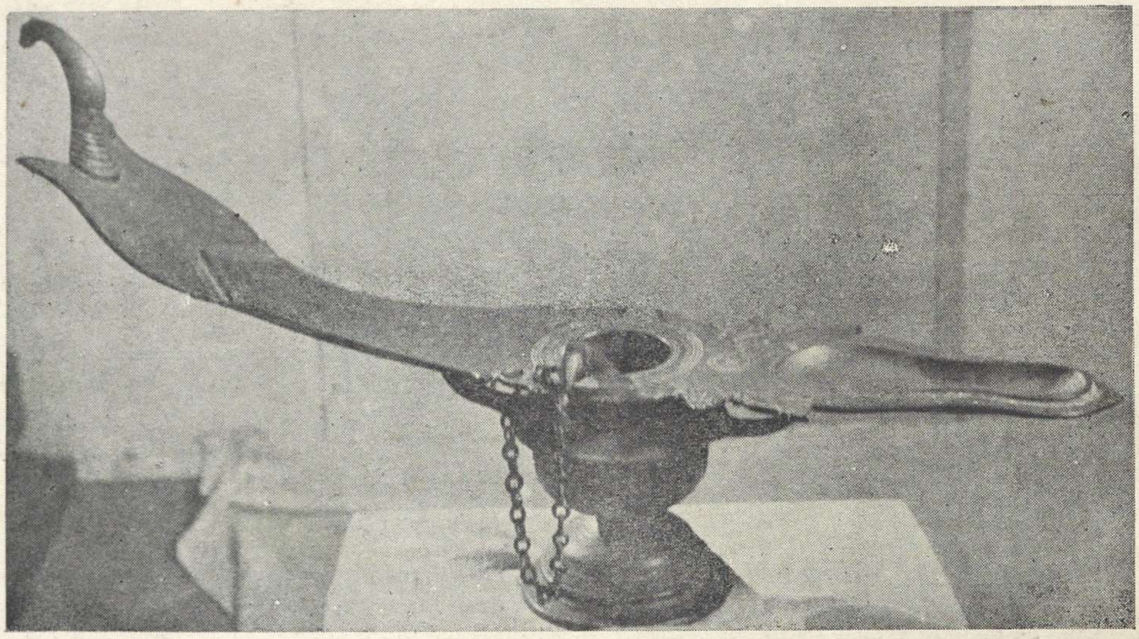
(Left) Pl. 8. GARUDA

Height 11 in. : Trivandrum Museum

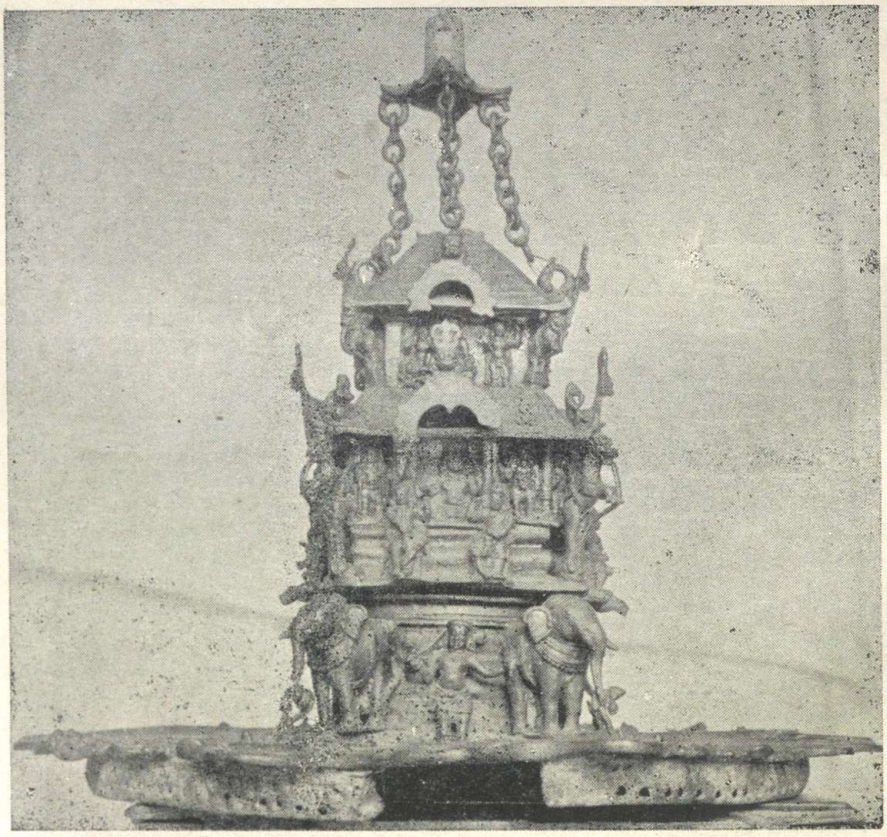


(Right) Pl. 9. GAJATHANDAVAM

Image of Siva in a dancing pose over the head of an elephant: Varies from the Nataraja both in posture and the resting of the foot on the head of the elephant instead of the customary demon: The dance represents Siva killing a demon (*Asura*) who had assumed the shape of an elephant. The story is described in Koormapurana and Varahapurana: Height 1 ft. including pedestal: Trivandrum Museum



Pl. 10. THE GREEK LAMP Trivandrum Museum



Pl. 11. THE TOWER HANGING LAMP Trichur Museum

varying sizes, the largest one being at the bottom and smaller ones being arranged above it at suitable intervals in the order of their size so much so that the lamp gets a conical shape. This type of lamp is used in temples only.

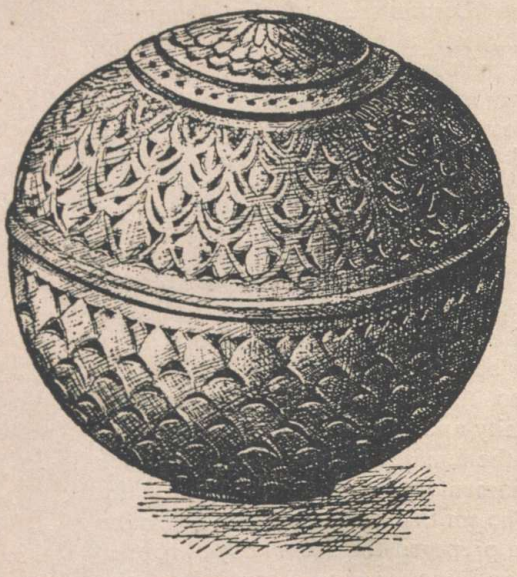
29. The temple torch-light is a type of hand lamp with a boat-like base on the top of which as many receptacles as necessary are placed. At the bottom of the base is a socket into which a circular handle could be introduced to enable the bearer of the light to hold it sufficiently high in processions.

30. A large variety of wall lamps were also in vogue. The brass and bronze lamps were accorded a place of importance by several communities in Kerala. In Hindu houses these lamps are invariably used for offering light to the family deity. Both in the morning and evening the housewife carries the light to the front courtyard and places it in the verandah in front of the main entrance. In Hindu marriages the bronze lamp is lit in front of the bridal platform. In some of the Christian houses also the bronze lamp is lit on auspicious occasions like the reception of the couple in a marriage ceremony. This recognition accorded to the bronze or brass lamps has survived through ages in spite of modern electric light.

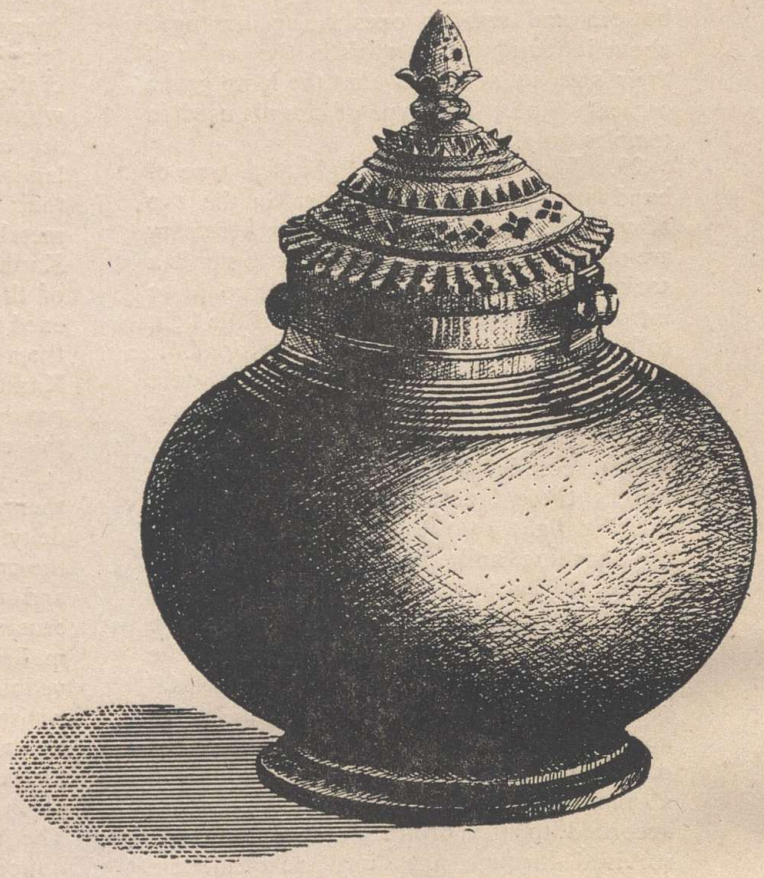
The Aranmula *Kannadi* (Metal Mirror)

31. The *Aranmula kannadi*, otherwise known as metal mirror, is named after the village of Aranmula in Chengannur taluk, the place where it was first produced. This mirror has the hoary tradition of being a wonderful work of art-craft which not only equals but excels the glass mirror. Made out of an alloy of copper and tin, this mirror is usually oval in shape, 6″ by 4″ in size and about 1/5 of an inch thick. It has got a small tail-like handle by which it can be held. The polished surface of the mirror though metal, resembles glass in all its details and any object placed against it is reflected fully and clearly. The tradition about the origin of this mirror goes that about 400 years ago the Chief of the Managing Committee of the Aranmula temple, himself a patron of the arts and crafts, brought in a few families of Kannans whose profession was bronze casting and settled them in his territory, granting them lands and privileges with a view to getting their services for the production of bell-metal utensils. It so happened that these Kannans failed several times in their casting of the articles whereupon the Chief threatened to withdraw the privileges granted to them and evict them from his territory. The Kannans became frightened and offered prayers to the deity to protect them from this calamity and render their work successful. All the female folk offered to sacrifice their ornaments to make a crown for the deity. The smiths who attempted to make the crown prepared the usual alloy of copper and tin and the women threw into the crucible all their ornaments which were made of pure tin. The product was marvellous, resembling silver in colour and when polished, it acquired the quality of mirror-like reflection. The crown was presented to the deity and the deity is even now known as the *Kannadi Bimbom* (idol of mirror). The quality of the reflection which was noticed as resulting from the use of this new alloy was pursued by the smiths who succeeded in continuing to make mirrors out of it. The Chief, who was pleased with the performance of the smiths, encouraged them by insisting on the inclusion of a metal mirror as a part of *Ashtamangalyam* (the eight auspicious articles used in religious ceremonies).[1] It created a great demand for these metal mirrors and thereby facilitated the growth of the industry in that village. The families now engaged in the production of this mirror have been reduced to very few for the Aranmula metal mirror remains more of a historic relic than as an article of lively sale. However, the production of this mirror has been now undertaken successfully by the School of Arts, Trivandrum. Under the third Five Year Plan, a training

(1) Census of India, 1931, Travancore Part I, Report, page 454



AN INCENSE BURNER

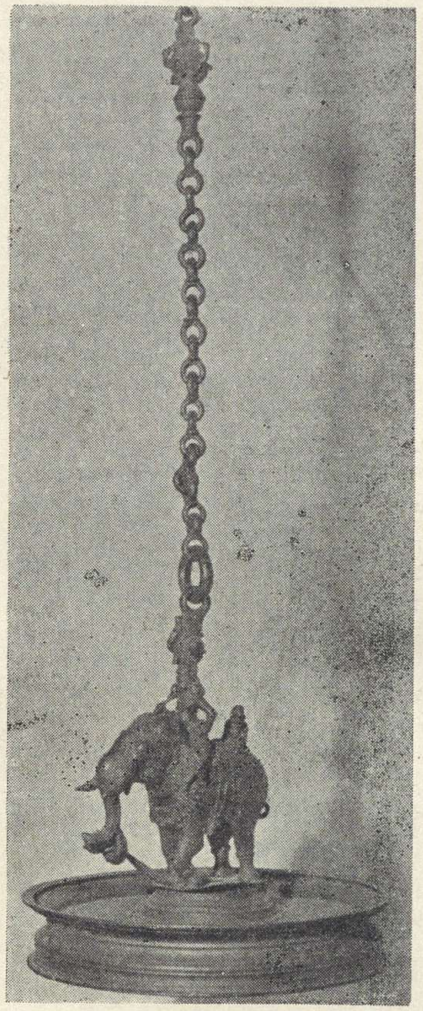


ANOTHER INCENSE BURNER

centre has been started at Aranmula to impart training to students in the production of metal mirror. The period of training is eighteen months. Ten students are given training in this centre.

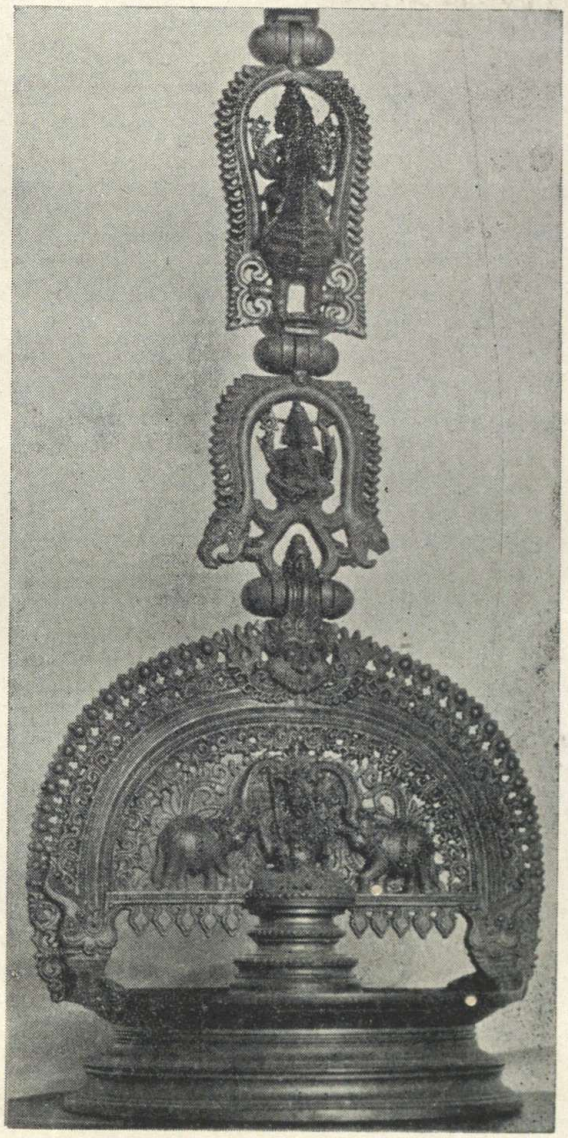
Other Articles of Interest

32. A pretty large variety of other articles of interest were produced in ancient days in bell-metal, an exhaustive cataloguing of which is hardly possible. Mention may, however, be made of a few among them. The illustrations given in this monograph contain the pictures of incense burners. The elaborate ornamentation on them leaving holes matching with the designs in appropriate places as outlets for smoke is particularly noteworthy.



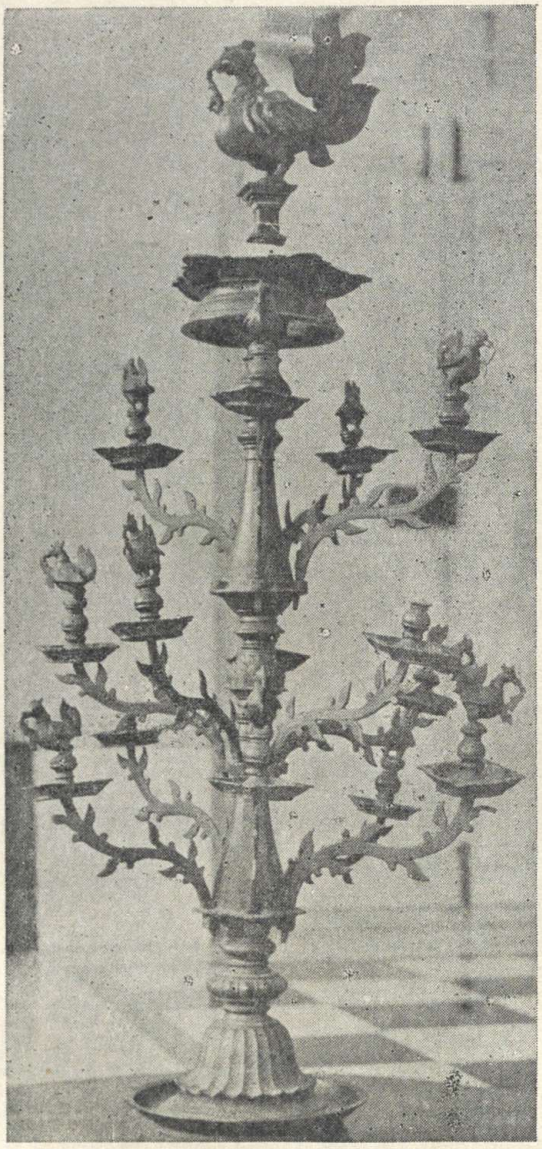
(Left) Pl. 12. THE ELEPHANT HANGING LAMP

Trichur Museum



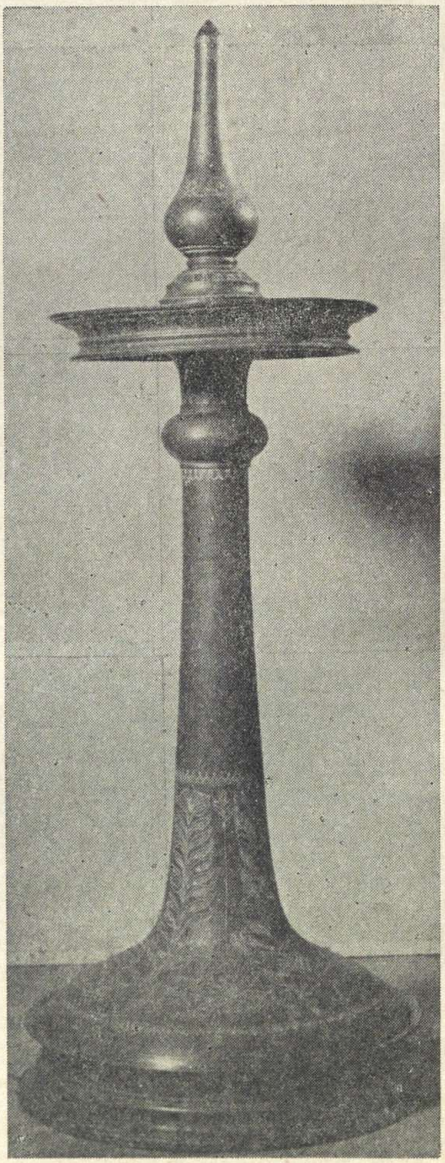
(Right) Pl. 13. AN ANCIENT GAJALEKSHMI HANGING LAMP

Elephants are shown pouring cosmic energy over Goddess Lekshmi: Trichur Museum



(Left) Pl. 14. HAMSA LAMP

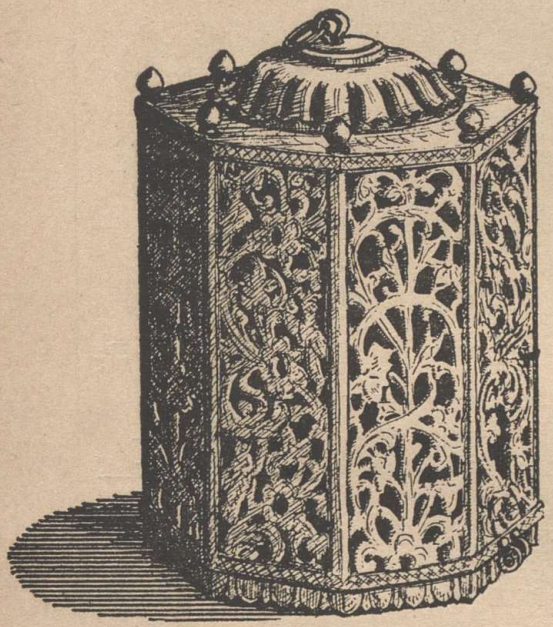
The figures of birds represent swans (*Hamsa*) : Trichur Museum



(Right) Pl. 15. THE KATHAKALI LAMP

Height 5 ft. : Trivandrum Museum

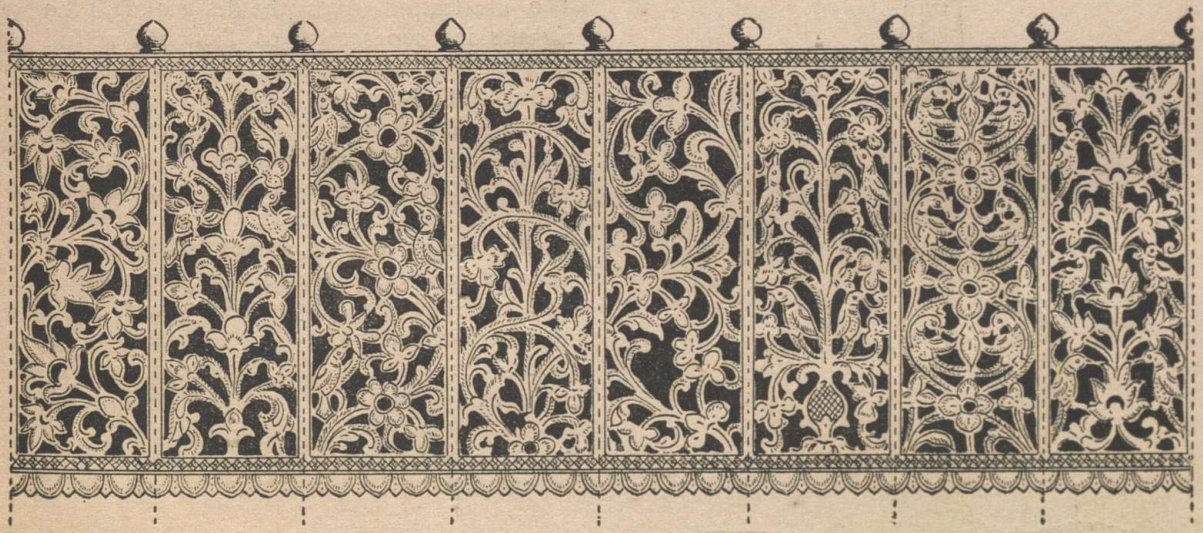
A cosmetics box used by ladies in ancient days is also given in the illustrations. It is an octagonal one, each side of the octagon having a different design. The minute care with which the details of designs are worked out are typical of ancient works.



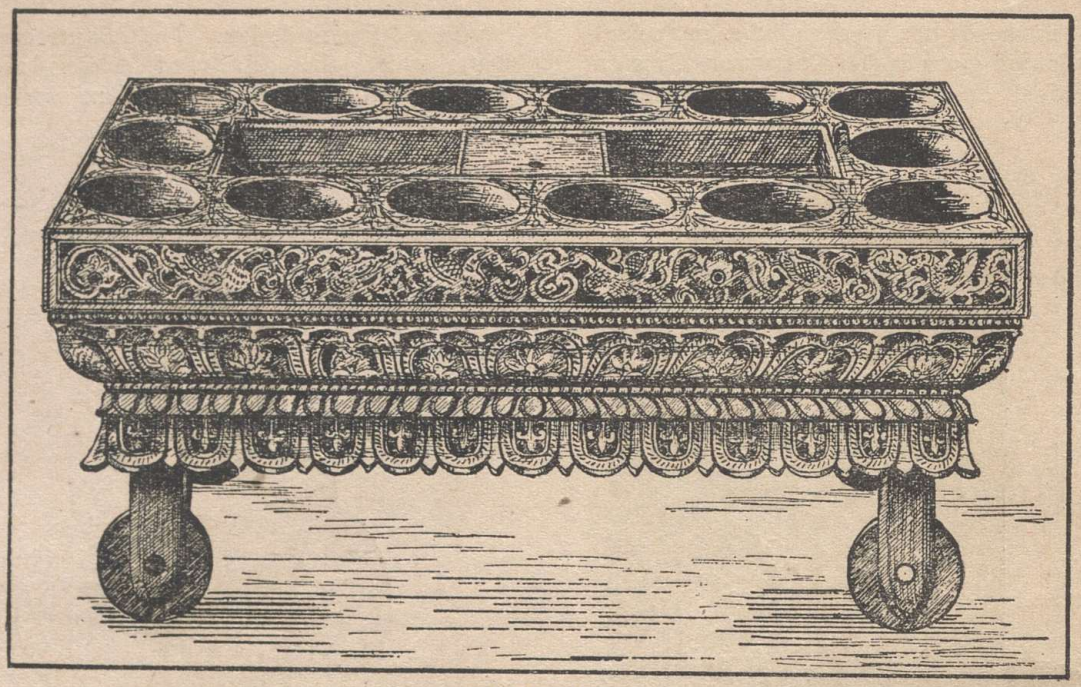
A COSMETICS BOX



ANOTHER COSMETICS BOX



ORNAMENTAL SIDES OF THE COSMETICS BOX EACH CARRYING A DIFFERENT DESIGN



PALLANKUZHI

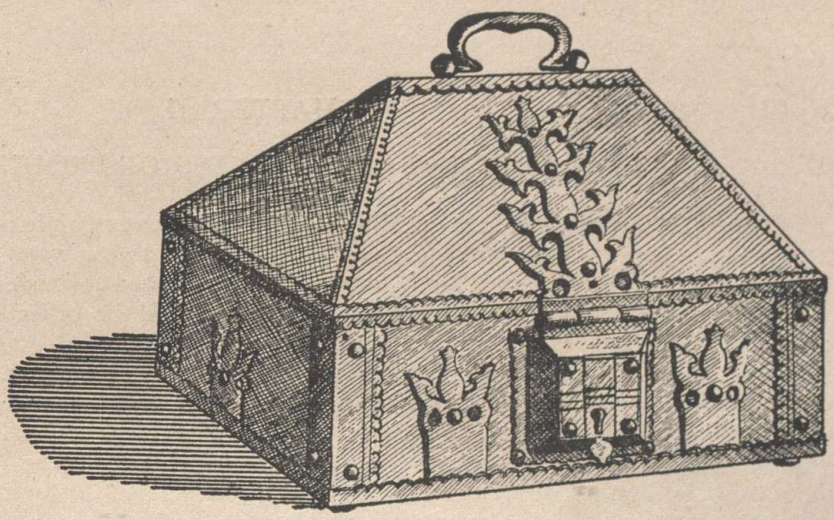


AN OILCAN

The illustration gives the designs of all the eight sides separately to facilitate a full appreciation of the artistic perfection embodied in the work.

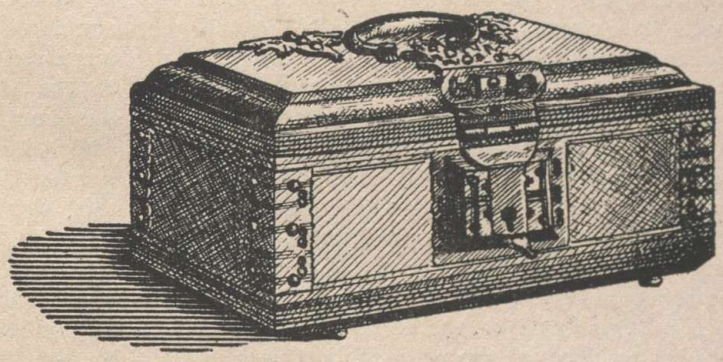
The *pallankuzhi* is another example of a beautifully moulded indoor game tablet. Apart from the decorative work on the sides, the concave-shaped depressions on the top mark the excellence of finish in plain style. There are 14 such depressions. The tablet was usually used by well to-do families for recreation.

An oilcan given in the illustration speaks for itself.



A NETTURPETTY

Jewel box of ancient days
Length 13.3 in.
Breadth 10 in.
Height 8 1/2 in.



A CHELLAM

33. Another article of interest is the *netturpetty* with eight sides, four sides at the bottom and four sides at the top converging in a line at the top. The ornamentation on the joints is both delicate and perfect. This type of box made in brass is found in almost every rich or middle class family in Kerala.

The *chellam* used as a box to preserve chewing materials like betel, areca-nut, tobacco etc. and the lime pot the pictures of which are given here are also works of artistic finish and durability at the same time.



A LIME POT

CHAPTER II

THE ARTISANS AND PROCESS OF PRODUCTION

34. The Moosaris are the traditional artisans engaged in bell-metal casting in Kerala. They form the early immigrants to Kerala from the Tamil districts, and belong to one of the six classes of Kammalas who, according to epigraphic records, were in existence in Malabar as early as the beginning of the 9th century A. D. A Syrian Christian grant of this period refers to Kammalas as the *aymvazhi* Kammalas. The name Kammala means the maker of an article pleasing to the eye.[1] The Kammalas are divided into five occupational groups viz, Asaris (carpenters), Kallasaris (masons), Karuvans (blacksmiths), Moosaris (bell-metal smiths), Thattans (goldsmiths) and Tholkollans (cobblers). The Kammalas believe themselves to have sprung up from 'Viswakarma' the divine architect and claiming this divine parentage they profess superiority over Brahmans who are mortal *rishis*. This claim, however, is of recent origin, according to Shri. L. K. Ananthakrishna Iyer, the author of 'Cochin Castes and Tribes'. Some of the inscriptions of 1013 A. D. show that at that time the Kammalas had to live outside the villages in hamlets of their own like the Parayas and other similar low castes. A later inscription reveals an order of one of the Chola Kings to the effect that the Kammalas should be permitted to blow conches, beat drums for their own weddings and funerals, wear sandals and plaster their houses, which by implication indicates that these privileges were not enjoyed by them before. The following legend in respect of their origin is given by Edgar Thurston[2] on the authority of Canter Visscher. In the time of Cheraman Perumal, a woman belonging to the washerman caste whose house adjoined that of an Asari (carpenter) while occupied, as usual, in washing a cloth in water mixed with ashes (which is here used as soap), and having no one at hand to hold the other end of it, called a young daughter of an Asari, who was alone in the house to assist her. The child, not knowing that this was an infringement of the laws of her caste, did as she was requested and then went home. The washerwoman was emboldened by this affair to enter the Asari's house a few days afterwards; and upon the latter questioning her as to how she dared to cross his threshold, the woman answered scornfully that he belonged now to the same caste as she did since his daughter had helped her to hold the cloth. The Asari, learning the disgrace that had befallen him, killed the washerwoman. Upon this, her friends complained to Cheraman Perumal, who espoused their cause, and threatened the carpenters whereupon the latter combined together to take refuge in Ceylon where they were favourably received by the King of Candy for whom the Malabarians had great veneration. Cheraman Perumal was placed in great embarrassment by their departure having no one in his dominions who could build a house or make a spoon, and begged the King of Candy to send them back with the promise to do them no injury. The Asaris not placing their confidence in these promises asked the king to send them with two *Chegos (Chogans)* and their wives to witness Cheraman Perumal's conduct towards them, and to protect them. The king granted the request with the stipulation that on all important occasions such as weddings, deaths and other ceremonies the Asaris should bestow three measures of rice on each of these *Chegos* and

(1) Castes and Tribes of Southern India by Edgar Thurston, Vol. III, page 106
(2) Ibid, page 136

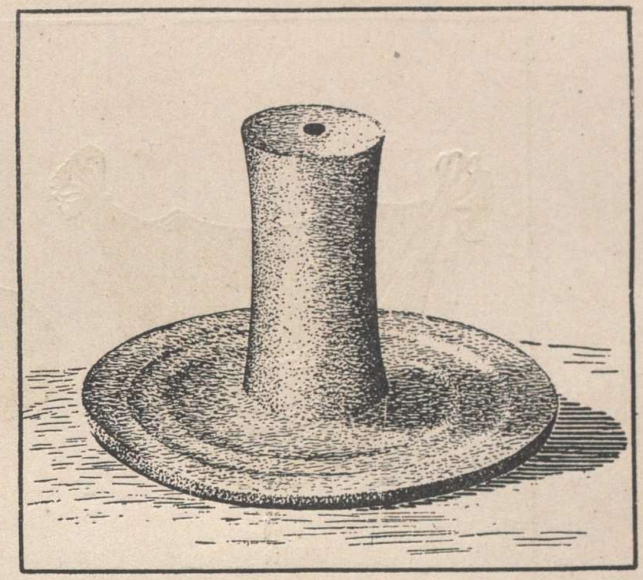
their descendants as a tribute for their protection, a custom which is still said to exist. If the Asari is too poor to afford the outlay, he is still obliged to present the requisite quantity of rice which is then given back to him again, the privilege of the *Chegos* being thus maintained.

The Cire Perdue Process

35. The process employed in the manufacture of bell-metal products is known in Europe as the *cire perdue*. It consists mainly of three parts, making the mould, casting and finishing the products.

36. First, a 'core' or 'mould' in accordance with the size and form of the article to be produced is made. Fine and sticky river-bed clay is collected for the purpose. The grit and stone pieces in the clay are removed by sedimentation. It is then dried in the sun for about three hours. The dried up clay is mixed with water and kept in that condition for twenty-four hours. Next day, the clay is mixed with the husk of raw rice in the ratio of 5:1 and kneaded into a fine paste. Clay balls of convenient sizes are then taken out of this for making the core. A cylinder of about 6″ height with a hole passing through it is then made out of this clay which forms the axle of the mould. When the cylinder is completely dried up, the craftsman starts giving shape to the mould from the bottom of the cylinder. Every round completed is dried in the sun and further quantities added to it and dried. Thus, by successive stages, a rough shape of the article intended to be produced is achieved in the mould. The whole process is worked by hand alone. When the mould is completed, it is coated with a fine paste made out of the powdered burnt clay and dried. The burnt clay for the purpose is taken out of moulds discarded after use. At this stage the mould presents a fine exterior with the axle in the centre, the size of the mould being identical with the article the mould represents (Plate 17). This is followed by the waxing process.

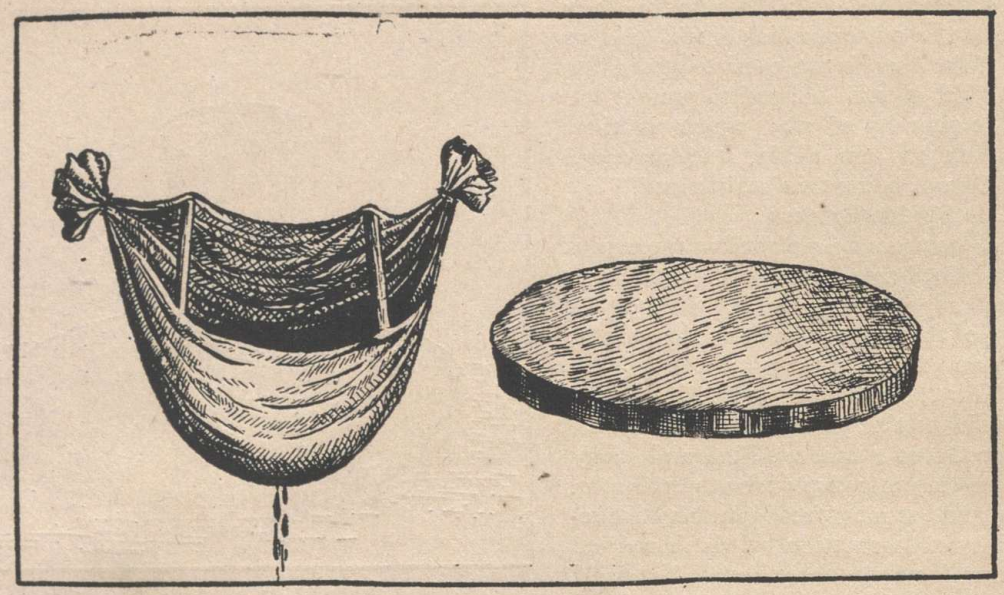
37. Pure bee's wax is mixed with an aromatic resin viz, of *Boswellia thurifera (kunthurukam or kungiliyam)* in the proportion of



MOULD AT THE INITIAL STAGE

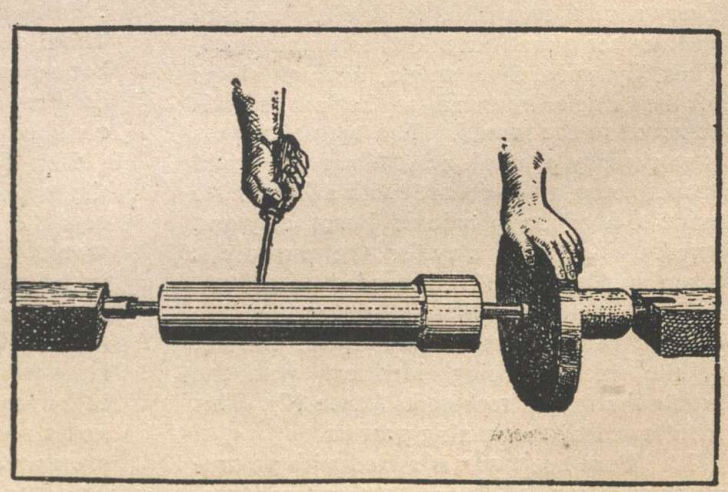
1: 3. For every pound of wax about six ounces of castor oil is also added. The mixture is then heated in an earthen pot for about 10 minutes when it will be melted. The liquid thus formed on melting is filtered through the fine mesh of a cotton cloth, the filtered solution being received in a pot containing cold water. Ten minutes later, the wax is taken out and kneaded by hand on a plank to render it softer and then rolled and cut into discs 1″ thick and 5″ in diameter. These discs are stored in vessels containing hot water. Small pieces of wax are taken out of them to indicate the thickness of the wax coating required.

38. The next stage consists of coating the mould with wax. The *cire perdue* process is also known as the lost wax process whereby the wax coating given to the mould is later removed by melting it thereby creating a hollow space to receive the molten metal. The mould is first turned on the lathe which consists of a simple mechanism called *achuthadi* with a small wooden wheel and a rod passing through it. Two wooden stands are fixed on either side of a pit (if the article to be produced is of very large diameter the wooden stands will be

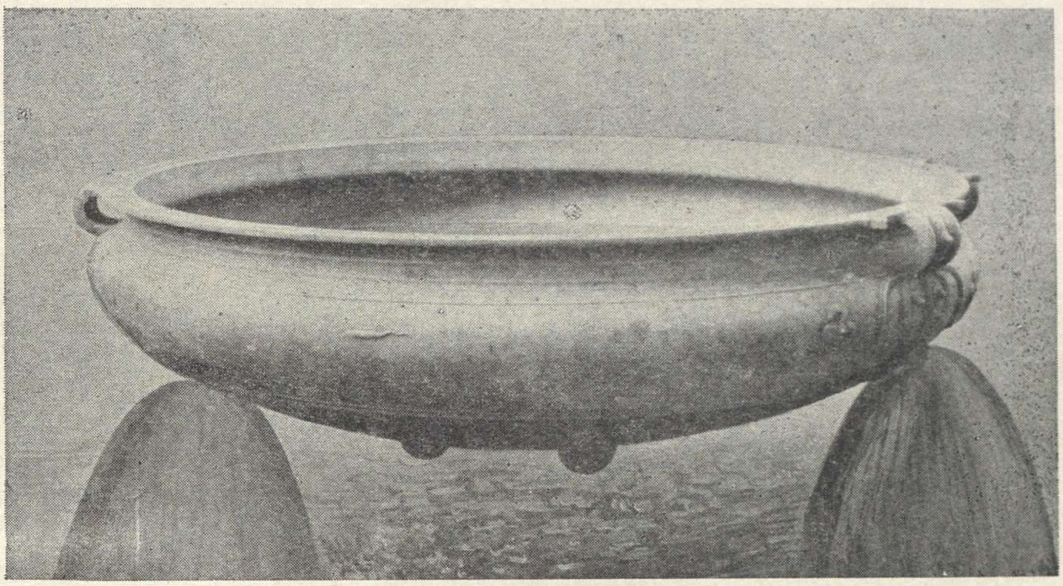


THE WAX FILTER AND FILTERED WAX CAKE

tall and there will be no pit). The rod will be inserted through the hole passing through the axle of the mould and both edges of the rod fitted to the wooden stands. Thus the mould is fitted to the lathe. The wheel is then gently turned by hand. The outer coating of fine paste given to the mould is first turned on the lathe with the end of a chisel touching it. When it is sufficiently polished, it is time to apply the wax. The discs of wax stored in hot water are taken out and the mould is covered by the wax which will match with the thickness of the article. To secure evenness in thickness the sample piece indicating this thickness will be placed on the mould. Perhaps the most interesting part of the work of metal craftsman is the waxing of the mould. When the wax is placed on the mould, he gently turns the wheel of the lathe with his left hand and with the touch of the heated edge of an iron tool held in his right hand, the wax is evenly spread on the mould and the designs proposed for decorating the article to be produced are then marked (Plate 18). One could hardly imagine that this waxed product could be made on a lathe with such a simple instrument. Herein lies the real art of the bell-metal craftsmen of Kerala. If the

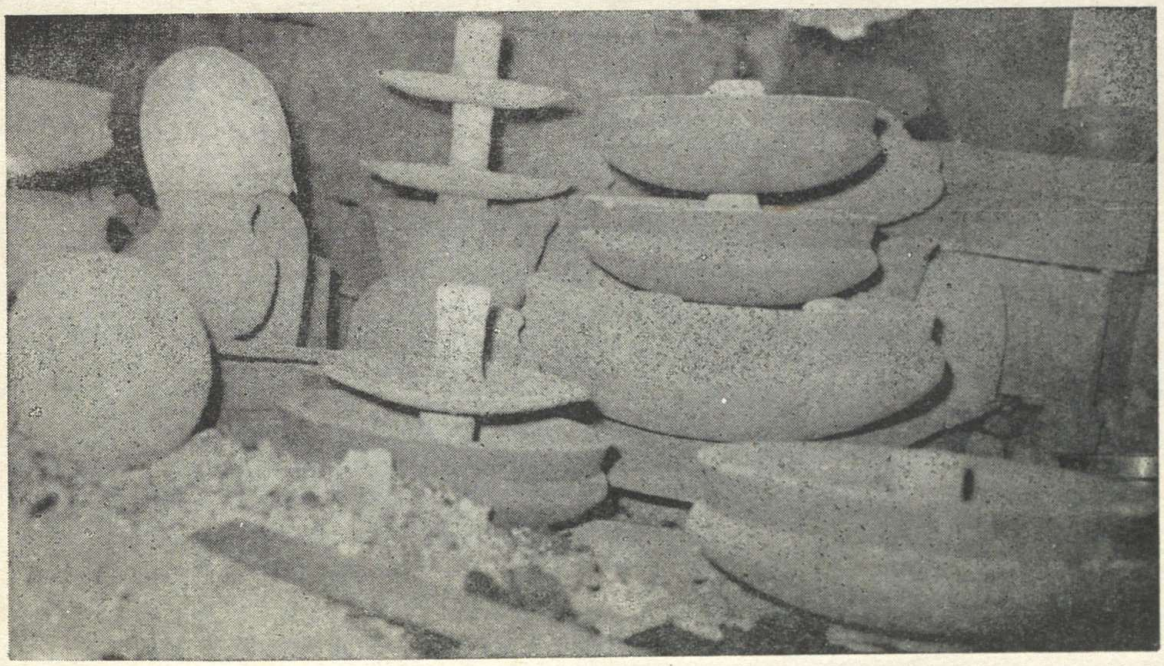


THE WAX BEING APPLIED TO THE MOULD



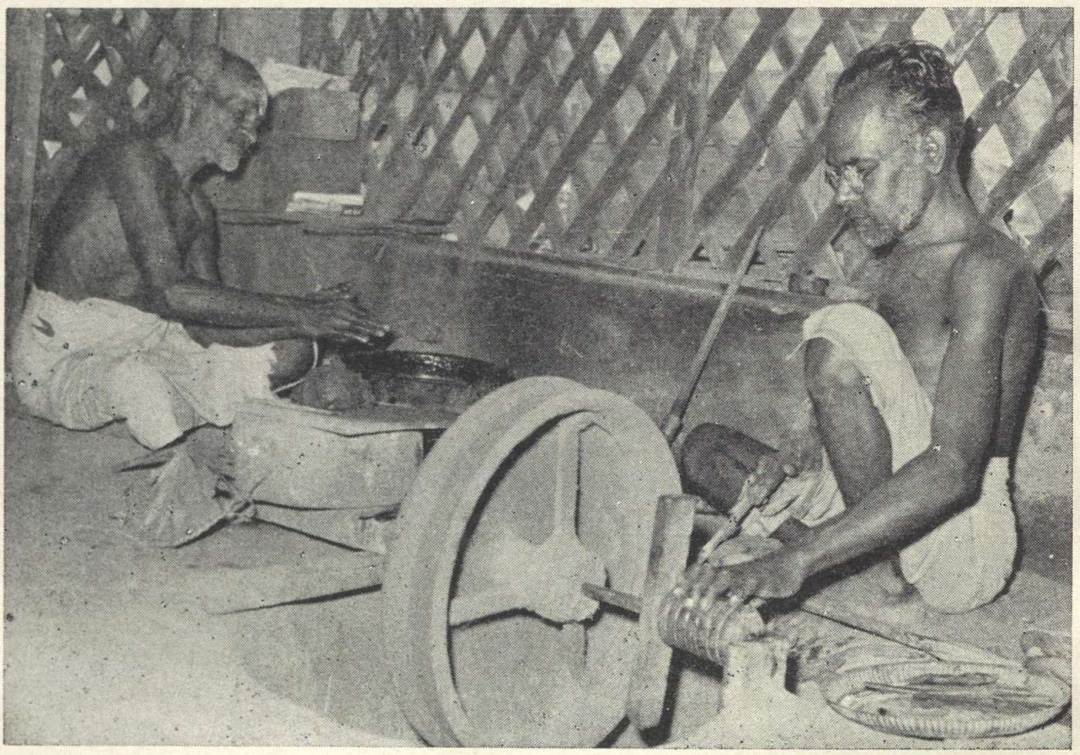
Pl. 16. 'VARPU', THE QUEEN OF VESSELS

Diameter 6 ft. 4 1/2 in. : Depth 1 ft. 9 in. : Guruvayur Temple



Pl. 17. A COLLECTION OF CORES OR MOULDS AT VARIOUS STAGES

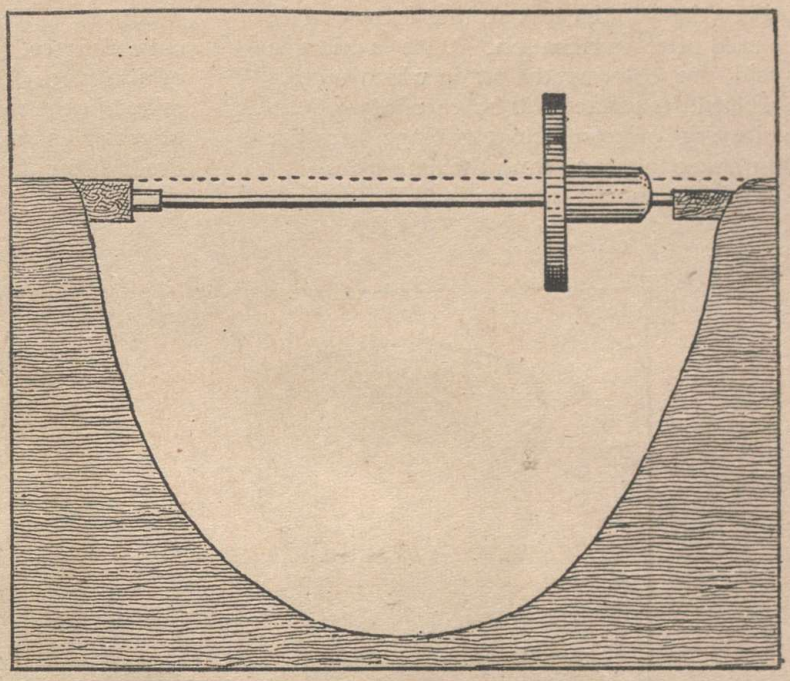
These have been covered with fine burnt clay paste and dried; they are ready to be put on the turning lathe where they will be scraped to alabaster smoothness with the ends of steel chisels



Pl. 18. AT THE LATHE

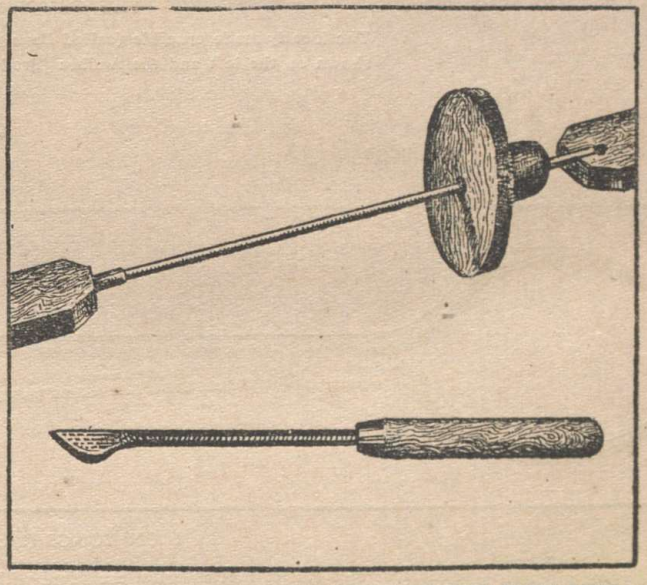
The mould having been fitted on the lathe, the craftsman slowly rotates with his left hand the wooden wheel that turns it while with his right hand he spreads the warm wax preparation evenly over the smooth surface of the mould with the end of the iron *kata irumpu* to the thickness of the walls of the bell-metal utensils. At the extreme left in the illustration, another artisan flattens pieces of wax to the required thickness of the metal between his palms for the *Moosari* at the lathe to apply on the mould by means of the *kata irumpu*. When the waxing process is finished, if incised designs or surface modelling are required, it is at this point that such work is done by stylus or by hand.

Moosari is not an experienced artisan the wax coating will be uneven and imperfect. The more experienced he is, the more the coating receives perfection and evenness. When the mould is thus coated with the wax to its appropriate thickness and the designs intended for the proposed article are made, it is taken out of the lathe by removing the cylindrical rod of the lathe from the hole of the axle. The replica thus being complete, the outer covering which forms the mould must now be applied. This outer covering consists of a paste of burnt clay sufficiently thin to find its way into every detail of the wax replica and is, therefore, applied as evenly as possible. Several such coatings are applied so that when dried there is a thick outer coating and a solid inner coating holding the wax mould or replica in between. A final coating of clay mixed with husk is added and broken pieces of tiles are stuck on the outer covering to ensure that the wax replica remains firmly encased within the womb of the mould. An opening called the *anthrakkal* is provided in the outer shell for evacuating the wax when it is melted and also for pouring molten metal at the time of casting into the cavity thus made. The outer coating is allowed to dry in the sun for about four days.



THE LATHE ON WHICH THE MOULD WILL BE FITTED FOR THE WAXING OPERATION BY INSERTING THE DETACHABLE LATHE ROD THROUGH THE MOULD'S AXLE HOLE

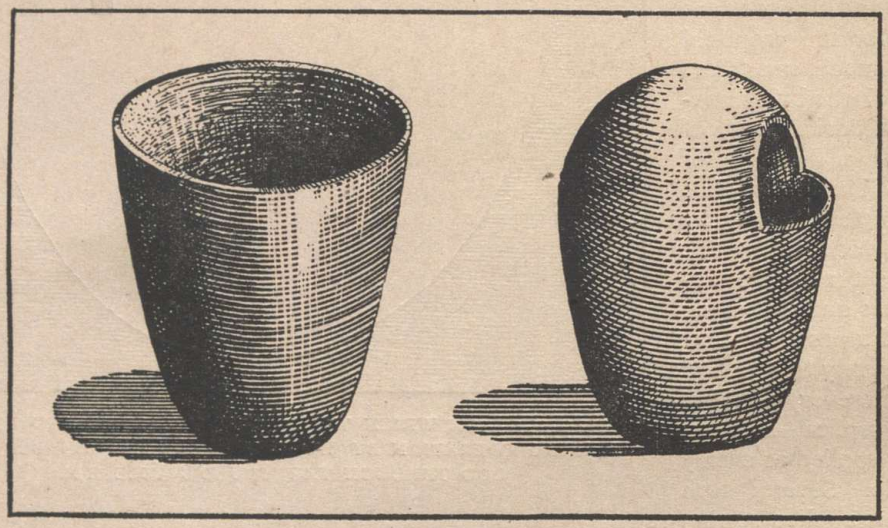
39. The mould is then placed in a small pit, covered with dry cocoanut husks and the fire is set. As the mould becomes heated the wax melts and finds its way out through the *anthrakkal* to a small pit made to



ANOTHER VIEW OF THE LATHE AND THE IRON TOOL (*KATA IRIMPU*) WITH WHICH THE WAX IS APPLIED ON THE CORE OR MOULD

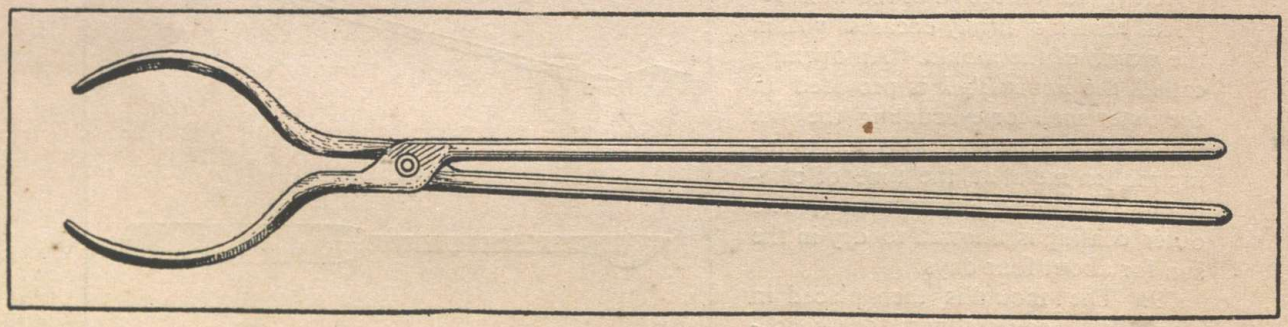
collect the molten wax so that it may again be used after purification. With a view to avoid fire entering the pit in which wax is collected, its surface will be carefully covered leaving only sufficient passage for the liquid wax to escape from the *anthrakkal.*

40. The mould is now ready for casting. Metal is melted in ceramic crucibles on a coke furnace. The crucibles are made out of a mixture of clay and charcoal of husks mixed in the ratio of 2:1. Superior varieties of crucibles are also imported from Andhra Pradesh for this purpose.



THE CRUCIBLES

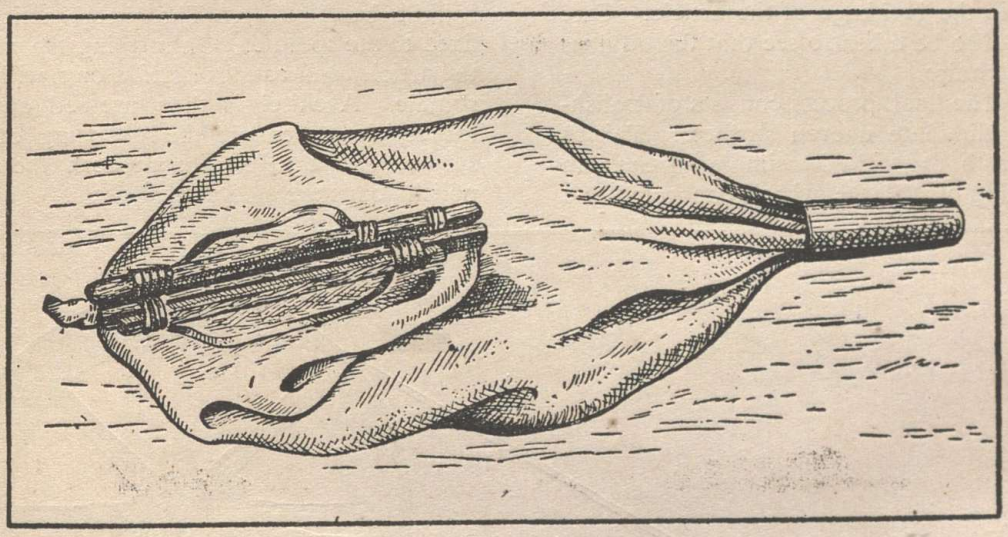
The locally made crucible (called *Kova* or *Moosa* in Malayalam) is shown on the left and the Andhra Pradesh crucible is on the right



IRON TONGS (*Koratu*)

(The crucibles full of molten metal are lifted with the *koratu* at the time of casting)

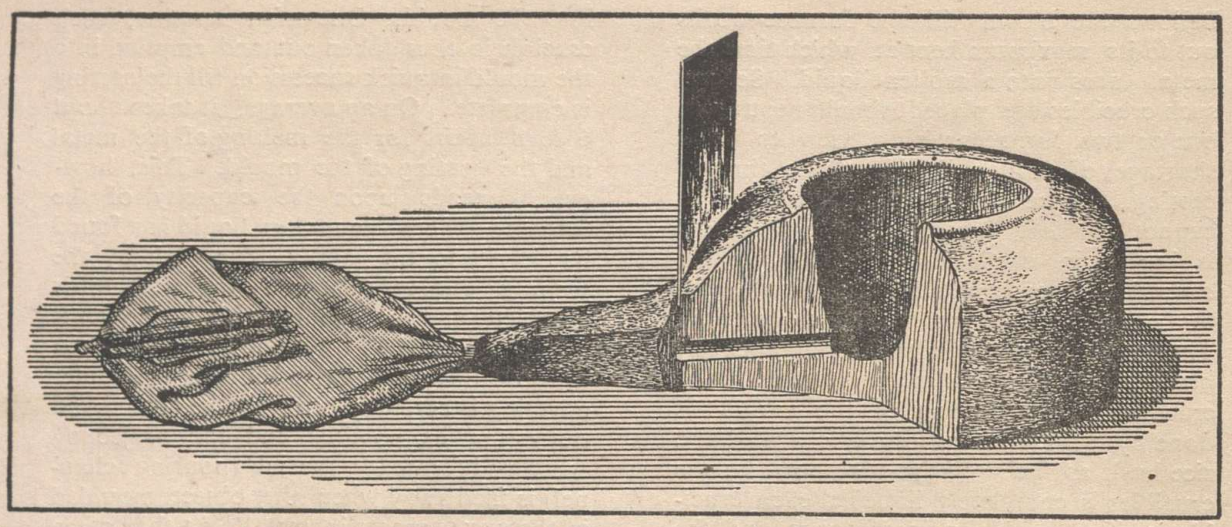
Bellows are blown till the furnace works out to its maximum heat at which time the metal turns into a molten liquid. Several such crucibles are placed simultaneously in one or two furnaces with a view to avoid shortage of molten liquid at the time of casting. Once the casting commences it cannot be left incomplete. The mould is buried in earth leaving out only the *anthrakkal* to ensure its firm position during the pouring of the molten liquid into it. The mould would have been simultaneously heated at the time the metal is heated in the crucibles. This heating of the mould is done by using cocoanut husk, charcoal and rice husk as fuel. When the metal in the crucibles is completely liquefied each crucible is lifted with a pair of tongs and the liquid is emptied through the *anthrakkal* into the mould. One after another, each crucible is thus taken out and emptied into the mould in quick succession till the casting is complete. On an average, it takes about 6 to 8 hours for the melting of the metal and the heating of the mould. This, however, depends upon the capacity of the furnace. When the molten liquid has found its way into the empty space left by the melting out of the wax the casting is complete and the mould with its contents lies buried in earth till it cools down. When it has sufficiently cooled down the outer covering is carefully broken, the core raked out as far as possible and the projecting metal rod formed in the jet (pouring channel) is filed away when the object moulded in the wax appears in metal. At this stage it is very brittle and requires annealing.



AN UNDERGROUND FURNACE

There are two kinds of furnaces. In one type the furnace remains underground except for a small opening at one end and the bellows at the other end. The bellows called *thuruthy* in Malayalam are made of goat-skin. In the second type the entire furnace remains above ground.

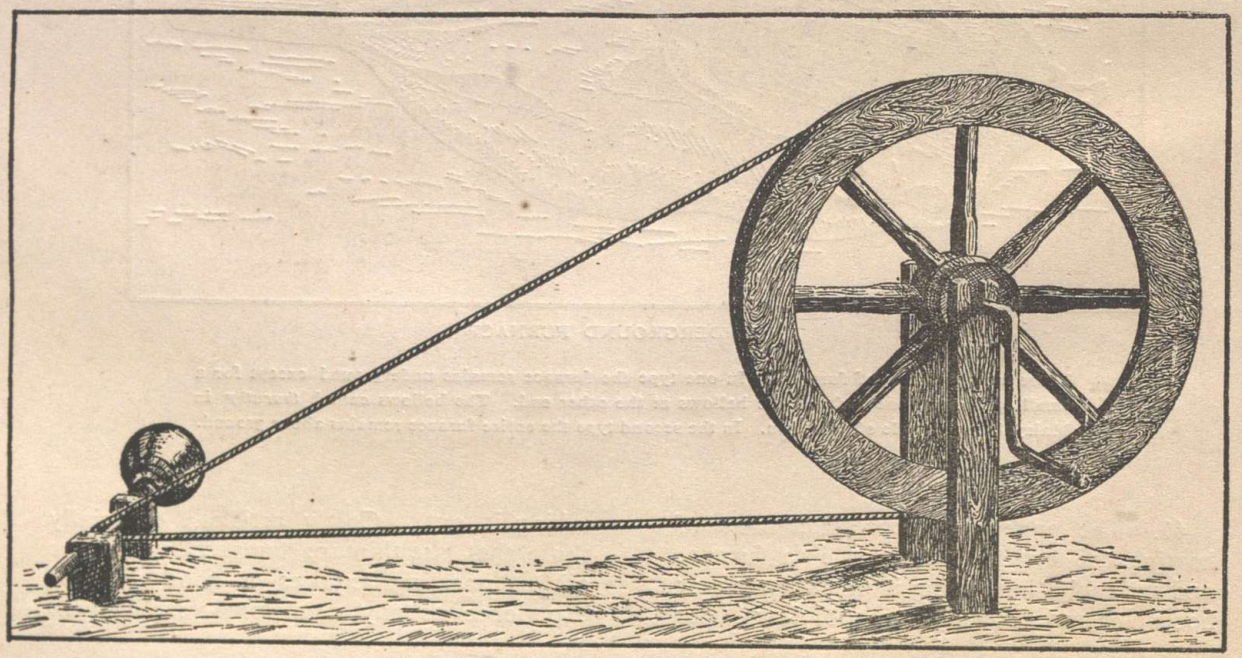
41. The annealing process consists of heating the article to dull red in a furnace and suddenly immersing it in lukewarm or hot water and allowing it to cool down after taking it out. Costly articles, especially those that are thin are tempered in sesame oil. Annealing requires a good deal of experience as any carelessness is likely to



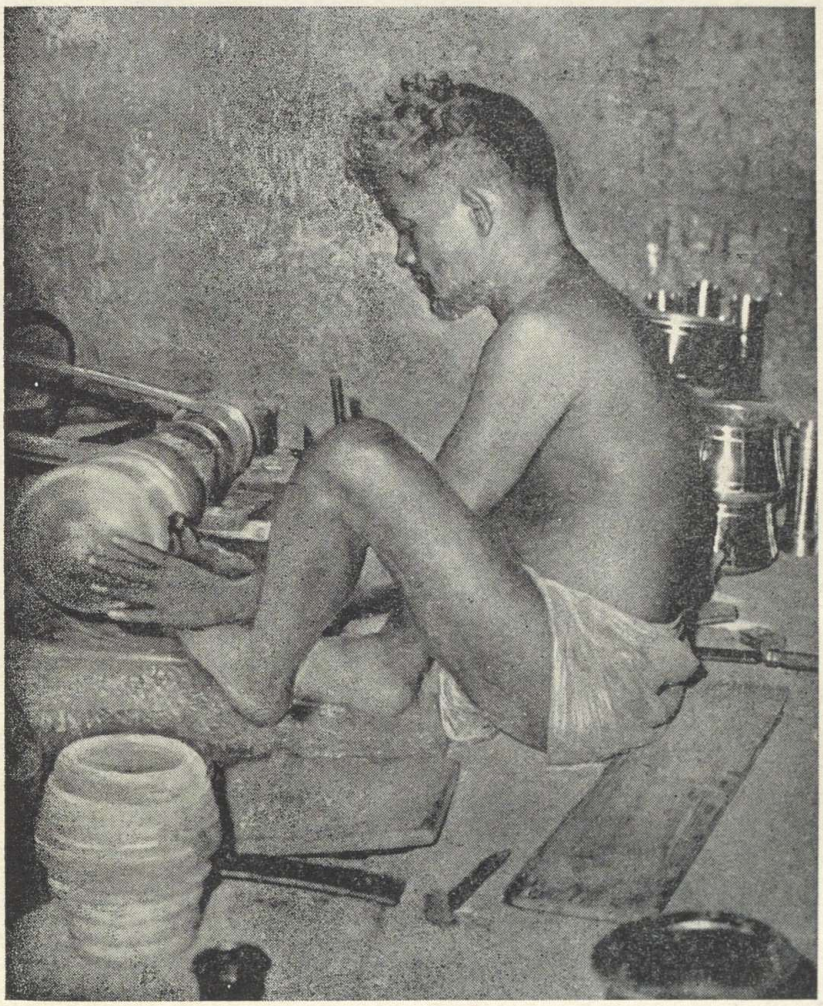
A sectional view of the outer type of furnace. (The kiln of this type of furnace is made out of clay and thoroughly baked).

result in the breakage of the article. Care should also be taken to see that the oil does not catch fire.

42. The final process consists of polishing to eliminate uneven surfaces. This is done with the aid of a simple mechanism consisting of a large wheel connected to a spindle by a string. The metal article is fixed to the spindle. On rotating the wheel, the article also rotates itself along with the spindle. A chisel is then pressed against the article to ensure the polishing of the surface (Plate 19). In modern factories polish soaps are also used.



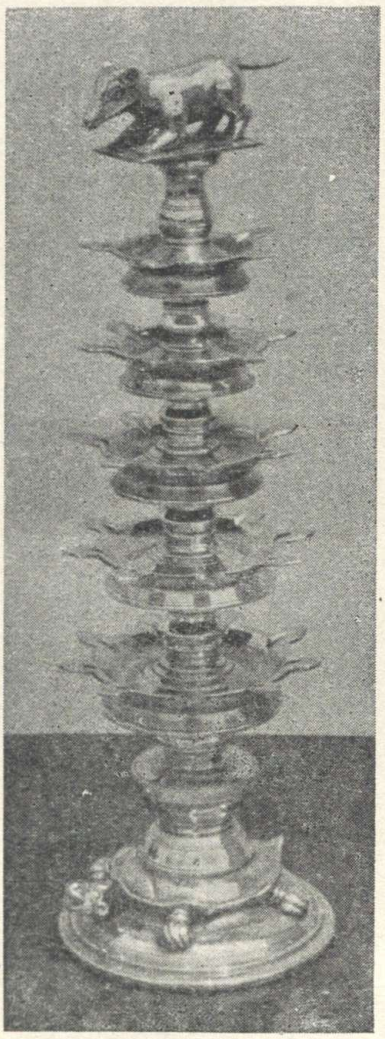
A HAND-DRIVEN POLISHING WHEEL



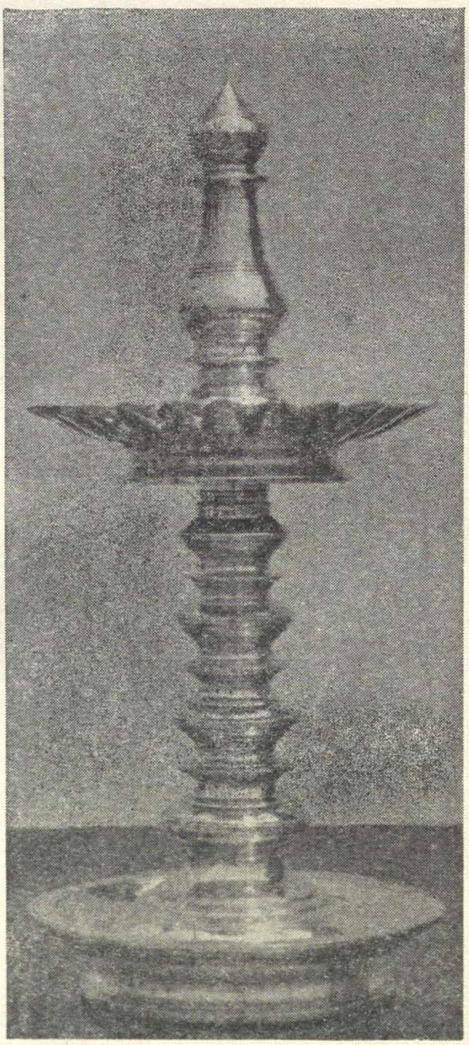
Pl. 19. POLISHING

The final craft process in the production of bell-metal domestic utensils—that of polishing away the uneven surfaces—finds the *Moosari* pressing a chisel against the newly cast object as it revolves on the polishing wheel.

MODERN LAMPS

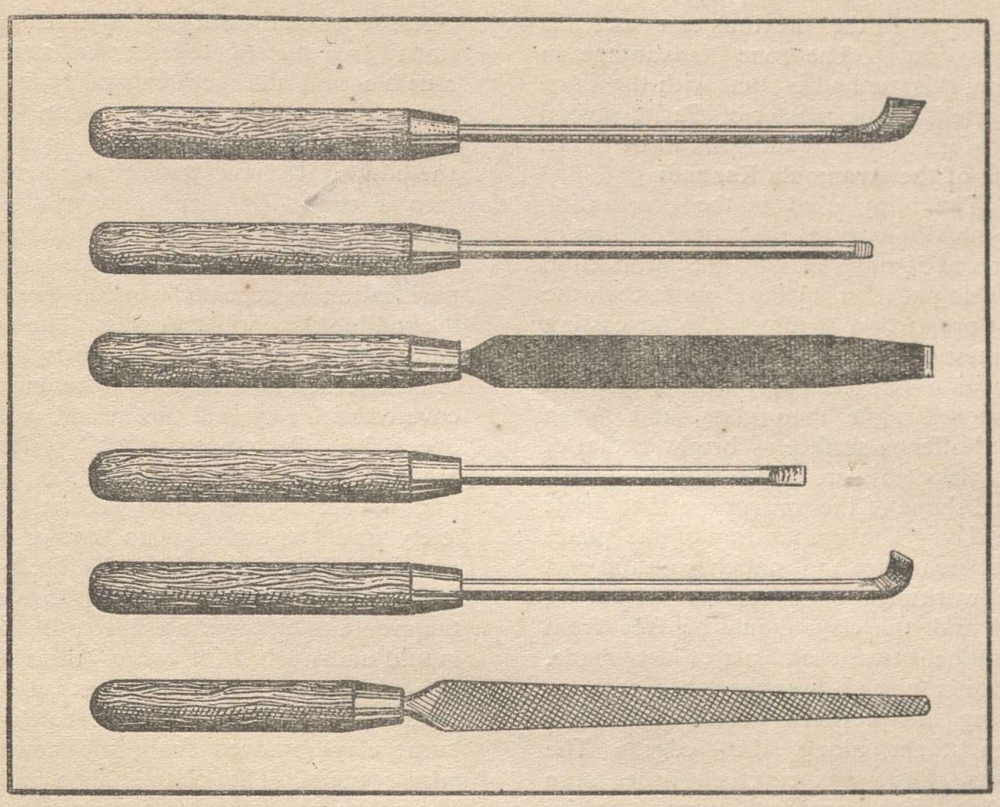


(Left) Pl. 20. DEEPASTHAMBHAM



(Right) Pl. 21. THARABHADRADEEPAM

(The Plates 20 to 26, 28 and 29 were photographed from the bell-metal shop of Shri P. Madhavan Thampi, Trivandrum)



THE POLISHING INSTRUMENTS

(From top to bottom)

1. 'OTTAKONE KADACHIL ULI' 3 & 4. 'CHERIA ULI'
2. 'VATTAVATHALA' 5. 'NIRAPPUVATHALA'
6. 'ARAM' (FILE)

Image casting

43. The process is slightly different for the casting of images. After the proportions of the image are decided the sketch is drawn by the artist himself and the figure is modelled in wax and given a coating of a fine paste of burnt clay and allowed to dry in the shade. When the first coating is dried up, another coating is given by a paste made of burnt clay and fine clay. At times a third coating is also given and broken pieces of earthen pot are stuck to the clay coating to ensure the firmness of the mould. This also will be dried in the sun. When the mould is heated the wax melts and flows out. This is followed by metal casting which process is the same as in the case of others already described. Another method which is also in vogue is that the image is made out of clay and a solution of plaster of Paris is poured on the surface of one side of the mould. When dried, it is taken out and the same process is repeated for the other side of the image. These two pieces of plaster of Paris are sealed together and the wax solution is poured into it through a pouring channel made for the purpose. When it has sufficiently cooled down, the pieces of plaster of Paris are removed leaving the replica in wax. The replica is then covered

with clay as in the previous case and the metal is cast. The one advantage in adopting this method is that with the same outer shells of the plaster of Paris, several replicas for casting the images can be made.

Casting of the Aranmula Kannadi

44. The alloy used in the preparation of the metal mirror consists of 10 parts of copper and 5¼ parts of tin, the proportion of tin being at least 1½ times more than the highest proportion of tin used in the casting of domestic utensils. The alloy of this composition is exceedingly brittle, perhaps even more fragile than glass, and when polished offers a surface as bright as that of a cut glass mirror. Two plates of the required shape of the mirror are first made of fine clay. The preparation of the plates requires great care and patience on the part of the workmen. The surface should be smooth and the clay should be free from grit. When two such plates are made, one plate is placed over the other with an oval ring of prepared wax sandwiched between them along the edge. The thickness of the wax ring is a little more than that of the required mirror thereby creating an oval cavity between the two plates of clay. It is this cavity that is ultimately filled with the molten metal after draining the wax by heating to form the metal mirror. The wax consists of bee's wax, an aromatic resin, castor oil and cocoanut oil in the proportion of 1 lb.: 2 lbs.: 4 oz.: 4 oz. respectively. These are melted together and allowed to cool. The usual opening is provided for this cavity by a jet (pouring channel or runner). The mould is then strengthened by putting on several layers of clay until the smith is satisfied that it will stand the high pressure and heat to which it will be subjected. The mould is then heated and the wax inside is drained out completely at which time the mould assumes its final form for receiving the molten metal. The smith then places at the open end of the jet a crucible with an opening at the bottom which serves the purpose of both the crucible and a funnel. The copper and tin of the required proportions are melted together in a separate crucible and the molten mass is slowly poured into a bamboo or wooden cylinder filled with rice bran. The hot liquid chars the bran as it passes through and solidifies into a rod. The impurities in the alloy disappear during this carbonization process. The rod is again melted and the process of purification is repeated several times until the rod looks as bright as glass. The purified alloy is then broken up into bits and put into the crucible attached to the mould, is covered with clay and the mould is heated over a fire. Cocoanut shell and paddy husk are used as fuel. In about 8 hours of continuous heating the alloy will melt completely and the smith who knows by his experience the time when the fire should be put out, throws earth over the oven and the mould to extinguish the fire, leaving the mould undisturbed for two or three days to allow it to cool. It is taken out when it is completely cooled down and the layers of burnt clay removed from the new metal mirror plate. The plate is then polished. The polish consists of a paste made of rice bran and the oil extracted from the seed of laurel or *marotti*. The polishing requires great skill and experience and should be done only in one direction. The mirror thus obtained is fixed into an artistically engraved brass frame with a mixture of lac and wax.

Composition of the Metal

45. Coming to the composition of the alloys used in casting bell-metal articles there are a series of them with copper and tin or zinc as the ingredients, the proportions varying with the nature of the alloy. Thus *vellodu* which is considered to be the best alloy contains 2½ to 3 parts of tin and 10 parts of copper. This is generally used in casting household utensils. But this variety is rarely found now. *Venkalam* is the next best, consisting of 10 parts of copper and 2½ parts of tin. This is proof to weak acids as in the case of *vellodu*. Most of the household wares are made of this. Gun-

metal is another consisting of ten parts of copper and one and a half parts of tin. Another variety, which is commonly called brass, consists of ten parts of copper and eight parts of zinc. This is not generally used in the casting of cooking vessels, but is used in making articles like lamps, locks, toys, trays etc. In the casting of images for worship, different proportions are used. The ingredients themselves are more in number. The accepted standard for this purpose consists of 80 parts of copper, 8 parts of tin, 4 parts of silver, 1 part of gold, and a small quantity of iron. This is called *panchaloha* indicating an alloy of 5 metals. The recent idol of 'Sasta' at Sabarimala was cast in this alloy. There is still another alloy for the making of images consisting 10 parts of copper, $1\frac{1}{4}$ parts of tin, 5 parts of silver, $2\frac{1}{2}$ parts of gold and a small quantity of iron.

Designing

46. The designs are often made by the artisans themselves. If any model is given to them they also make designs based on that model. The designing of Hindu images is based on *Thantrasamuchaya* (ancient art treatises), or *Silpasastras* which are approved by the *thantri* (priest). The *Thantrasamuchaya* compiled in Sanskrit by Shri Chennas Manakil Narayanan Nambudiripad, a Keralite, is very popular in this respect. According to *Thantrasamuchaya* there are eight ways of fixing the height of idols. These are given below.

1. The height should be equal to the height of the *Garbhagriha dwara* i. e. the door of the *Garbhagriha* (inner shrine of a temple).
2. 3/4 of the above height
3. 8/9 of the above height
4. 7/8 of the above height
5. 2/3 of the above height
6. 2/3 of the *Garbhagriha visthara* i. e. 2/3 of the width of the *Garbhagriha*
7. 3/5 of the *Garbhagriha visthara*
8. 1/2 of the *Garbhagriha visthara*

47. Indian iconometry recognises nine main varieties of the proportions of images ranging from 1 to 10 *talas* corresponding to 1, 24, 48, 60, 72, 84, 96, 108 and 120 successively. The total height in each of the nine types of appropriate measurements is distributed in nine divisions, face, neck etc., in close correspondence to the *navatalam* or standard type of 108 *angulas*. Of the nine varieties, 4 types from *saptatalam* (seven) to *dasatalam* (ten) have the widest currency. The following are the vertical proportions for the four main types of Indian images.

Type of Image	7 *Tala**	8 *Tala*	9 *Tala*	10 *Tala*
Face	12+	12	12	13
Neck	3	4	4	5
Neck to the horizontal line connecting the nipples ("heart")..	9	10	12	13
From these to the navel (" belly ", *Udara*) ..	9	10	12	13
Navel to genitals (" lower belly ", *Vasti*) ..	9	10	12	13
Thigh	19	21	24	26
Knee	3	4	4	5
Leg	18	21	24	26
Foot	3	4	4	5
Total height ..	84	96	108	120

* 1 *Tala* = 12 *angulas*

\+ The figures give the number of *angulas*

48. The above table is based on the rule that the proportions of the trunk are the same in all the four types. The distance from the root of the neck to the genitals is divided into three equal parts in each case, neck-heart, heart-navel and navel-genitals. The thigh and the leg throughout are each twice as long, the neck, knee and the foot are of equal height and the face remains 12 *angulas* throughout except for *dasatala*. The last and the highest standard is one built upon the *navatala*, the purest in proportion consisting of 1, 1/3, 1, 1, 1, 2, 1/3, 2, 1/3 by adding 1 *angula* in each section, the thigh and the leg being as usual, twice the height of the 'heart' etc. One *angula* is added to complete the number 120. By these artifices the highest type of proportionate measurement is constructed befitting the highest hierarchy of divine images. "The Indian system of proportionate measurement of the body of the image is based on number, organically correlated to the body of man and its main divisions, a face length being the module. From this system, laid down as *navatala* modifications ramify; while they maintain its principle, as far as possible, they also have recourse to the lesser unit of measurement, the *angula*, (1 tala = 12 *angulas*) according to which a more mechanical sub-division of the total height is effected." [1]

(1) Hindu Temple by Stella Kramrisch

CHAPTER III

GENERAL

Sources of Raw Material

49. In most of the production centres the raw material consists of broken metal vessels etc. which are purchased at comparatively cheap rates and used for production of new articles. Limited quantities of copper and tin are also purchased from importers in other parts of India like Bombay who get them from Europe and countries like Malaya. Such imports consist of brass blocks and parts of machinery, bearings, bushes, balls etc., which have been rendered useless. The imported brass is considerably cheaper and is better liked by the artisans.

Cost of Production

50. According to the present market rates the price of the metals and other materials is as follows:-

Copper	per lb. (0.454 kg.)	Rs. 2.00
Tin	,, ,,	Rs. 8.50
Zinc	,, ,,	Re. 1.62
Wax	,, ,,	Rs. 3.25
Resin	,, ,,	Re. 1.00

Excluding the labour charges the cost for alloys of different qualities is as follows:–

Venkalam	per lb. (0.454 kg.)	Rs. 3.30
Gun-metal	,, ,,	Rs. 2.85
Brass	,, ,,	Re. 1.83

51. The workers are generally engaged on daily wages and they are paid Rs. 2 to Rs. 3 per day according to their skill. Some are engaged on contract basis which is more profitable to them than working on daily wages. The middleman who invests the money gets Re. 0.50 from a unit of 1 lb. of *venkalam* as given below :–

Cost of metal	Rs. 3.30
Labour charges	Rs. 2.00
Wastage	Re. 0.20
Total cost	Rs. 5.50
Selling price	Rs. 6.00
Net profit	Re. 0.50

"The net productive capital employed in the industry is Rs. 8,49,500. More than 64.6 per cent forms the working capital. Highest capital investment is that of Trichur and accounts for a little above 30 per cent of the total. 43.5 per cent of the fixed capital investment is on sheds and buildings, 28.7 per cent is on tools and equipments and remaining 27.8 per cent is on machinery." [1]

Marketing

52. Besides the local market enjoyed by the products of bell-metal industry some of the articles like lamps are sent to Delhi, Bombay, Calcutta and Madras and are also exported to San Francisco. Rosewood measures decorated with brass are exported to the U. S. A.

Some Modern Products

53. The modern products of bell-metal industry can be grouped mainly under three heads: (1) utensils and similar articles, (2) ornamental articles and (3) images. The utensils cover a large variety, so numerous that they cannot be listed. The more important ones consist of cooking vessels ranging from very small ones to large caldrons called *varpus*, vessels used for washing and similar purposes, cups, *lotas* and similar vessels used for serving beverages, carrier vessels etc. The *varpu* is the queen of vessels (Plate 16). One of the *varpus* found in the Guruvayoor Temple is 6 feet 4½ inches in diameter and 1 ft. 9 inches in depth and another in the Sri Padmanabhaswami Temple is 6 feet 1½ inches in diameter and 2 feet 6 inches in depth. There are varying sizes of these types of caldrons found

(1) Report on Census of Handicrafts 1960, Kerala published by Director of Industries and Commerce. The figures correspond to the Co-operative year 1958–'59 i.e, the twelve months ending with June 1959.

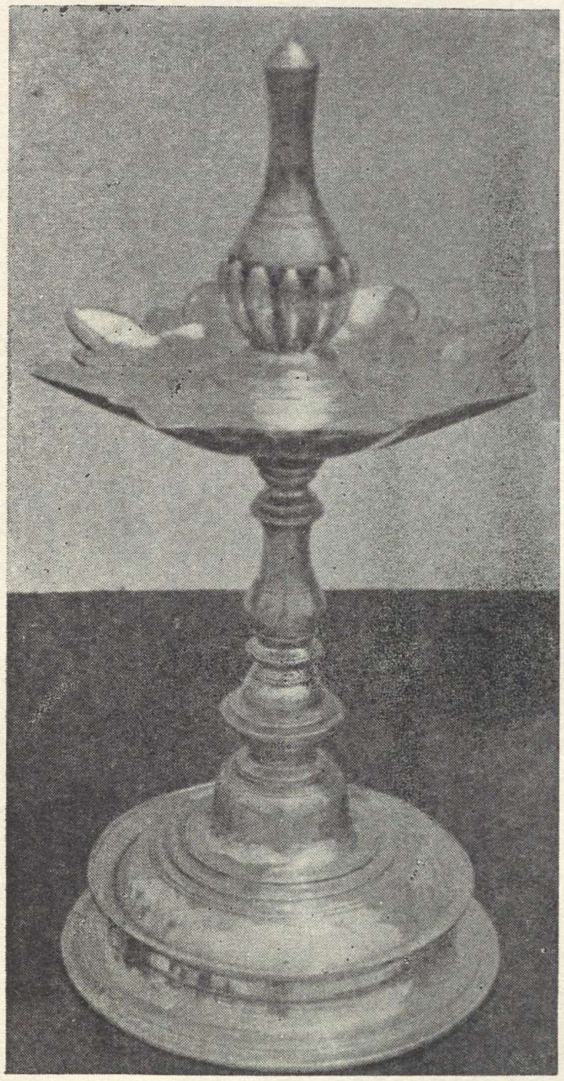
in temples, palaces, churches and rich private houses. For almost all large scale dinners in Indian style the *varpus* are indispensable as cooking in them is supposed to render the dishes more tasty.

54. Almost all kinds of lamps referred to among the ancient products are produced even now. The floor lamps consist of an immense variety representing the genius of modern art. The petal-shaped receptacles for wicks arranged in circular order a little below the top portion of the decorated stem represent the most popular variety of floor lamps. The recesses of these lamps vary in size and shape. On the top of these lamps may be found ornamental figures of peacocks or other kinds of birds and animals or flowers. Various illustrations of these floor lamps are given in these pages (Plates 20 to 26). A *Gajalekshmi* hanging lamp given in the illustrations which is produced at Trichur, represents a high degree of skill and simplicity of art (Plate 27). The horse lamp of modern times shown in the illustrations is slightly simpler than the ancient horse lamp (Plate 28).

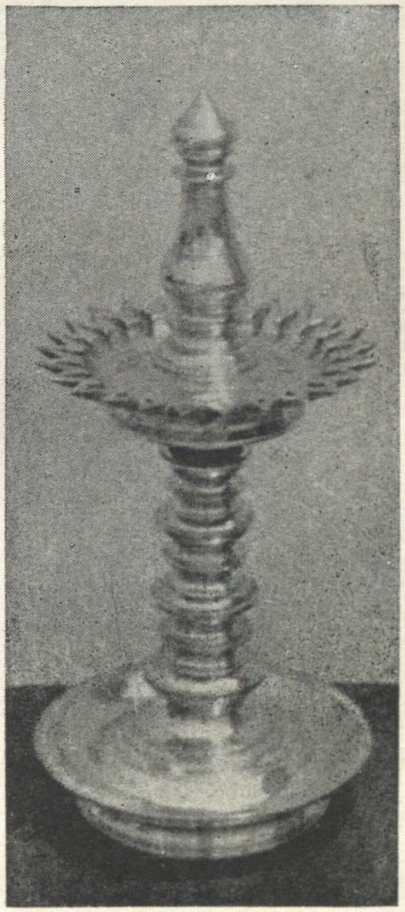
55. The figures of the cobra, the elephant bearing a globe lamp, a fawn in lying pose, a lion, an ornamental jar, and an elephant bearing a flower vase represent a few examples of ornamental articles produced in modern times (Plates 29 to 34).

56. The images of gods and goddesses and life-size statues of persons are now made only according to orders. There are some highly skilled craftsmen in Trivandrum, Ernakulam and Chengannur who make these in *panchaloha*. The image of Sasta in the famous temple of Sabarimala which costs about Rs. 12,000/- was cast by Sarvasree O. V. Asari, Trivandrum, S. Velayudhan of Nagercoil and Neelakantan Asari of Chengannur assisted by a few other craftsmen. Sri. O. V. Asari of Messrs. O. V. Arts, Trivandrum has also cast images of Sasta for the Kandan Sasta temple, Punalur, the Sasta templesof Chittirapuram and Kilikollur, the images of Ayyappan, Siva, Vishnu, Parvati, Lekshmi, Ganapati, Srirama, Lekshmana and Hanuman for worship in Haridwar, an image of Ayyappan for worship in Benares and an image of Nandi for Chenkalur Siva Temple, Trivandrum. The Cochin School of Arts, Ernakulam, run by Artist Sri. M. Raman has made valuable contribution to the manufacture of life-size statues in bronze or *panchaloha* and also images in gun-metal. The most outstanding piece of work done by them is a statue of Sree Narayana Guru (Plate 35). This is a statue in standing pose, 6 feet in height, installed in front of the Ezhuva temple at Koorkanchery near Trichur. This was unveiled by Dr. S. Radhakrishnan, president of India. The statue bears a close resemblance to Sree Narayana Guru and is the only one of its kind. Another statue made by the same school is a bust of the late Sri. K. C. Maman Mapillai. Perhaps, this is the only institution which has ever attempted with success the production of life-size statues in Kerala. The process of the production of life-size statues is the same as has been described in the previous portions of this monograph. It is, however, to be added that when life-size statues are made, the figure is completed in pieces for convenience of casting. After all the pieces are ready in metal, they are assembled particular care being taken not to lose the balance or shape. The pieces are then joined by electric welding. When the statue is completed in its original size and shape, it is given a finish by oxidation.

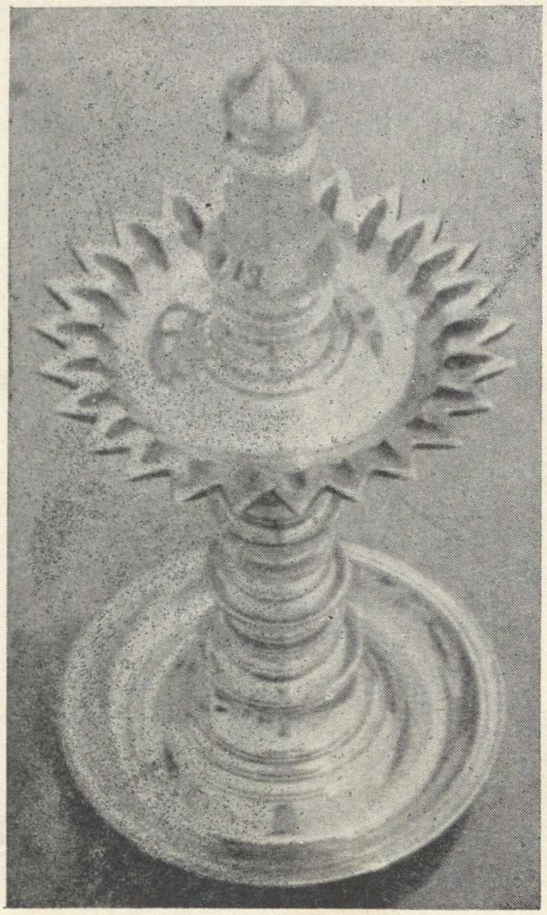
57. Compared to ancient articles, modern products stand on a slightly different footing. Elaborate art is reduced to the bearest minimum. There is a greater degree of emphasis on utility which is but common with many other productions of the modern age. Possessing a striking degree of artistic merit, they largely represent art in its simpler and plainer aspects. Even where ornamentation is emphasised in an item of production, there is a remarkable degree of simplicity about it. While most of the modern products have no pretensions of perpetuating the art of elaborate ornamentation, they do



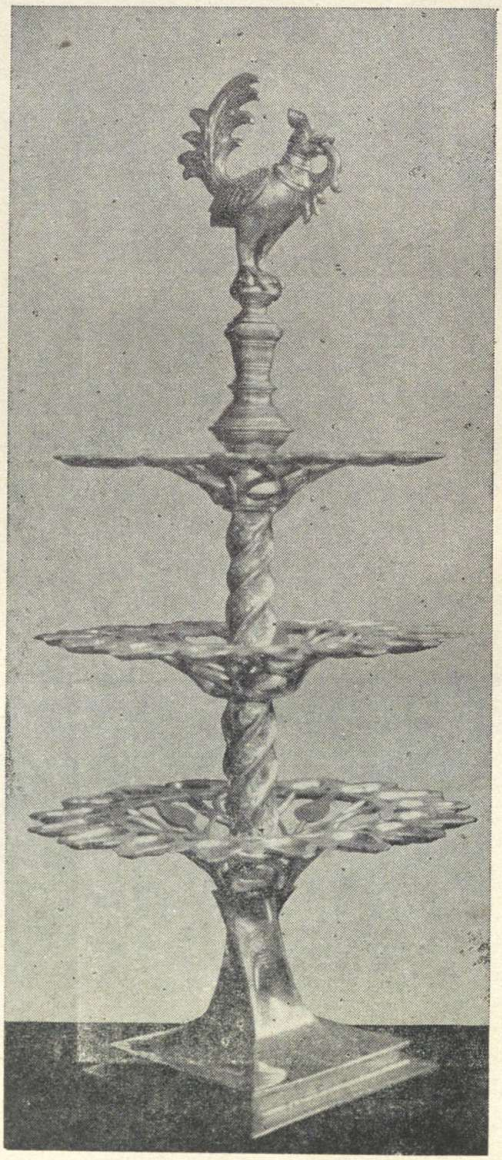
(Left) Pl. 22. THE LOTUS LAMP



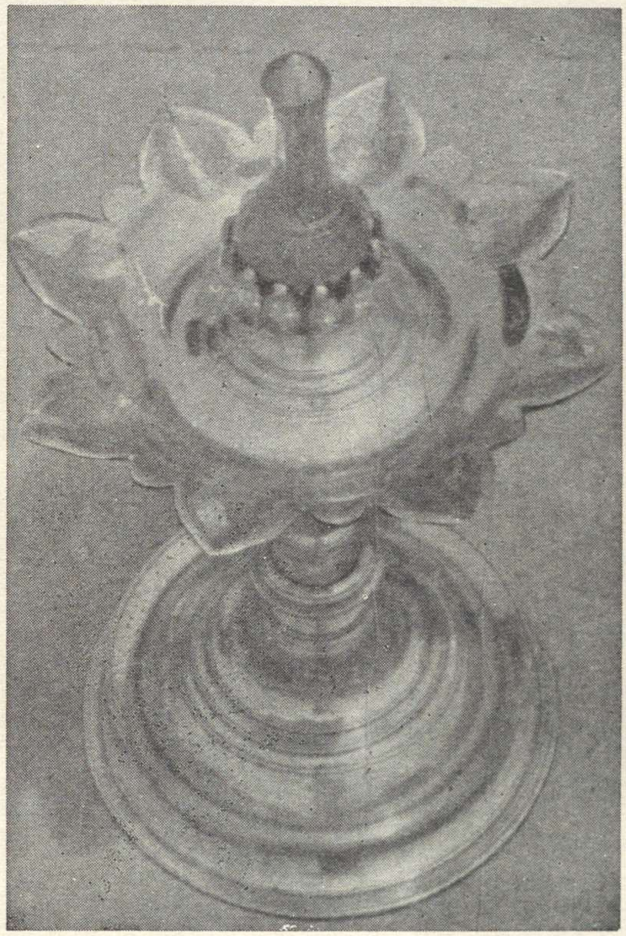
(Right) Pl. 23. BHADRADEEPAM



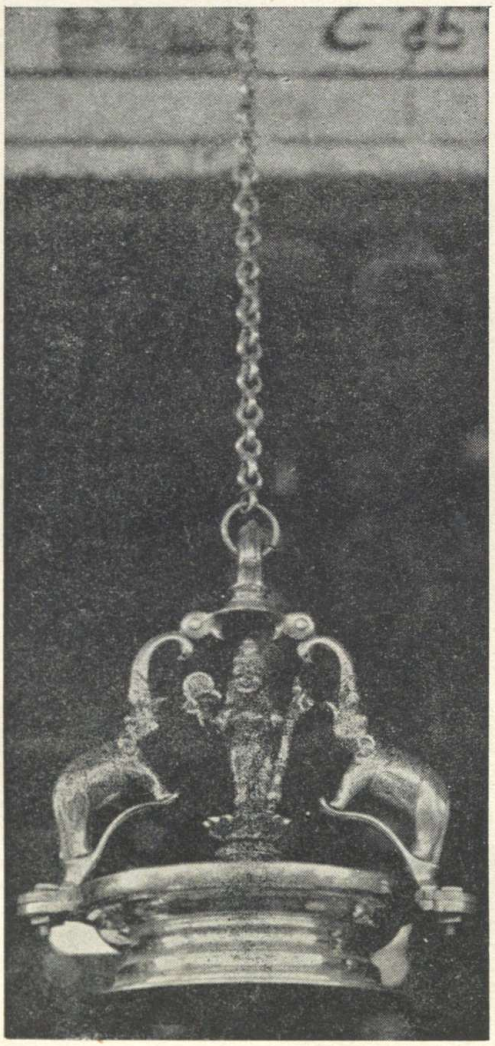
(Left) Pl. 24. THE PEEPUL LAMP



(Right) Pl. 25. ANOTHER TYPE OF BHADRADEEPAM

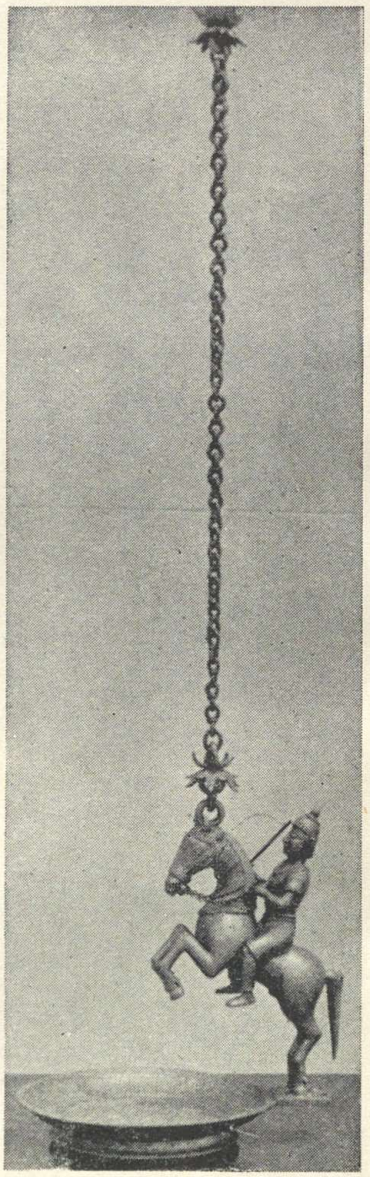


(Left) Pl. 26. ANOTHER TYPE OF LOTUS LAMP



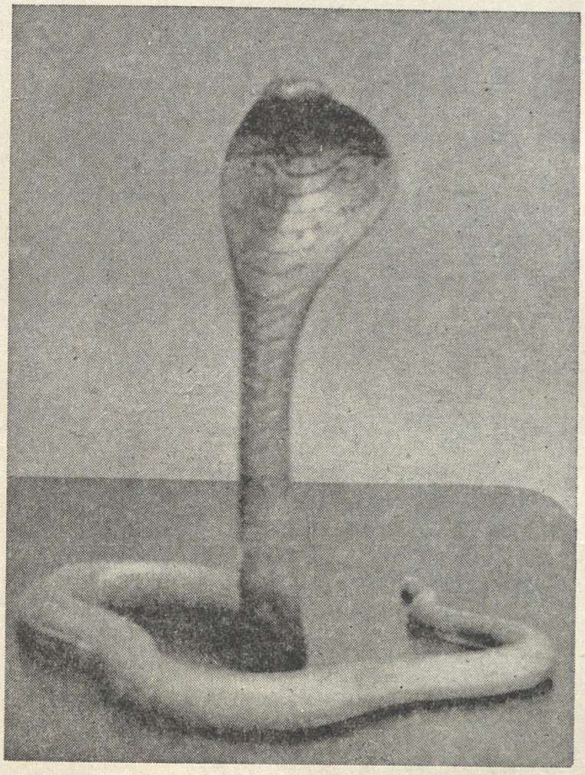
PI. 27. A MODERN GAJALAKSHMI LAMP

(Plates 27 and 34 were photographed from the bell-metal shop, Nadavaramba Bros., Trichur.)



PI. 28. A MODERN HORSE LAMP

SOME MODERN ARTICLES



Pl. 29. THE COBRA



Pl. 30. AN ELEPHANT WITH A GLOBE LAMP

School of Arts, Trivandrum



Pl. 31. A FAWN IN LYING POSE

School of Arts, Trivandrum

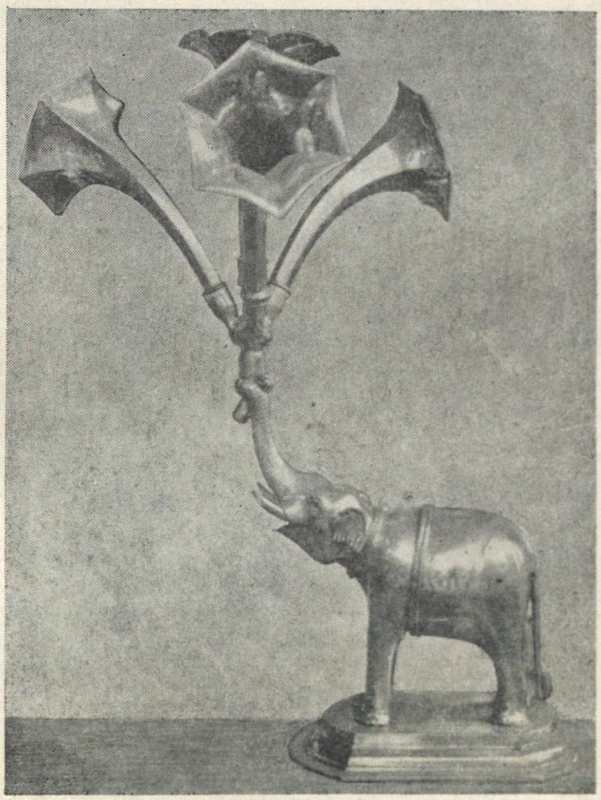


Pl. 32. THE LION

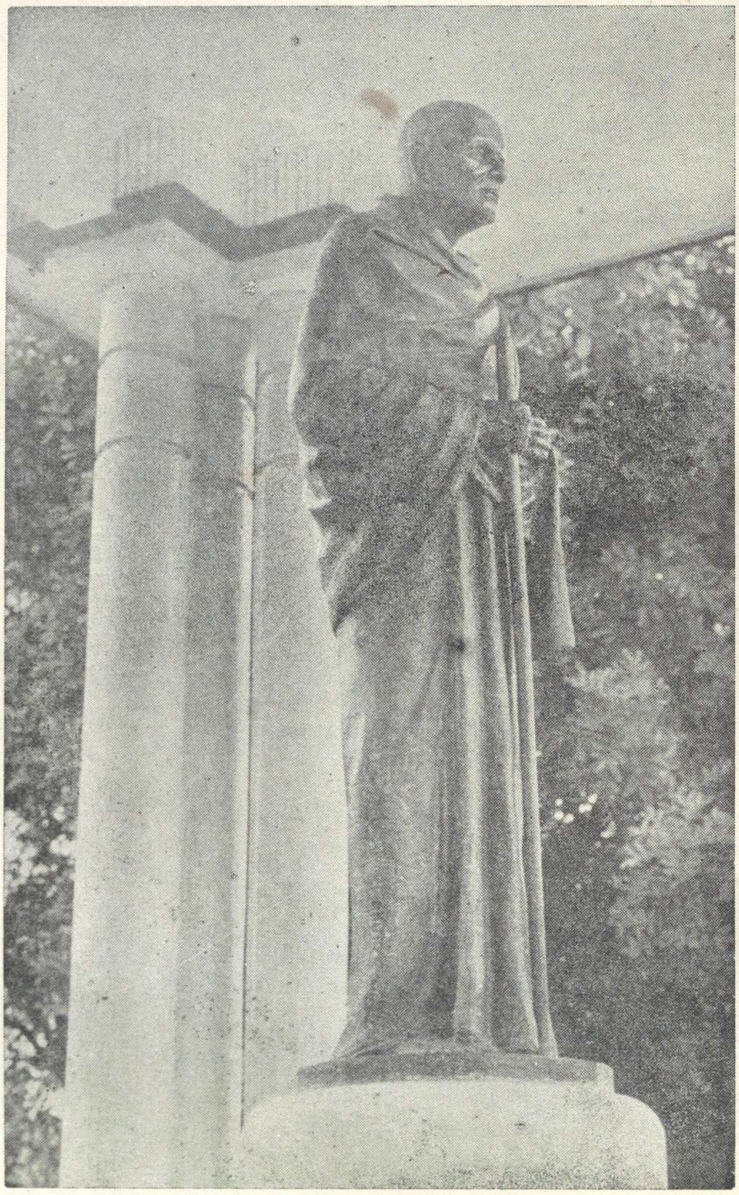
School of Arts, Trivandrum



Pl. 33. AN ORNAMENTAL JAR
School of Arts, Trivandrum



Pl. 34. AN ELEPHANT WITH FLOWER VASE



Pl. 35. STATUE OF SREE NARAYANA GURU
AT KOORKANCHERRY

Height 6 ft.
Produced by Cochin School of Arts, Ernakulam

represent an era of art which has its own distinctive identity of no inferior order.

Conclusion

58. In the Census Report of 1931 of Travancore, bell-metal industry has been included in the category of declining industries. This position has changed for the better by 1961 and it can no longer be said that the industry is in a declining stage. At the same time, it would be erroneous to think that the progress made by the industry is satisfactory. The reasons for the slow progress of the industry are not far to seek. The electric lights have replaced the usual bronze lamps except for limited ceremonial purposes. The incursion of aluminium, ceramic and stainless steel products has brought new rivals into the field. Durability is the outstanding merit of the bell-metal articles. But this is also its bane in that the bell-metal articles are costly and because of the durability of the articles one does not have excuse to change them to suit the changing fashions. When the present generation is more inclined to go in for cheaper and fashionable articles which are pleasing to the eye and durability is often ignored, it is natural that the bell-metal industry will have to strive for its existence in a competitive market. These factors make it imperative that the industry should be reorientated to suit the craze for articles of up to date designs. The workers engaged in the industry are, no doubt, skilled enough to bring about this reorientation provided they are given the lead with ideas of modern designing. It is equally necessary to reduce the cost of articles. This could probably be attempted by a reduction in the thickness of the articles and consequently in the quantity of the metal. The organisation of this industry is still in its primitive stage. Except for one factory working in Trivandrum, there is no other registered factory functioning in this industry. It is largely in the hands of the merchants who place orders for the articles they require and finance their production by cash advance and supply of raw materials. These merchants have, therefore, no better place than pure middlemen in the industry. It is high time that this pattern is improved by better organisation of the industry either on co-operative or on factory basis. From what has been said about the process involved in the production of bell-metal articles one can easily infer that except the process of preparing the mould and annealing, the rest of the processes could be mechanised on modern lines. This would make the industry a more paying one besides enhancing the pace of production. At present most of the workers in this industry belong to the Moosari community and they alone have the tradition of being experts in this work. If the industry is to be organised along modern lines, workers from all communities should be in a position to take to this work. This would require more institutions for training workers in the field. Above all, the success of the industry depends on the market that will be available for its products. With the limited market that now exists for the products of this industry, the progress that could be expected is hardly encouraging. It is possible to secure a better market for the products in other parts of India through better publicity including the organisation of show-rooms in important cities throughout the country. Whether it will also be possible to secure a foreign market for the products of this industry is also worth exploring. It would, no doubt, be a matter of trial and error. But, sustained efforts in this direction cannot but yield fruitful results.

COSTUMES AND ACCESSORIES IN KATHAKALI

CHAPTER I

EVOLUTION OF KATHAKALI

Introduction

The earliest form in which the unsophisticated imagination and rhythmic impulse of man found spontaneous expression in Kerala is the folk-dance. The tribal folk-dances and songs with instrumental accompaniments praising the deities were popular in temple festivals and general celebrations like Onam from very ancient times. Stories of Sri Krishna and Sri Rama were among those which formed the subject-matter of these folk-dances. This phase in dance was succeeded by an era of military prowess in which the *kalaris* (gymnasia) where military training was imparted incidentally developed a form of military recreation called *yathrakali* (also known as *sanghakali* and *sasthrakali*) from which have originated the sword dance and the alternation of song and speech of the dramas of later periods. The *kudaikuthu* (*kudai*=umbrella, *kuthu*=dance) and the *kudakuthu* (*kudam*=pot) meaning umbrella dance and pot dance respectively of the 11th century A. D. had achieved a high degree of physical expertness in dancing. About 800 years ago, the *Bharathanatya* formed an integral part of the temple activity in Kerala. *Bharathanatya* consists of *nritha* which is 'a fantasia of rhythmical movement without melody and story' and *nritya*, 'the fully developed dance-drama in which a story is told in codified movements, gestures *(abhinaya)* and hand and finger signs *(angya* and *mudra)* with vocal and instrumental accompaniments'. From the academical disquisitions on the stories and teachings of the Puranas the *Bharathanatya* developed into dramatic representation with the acclimatisation of the Sanskrit culture. The Chakyars, with their dramatic methods of *Bharathanatya* thus came into the scene as professional drama-dancers, their performances being limited to temple precincts and Puranic stories. Musical accompaniments were given to these dramatic performances by drums and cymbals played by the members of the Nambiar community. This nucleal form of dance-drama progressed in various directions. The classified emotions known as *rasas* were expressed in the language of the hand and fingers *(mudra* and *angya)* taken over from the *Bharathanatya* and reinforced by highly developed and classified facial expressions *(bhava)*. The *kootiyattam* in which two or more performers took part represents this stage of evolution. But this form of dance was more appreciated by a student of the art than by the commonalty. Hence *Krishnanattam* (Krishna dance-drama) was started under the patronage of the Zamorin of Kozhikode with a view to provide a form of dance-drama which would appeal to the common man. Dominated by Aryan influence it cut adrift from the native Dravidian features which the dance-drama had so far inherited. The neo-drama thus started 'kept the trinities of harmonies viz, *nrittam* (dance), *geetam* (song) and *vadyam* (instrumental accompaniment) as its heirloom'. This form of dance-drama which came into existence in or about the 14th century differed from *kootiyattam* in that the actor was relieved of the necessity of chanting the story and hence enabled to concentrate his attention on the elaborate work of bodily gesture (*abhinaya*) and hand language (*angya*). The singing was done by another participant who became the voice of the actor. This change, however, demanded of the audience the imaginative task of unifying the two exponents viz, of the dancer, the exponent of the sight and the musician, the exponent of sound, into one mental and emotional entity. The story

goes that somewhere between the 15th and 17th century A. D. the Raja of Kottarakara requested the Zamorin of Kozhikode to send his troupe of *Krishnanattam* for a performance at Kottarakara to which the Zamorin is said to have replied that he could not send his troupe as the southerners did not have the talents to appreciate the histrionic art. The Raja of Kottarakara who felt humiliated at this reply invented *Ramanattam* in which the art of *Krishnanattam* was applied to the theme of Ramayana[1]. The closer affinity of the story of Rama with South India which formed the scene of several events of Ramayana naturally made *Ramanattam* more popular and paved the way for further developments and modifications to a degree of renaissance in art. Better costuming replaced those of *Ramanattam* in course of time. Wooden masks were supplanted by facial make-up. Local divergences in the finger language were reconciled. These improvements ultimately converged into that form of dance-drama which is known today as 'Kathakali'. Sanskrit and Malayalam were both used in a definite order. Dramas were composed by eminent poets. Thus the first six decades of the 19th century formed the Augustan era of the Kathakali. As a dance-drama, the popularity of Kathakali waxed and waned with the march of time. From its commencement right up to the beginning of the present century it enjoyed wide popularity. The early decades of the twentieth century, however, marked a stage of decline in the popularity of this art. But it soon found a magical revival at the hands of poet laureate Vallathol Narayana Menon, an ardent exponent of Kathakali who founded the Kerala Kala Mandal (Kerala Academy of Arts) with the object of promoting and popularising Kathakali and dances. Today Kathakali has received world-wide recognition as a rare and impressive art. Although the invention of *Ramanattam* which forms the basis of Kathakali is attributed to the Raja of Kottarakara, such a great art like Kathakali cannot be the invention of an individual. It has passed through various stages and types of dances and dramas. It has in it 'the religious intention, the Puranic repertoire and the numerous injections of the Chakyarkoothu,' 'the opening dedication of the Geetha Govindam', 'the costuming of the Krishnanattam' and 'the gestures of the Ramanattam'. While the ritualistic folk-plays like *tirayattam*, *mutiyeru* and *tiyattu* have contributed to the dress, make-up, costumes, instruments and dance steps of Kathakali, the *kootiyattam* gave it the expression of classified emotions through *angyas* and *mudras* representing the language of the hand and the fingers and *bhava* representing the facial expression. The tinsel crown and the mask of the Ryok dancer of Java bear some distant resemblance to the headgear and the face make-up of Kathakali. The author of 'The Kadars of Cochin', Dr. U. R. Ehrenfels, finds the body posture of the Kadars in their dance suggestive of the pose in Kathakali. He, however, overrules the possibility of Kathakali having influenced the dance of Kadars. He thinks that while elements of outside influence, possibly of Tibetan origin, have come into Kathakali, the possibility of the existence of an element of an old cultural period cannot easily be put aside.

Kathakali—A brief Description

2. Kathakali, no doubt, is a pantomime (dumb show). But to describe it as a pantomime is to call something highly poetical by a most prosaic expression. The actor in a Kathakali never speaks. But he is more eloquent through his gestures than the most eloquent of the actors in a drama. It would, therefore, be more appropriate to describe Kathakali as a story-play or a dance-drama in which mostly stories from Hindu mythology are enacted by means of gestures, facial expressions and dance movements of the actors, interpreted by signs and attended by the rythm of the drums, cymbals and gongs.

(1) According to Ulloor S. Parameswara Iyer *Ramanattam* came into existence after 798 M. E. (1623 A. D.) Dr. Godavarma dates it as after 853 M. E. (1878 A. D.).

"By the eloquence of his hand gestures, his body movement and facial expressions the Kathakali actor conveys to his audience not only the mood and the action of the play but also the situation in which it takes place. .....From the composition of the drama to the dress, the steps, the *mudras* and the smallest quiver of an eye, everything is governed by hard and fast rules..... The Kathakali preserves among the arts of India the feelings, the vitality and the passion of life to which ancient poetry, paintings and sculptures bear testimony".[1] "There is a hearty blending of the best of fine arts like music, instrument, dance and literature in this unique dance-drama. In the costumes and make-up the finest pictorial and decorative arts can be envisaged. Sculpture and architecture have their own contribution to the making of Kathakali as is seen today."[2]

3. Till recently most of the Kathakali performances were staged in temple precincts and in aristocratic families. Apart from the genius of the people of Kerala for absorbing the best elements in culture and exhibiting them in the most artistic form, one of the main reasons for dances and dance-dramas relating to themes from Hindu mythology finding a fertile soil in Kerala is the association of recreative programmes with temple festivals and the interest evinced by aristocratic families who had plenty of leisure and financial capacity in encouraging such dance-drama performances in the precincts of their own houses. The traditional Kathakali performances are held on bare ground, the audience squatting before the actors. Although the performance is to begin only after nightfall, the party gets ready for the make-up three or four hours earlier as the process of facial make-up is highly elaborate and takes a long time. At one end of the open ground, a *pandal* (temporary shed of cadjan) of about $18' \times 18' \times 12'$ is erected. This is the stage for the actor. The concept of a Kathakali stage is that it symbolises the world that has come into being in space by the primal act of the Creator. By evening the drummers assemble there and the instruments are played for a while. This is called '*kelikottu*' the purpose being to proclaim the night's performance on the spot. This method of advertisement was highly necessary at a time when no better medium was in vogue. By nightfall a bell-metal lamp of about 5' in height is installed in front of the *pandal*. The lamp is filled with cocoanutoil and wicks are provided with one point towards the audience and the other towards the stage. The one towards the stage is thicker than that facing the audience. The former symbolises the sun and the latter the moon. On this simple and primitive stage three instrumentalists make their appearance, one with a long finger drum called *maddalam*, another with a metal gong and a third with cymbals. The second one who is called *ponnani* is the chief musician and director of the show. The third one is both the cymbalist and the assistant musician. He is called *sankiti*. The instrumentalists play their respective instruments for a while thereby announcing the commencement of the performance. The sound of the finger drum is supposed to vibrate *pralaya, pralaya dimurdala* announcing the end of the Great Deluge and the coming of the New Age. This preliminary item is called *kelikkai* or *arangukeli*. Now comes a person on the stage with the *thirassila* which serves the purposes of a curtain and stretches it with one hand while another appears to render assistance and holds the other end. Thus, in the place of the modern curtain with rolling devices the simplest imaginable curtain is held by two human hands.[3] The *thirassila* represents *rajani* or

(1) Alice Boner in 'The Hindustan Times', April 1, 1936

(2) 'Kathakali Manjari' by Dr. S. K. Nair, page 117

(3) In modern times, however, stages for the actors and seats in the form of chairs and benches for the audience are provided where the performance is not purely a traditional one. But the *thirassila* and the bell-metal lamp are inseparable in a Kathakali performance, even if it is staged in a modern theatre with electric lights and various other stage devices.

tamas meaning the darkness that divides. The chief musician begins humming of a *raga* at this stage in which the assistant musician also joins. After a while, an actor stands behind the curtain facing the musicians and tries a rhythmic movement of his steps in keeping with the sounding of the finger drum. This is called *thodayam*, the dance of invocation, and it lasts for about half an hour. The make-up of this actor is very simple. One cloth is tied round his loins and another round his head in the form of a turban with a tail at the back. A V-shaped mark is drawn on the forehead with arsenic powder in cocoanut oil. The *thodayam* is never open to the audience and the curtain is on throughout. The activities of the dancers behind the curtain are supposed to represent *lila*, the endless play of cosmic forces. The curtain is the veil that obstructs human vision from the never ending *lila*. Hence it is not fixed and falls off the moment reality approaches.

4. *Thodayam* is followed by *purappatu* literally meaning 'starting off'. Lord Krishna or a great mythological character connected with the theme of the play makes his appearance along with his consort (Plate 1). He is supposed to set the pageant in motion. The *purappatu* is meant to signify the grand pageant of life on earth, what follows being the depiction of the world in its various phases and moods. A silk canopy is held over the head of the actors. Two beautiful round peacock fans called *alavattam* are held from behind, one on each shoulder of the male character representing the god. Another drummer with his drum (*chenda*) joins the instrumentalists. The auspicious beating of the drum and the sounding of the conch accompany the lowering of the curtain bit by bit by the male character and his mate, showing the top of the headgear, then the entire headgear, the forehead, the eyeballs moving left and right rhythmically, the nose, the lips and the chin of the male character, and then his chest and the face of his mate. The characters dramatically disappear as the curtain is raised and resumes its original position. The process of lowering the curtain bit by bit is repeated twice after the first and then the curtain is completely removed. The actors dance each step to the rhythm of the songs sung by the musicians from behind. After a while the woman character makes her exit and the male character dances and makes salutations to the audience on behalf of his troupe.

5. What follows next is an exhibition of the talents of the instrumentalists. This is called *manjutara* or *melappadam*. *Manjutara* is the first word of a song by the Bengali poet Jayadeva in his famous work Gita Govindam. The chief musician sings the first couplet in one *raga* and the assistant musician repeats it. The drummers then play it and finish their rounds. The musicians take up the second couplet in a different *raga* and leave it to the drummers again. Thus the musicians and drummers take their turn one by one and display their talents in the respective arts.

6. The above form the prelude of a Kathakali performance irrespective of the story staged. Modern tendency, however, is to exclude these items and to stage select scenes.

7. When the first stanza of a particular story is recited, the curtain would be on and the actors stand behind. As soon as the musician recites the last word of the first stanza, the curtain is either lowered or taken away and the actors appear on the scene. Mostly the first scene is a love scene, presenting the most important character of the story with his wife. The chief musician sings a line and his assistant repeats the same. Then the actor begins to represent the meaning by his gestures. He does not open his mouth or speak. The instrumentalists have to closely watch the movements of the limbs of the actors and to make suitable notes on the instruments. At the end of a scene, the actors exit and the curtain is again held. The rest of the scenes follow one by one. The manner in which the aggressive and fierce types of characters

like *kathi*, *thadi* and *kari* (described infra) appear for the first time before the audience is known as *thiranokku* meaning 'curtain look'. The partial lowering of the curtain revealing the character piecemeal, the release of the curtain to its former position and its final disappearance unravelling the character in full to the audience found in *purappatu* are seen in *thiranokku* also. But in the latter the character who seeks the unravelling manifests in the most effective manner his giant-like strength and aggressive tendencies in nucleal form leaving the audience in anxious expectancy of what the character is at.

8. The themes in Kathakali deal with legends of the distant past, those mythological days of *devas*, *asuras* and *avathars* when great battles were fought and won, when miraculous deeds were planned to the ruin of the wicked and the victory of the virtuous—'a world of might and power, massive achievements, loves and hatreds'. What is depicted on the stage is a world of dreams of one's deepest longings. As already indicated a character in Kathakali never speaks on the stage. His eloquence consists in his gestures. This is not, none the less, less effective than speaking and acting. The movements of the actor in Kathakali fall into a series of dynamic designs *(anghara)*, each design consisting of a number of postures (bodily attitude) and gestures (limb movements)—all combined being called *karana*. "All moveable and visible organs—the head and the neck, the arms and the hands, the eyes and eyebrows, the lips and teeth and tongue, the feet and toes—all contribute to the motion language within the *karana*". From a placid sheet of water to violent tides rising to mountainous heights, from the stillness of meditation to the thickest fight in the battle field, from the charms of a budding love to the depths of tragedy, the Kathakali stage passes with its speechless messages. At every step the actor describes the details of the scene through his varied gestures. These are accompanied by appropriate emotions which his facial expressions convey to the audience. His signs and gestures are so effective that the audience often forget themselves and identify with the scenic effect produced by him. The classical scene in *Ravanavijayam*, in which Ravana uproots mount Kailas and dances with it in his hands, hardly leaves any section of the audience without being thrilled to suspense. The scene in *Bakavadhom* in which the carpenter cuts the jungle trees for the construction of the *Arakkillam* for the Pandavas has often made the spectators jump from their seats as the gigantic tree falls from the axing of the carpenter fearing that the tree is actually falling on them. One's blood freezes within him as Ravana, in *Ravanotbhavam*, sitting in meditation and praying for a boon from Brahma that no superhuman being shall kill him, gets disappointed as Brahma fails to appear, cuts off his head after head until all the nine heads are exhausted and holds his tenth head to be cut off when alone Brahma appears before him. The *patapurappadu* (movement of the troops) which forms a prelude to mythological battles, a scene in which the military preparations are inspected, so graphically presents how the sharpened sword seemingly cuts the finger which delicately caresses its head, how the great bow is so well strung that the impression of the tension created abides with the spectator and how the prancing steeds are harnessed to the chariot with all the loving care of the master for his fine steeds and then they are driven with breath-taking speed, that they are no more scenes on a stage but events in flesh and blood to the audience. *The porvili* (challenge for battle) between Bhima and Dussasana, Bhima in a frenzy of mounting anger standing on a wooden mortar brandishing his club and challenging his formidable foe Dussasana who approaches him from the opposite end of the ground emerging from darkness preceded by flaming torches and uttering deafening war cries and counter-challenges, is yet another of such impressive scenes. War scenes seeming to cover extensive battle fields in the course of the fight



Pl. 1. LORD KRISHNA AND HIS CONSORT IN A PURAPPAD

(Lord Krishna, a Pacha character with modifications and his consort, a Minukku character)

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MADRAS

with intense and dynamic movements in which weapons like club, sword, bow and arrow are used in the beginning but are discarded as the fight grows in intensity and fury and the combatants engage themselves in hand-to-hand fight trying to destroy each other with mighty blows, 'the whirls and sweeps, the wild sway of skirts and scarves, the cries and mockings, the massive movements and giant strides' are typical of setting in motion a hurricane of frenzy. Nor are the bloody scenes like the slaying of the demon Hiranyakasipu by the man-lion incarnation of Vishnu and the slaying of Dussasana by Bhima in both of which the abdomens of the slain are ripped open are less emotional. The audience sitting through these scenes forget for a moment that there is, after all, nothing but the bare ground and the Kathakali actors with their gestures and signs, before them.

9. Though, originally, the performance of Kathakali was confined to temple precincts and aristocratic Hindu families, it has since become so popular that these restrictions have long disappeared and Kathakali has found a place on other platforms as well.

The Role of Costumes and Accessories in Kathakali

10. The mythological themes of Kathakali make a supernatural atmosphere indispensable for its staging. "The shades of night are the proper setting for the mythological heroes, demons and devas. In that eerie, mysterious setting, they become realities. The elaborate facial mask from which all semblance of the merely human is eliminated, the fantastic costumes, archaic jewellery, glittering headgears that symbolize supernatural opulence, the charged silence of the actors, the inexpressible beautiful gestures and dancing eyes that form the medium of communication—which more than anything else suggest the language of a super-world—and the different manners of walking and dancing, all these heighten the sense of the supernatural and marvellous. The actors on the stage are no longer men simulating a divine or diabolic entity, they are the very thing itself. Acting is no adequate term for their embodied acts and passions. Every time a play is staged the fabled heroes, demons and devas come to life".[1] These features of the Kathakali show how important the costumes, the face make-up and other accessories of Kathakali are. In them the finest pictorial and decorative arts can be seen. Painting and the art of dressing which are two major fine arts in the traditional list of 64 arts play no mean part in preparing actors for the Kathakali stage. The Kathakali art of make-up is but the finalised phase of experiments carried on from a remote past. The traditions of this are supposed to be non-Aryan and probably pre-Aryan and have little in common with the Sanskrit stage. The decorated jacket, the voluminous skirt, the dangling stole and garland represent a costume of great elaborateness and heaviness. The crowns of gods and demons are much elaborate and distinctive and give an impression of rich jewelling at a distance. The girdles, loin chains, necklets, bracelets anklets etc., stand out as prominent jewelled ornaments. The facial make-up of the actors is even more marvellous. They are fantastic to a degree of being even grotesque to some. But they are not without some symbolical significance. Perhaps masks were the correct medium to represent the superhuman character of the actors. But they naturally fail to achieve the change of facial expressions which only the human face is capable of. Thus, though masks were used as a means of submerging limited human personality under superhuman conceptions in the earlier dance-dramas which preceded *Ramanattam* they were substituted by facial make-up in Kathakali. This helped the expression of passing emotions on the part of the actors, at the same time maintaining the superhuman conceptions about the character. The green-room of the Kathakali deepens one's sense

(1) Kathakali by K. Bharatha Iyer, page 26

of mystery and awe. Through a causeway of darkness one enters it to see to his astonishment silent and half-clad figures moving about like apparitions. "In the feeble light of the oil lamps a greater part of it remains in semi-darkness with islands of soft light here and there throwing into relief strange, tense figures tracing weird designs on the faces of inactive, sometimes slumbering men. A whole array of fantastic garments is seen suspended like festoons in dreamland; more lie heaped up in deep boxes that might well have come out of the Egypt of the Pharaohs. An animated silence hangs over everything like a spell and nothing but the gentlest whisper or gesture is heard or seen. The green-room is the sanctum of Sri Porkkali or Durga, the patron deity of the Kathakali stage. Though invisible, everyone believes in the immediate presence of the deity in the green-room."[1] While enjoying the Kathakali and appreciating the costumes and make-up of the characters in general one seldom goes into the innumerable minute items which go to make the costumes and the face make-up of each character, much less the laborious process underlying their production. The scope of this monograph is, therefore, intended to cover the listing, description, process of manufacture and allied aspects of these costumes and accessories.

(1) Kathakali by K. Bharatha Iyer, page 25

CHAPTER II

CHARACTERS AND THEIR MAKE-UP

11. The characters in Kathakali are generally grouped as expressing certain principles or qualities. Basically these qualities are *satvik*, *rajasik* and *tamasik*. To these have to be added a few intermediary types being combinations of these but judged according to the preponderance of one or other of these qualities. All the basic and intermediary types thus arising are brought on the Kathakali stage under five principal classes known as *pacha* (green), *kathi* (knife), *thati* (beard), *kari* (black) and *minukku* (polish). There are also a few classes of characters which are not so important as the above having white, orange and red paints. Most of these characters with the exception of Krithika, Madolkatan and the like have qualities similar to those of the *pacha* type of characters but are distinguished only by the colour on the face inside the *chutti* border. These types are distinguished primarily by the facial make-up, the colour scheme and costumes. Though the characters falling in each group have certain general patterns of make-up in common, a few individual characters have distinctions in their make-up. Thus, while Sri Krishna, Pandavas, Nala, etc., are characters who possess *satvik* (divine) qualities and hence are characterised by the *pacha* pattern of make-up, Sri Krishna has individuality in his headgear, garland, colour of the garb etc., Arjun has his inseparable companions, the bow and arrow, Bhima his club etc. 'The fantastic assemblage of colourful costumes and jewellery, the resplendent headgears and the paints of the characters would bear eloquent testimony to the amount of skill and care with which an actor is transformed into a *deva*, a fearsome demon, a disgusting gnome, a charming temptress, a graceful golden swan, a great serpent king, the fiery discus of Vishnu or an avenging man-lion'. This chapter is devoted to describe the facial make-up which is a very striking feature of Kathakali in that it creates that deeply sensitive and dynamic atmosphere characteristic of a Kathakali stage and the pattern of the costumes of the characters in general. The details of the costumes and accessories and the process of production are, however, reserved for the succeeding chapter.

Pacha (Green) **(Plate 2)**

12. The outstanding characteristic of the *pacha* make-up is the predominance of green paint which symbolises the inner refinement, poise, heroism and moral excellence. Characters who possess *satvaguna* or divine qualities like *devas* and the celebrated mythological heroes like Indra, Rugmangada, Nala, Pandavas, Krishna, Kubera etc., come under this group. Dignified, graceful and artistic movements are also associated with these characters. All the *pacha* characters are males.

13. The first process of the make-up is to draw a trifoil mark on the forehead of the actor with white arsenic powder made into a paste with cocoanut oil. A line is drawn around the mark with blue arsenic powder mixed with cocoanut oil. A border line is then drawn around the face along the cheeks and chin beginning from a point just below one temple and reaching the same point of the other temple. The eyes are given deep, black border lines with collyrium in which they look elongated. The eyebrows are neatly pencilled. The above preliminaries are done by the actor himself after which he reposes on his back on a mat for the remaining make-up. Another person sits at the head side of the reposing actor and smears a small quantity of spirit gum along the blue lining on the face. In

former days, plantain sap was used for this purpose. A thick white border called *chutti* is drawn along the blue lining already drawn on the face with a semi-fluid made of raw rice powder and lime mixed in the ratio of 3:1. Along the outer side of the white border, another line of arsenic powder is drawn. The width of this line will be about 1 mm. Again another white border is drawn with three more edges. The border is thicker along the cheek than on the chin. Along the border, a piece of yarn is placed so as to avoid the possibility of breakage of the facial make-up during the performance. This ridge serves as a brilliant white frame to the coloured pattern within and is in itself a work of exquisite beauty. When the foundation of the *chutti* is completed as above, a white piece of cloth is placed over it for drying it up. The process is repeated and another layer is worked out on the foundation. The height of the *chutti* depends upon individual face. Recently it has become the practice to paste pieces of thick white paper cut according to required size on the foundation instead of painting over it, to save time and labour. But it cannot be said that this is as beautiful as the original one. After the *chutti* is drawn, the actor himself paints his lips red. A small portion of the fluid used for painting the *chutti* is dried, powdered and mixed with dammar resin *(chayillyam)* and cocoanut oil for this lip paint. Over this paint vermilion (*kumkum* powder) is also applied giving the lips a brilliant coral red colour. The portion inside the white border is then painted with a blue arsenic solution consisting of cocoanut oil, black dammar resin and indigo.

14. The above complete the facial make-up of *pacha* characters.

15. In Kathakali, wearing of dresses and ornaments is called *ututhukettu* meaning "to put on and tie". Jingling bells attached to a leather piece called *kechamani* are tied on both the legs just below the knees. A crescent-shaped anklet made of scarlet is tied to each ankle. This is called *thandappathuppu*. Thick square white cloth pieces of $3\frac{3}{4}$ ft. called *ulluval* are folded and tied round the hip to make it protruded. Normally 20 to 30 cloths will be required for one character. These are covered with cloth pieces, having thick attractive borders at the bottom, called *karaval* or *neythuval*. Six cloths are required for one character. This covering serves the purpose of a skirt, the only difference being that it is made up of several pieces with a view to facilitate the easy rythmic movement of the legs. Above the skirts two ornamented tapes called *chuvappuval* (literally red tails) are hung from the loins, one along the right side of the right leg and the other along the left side of the left leg. All the cloths are tied round the hip with a long white cloth called *ututhukettukacha*. In front of the skirt, another ornamented tape called *ottanakku* is hung. This resembles the traditional ornamental head cover of elephants used in festival processions. Above the *ottanakku* an ornamental chain called *patiaranjan* is worn round the waist.

16. A red jacket with its back open is put on the body. A breastplate called *kuralaram*[1] and an elaborate necklace called *kazhutharam* are then tied round the neck. Just above the *kazhutharam* an Indian ribbon decorated with beads called *kazhuthunata* is tied round the neck. On each shoulder *tholpoottu* (shoulder lock) is tied. Just below the *tholpoottu* a small chain of beads is also tied. In local language this is called *paruthikkamani*. Bangles are then worn on each hand. In addition to the bangles, bracelets *(hasthakatakam)* are also worn. A red tape with a white border line in a double arch called *chuttithuni* is tied on the forehead which marks the upper limit of the facial make-up. Just above this ribbon another narrow ribbon decorated with rows of glass beads is tied. In local language this ribbon is called *nettinada*. Another

(1) When Arjuna becomes Brihannala, the *kuralaram* is changed into *mulakuralaram*.



PL. 2. NALA IN NALACHARITHAM
(A Pacha character)

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tape with two round-shaped ear-rings called *thoda* stuck to it is tied over the head. These ear-rings completely cover the front portion of the ears. Coloured cloths (called *thalekettuval)* generally of black colour, varying from two to five, are tied round the head above which the gilded headgear is placed like a crown of shining splendour. It is tied to the head with the strings attached to it. A tape with two round tinselled flowers is fixed on the upper portion of the ears. This is called *chevippoovu.* Locks hanging from the back of the headgear cover the naked back of the actor. These locks are made of the thread of a local plant called *vakka* (Sterculia villosa).

17. Three scarfs called *uthariyam* are worn over the shoulders. Out of these three, two are called *kara uthariyam* and the other *chuvappu uthariyam.* The tips of these garments are so frilled as to give the appearance of lotus flowers. In the flower-like tip of the *chuvappu uthariyam* small round mirrors are provided so as to enable the actor to look at whenever necessary. Mica powder sprinkled over the already painted face of the actor lends it a shining appearance. A few seeds taken from the flower of the *chunda* plant (Solanum pubescens) are slightly rubbed by hand and put inside the lower eyelids. When the eyeballs are rotated they get a reddish colour produced by the seeds. The seeds will be retained inside the eyelids till the entire performance is over. Artificial nails made of silver are fitted to the fingers of the left hand. With these the *pacha* character assumes his full garb. The above device of giving a reddish colour to the eyes is adopted in the case of all groups of characters in Kathakali who do not wear masks. Similarly, the long silver nails are worn by most of the male characters falling in all groups.

18. The characters like Lord Sri Krishna and Lord Sri Rama come under the *pacha* type. But, their costumes and make-up are not identical with those of other *pacha* characters. The main change is in the headdress. In the place of *kiritam* worn by the other characters, Sri Krishna has a hemisphere-like coronet decorated with peacock plumes (*muti*) (Plate 1). He wears yellow skirt and scarfs, blue jacket and an enormous garland of varied colours. Sri Rama and his brothers, Udhava and Kusalavas wear a coronet in the shape of *krishnamuti* instead of the headgear. But in the place of the peacock plumes in *krishnamuti*, the coronet of these characters has a round-shaped tuft. In the stories after the coronation Sri Rama and Sathrugna, however, wear the headgear. The characters like Dasaratha, Raudra Bhima, Dhritharashtrar, Visravassu and Bahuka coming under *pacha* type have slight differences in the make-up. Dasaratha has an additional white Brahmin beard. Raudra Bhima, the very embodiment of fury has a black moustache painted on his face. He also wears *damshtras.* Dhritharashtrar has no *chutti* border on his face. In its place a white Brahmin beard is tied. The colour of his locks is also white. The make-up of Visravassu is that of Dhritharashtrar. But instead of the Brahmin beard, white long beard is tied. Bahuka has dark green paint inside the *chutti* border. The colour of his skirt and jacket is blue. The palms and feet are also painted blue.

19. Lord Vishnu comes under the *pacha* type (Plate 5). Two artificial wooden arms supplement the normal hands of the character, and conch, *sudarsana, gada* and lotus are held in the four arms. He has black jacket and yellow skirts. He also wears *vanamala.* Peacock fans are also held.

Kathi (Knife) (Plate 8)

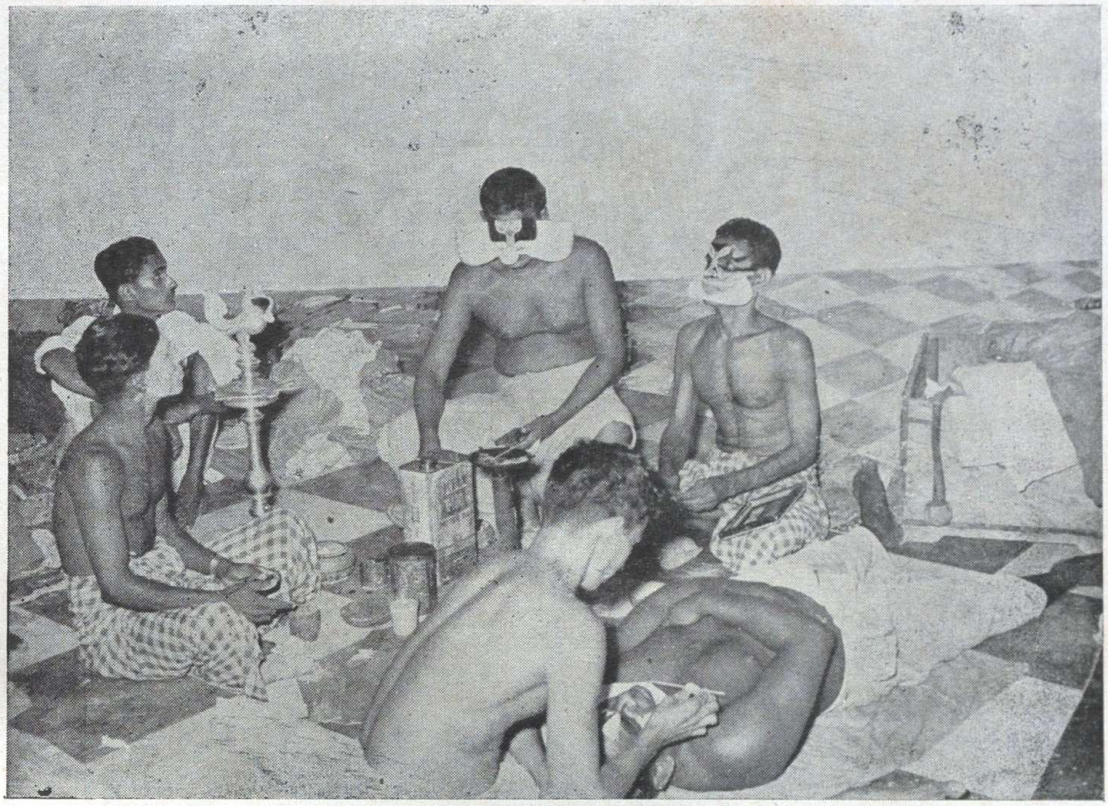
20. Characters falling under the *kathi* type symbolise demoniac qualities or a race of Titans like Ravana, Sisupala, Kamsa etc. The predominant quality in them is *rajoguna.* While arrogant and ambitious, they are also gifted with great valour, are fond of the pleasures of love and possess certain cultivated tastes and accomplishments. The latter qualities being symbolic of *pacha* characters justify the retention of the green paint in the make-up. But evil and aggressive traits dominate in them.

Hence they are also painted with fiery red patches, savage knobs and up-turned and fiery moustaches. Thus, while painting the *chutti* as in the case of *pacha* it is made slightly larger in *kathi* characters. It takes the shape of an upturned knife which accounts for the name *kathi* for the character. Another knife-shaped *chutti* is painted above each of the eyebrows. The knife-shaped portion has wide white borders. The inside is painted red. A small knob made of cork *(katesam)* is pasted on the tip of the nose. A similar knob is pasted on the forehead close to the root of the eyebrows. Two canine teeth tied at either end of a string are put inside the mouth which can be displayed by the operation of the tongue whenever necessary. These canine teeth *(damshtras)*, which are displayed when the *kathi* characters are seized of anger and growl or emit shrill cries or roar, help to heighten the dramatic effect. The rest of the make-ups of the *kathi* characters are the same as in the case of *pacha* except that an additional scarf *(uthariyam)* is tied on both the hands of the *kathi* characters. As in the case of *pacha* the *kathi* characters are also males.

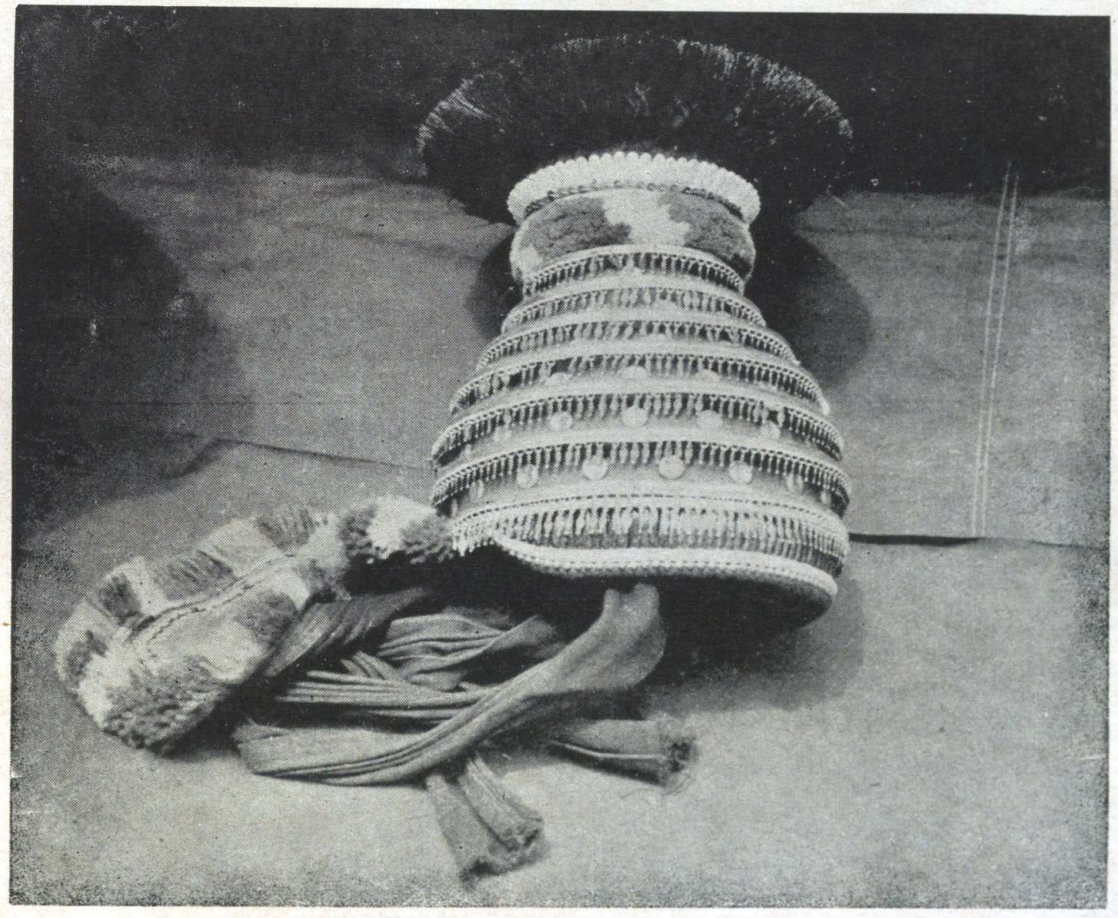
21. Sakuni, the uncle of Kauravas, is usually presented in *kathi* type. Some troupes have a white beard and the headgear of the red beard for this character. Yama in Nalacharita has some peculiarities. The inside of the upturned knife-like painting on the face, is painted black. In the place of green paint, red paint is applied. He wears black jacket and skirt and also red scarfs. Mareecha, coming under the *kathi* type, has an additional long white beard. The colour of his locks is white.

Thati (Beard)

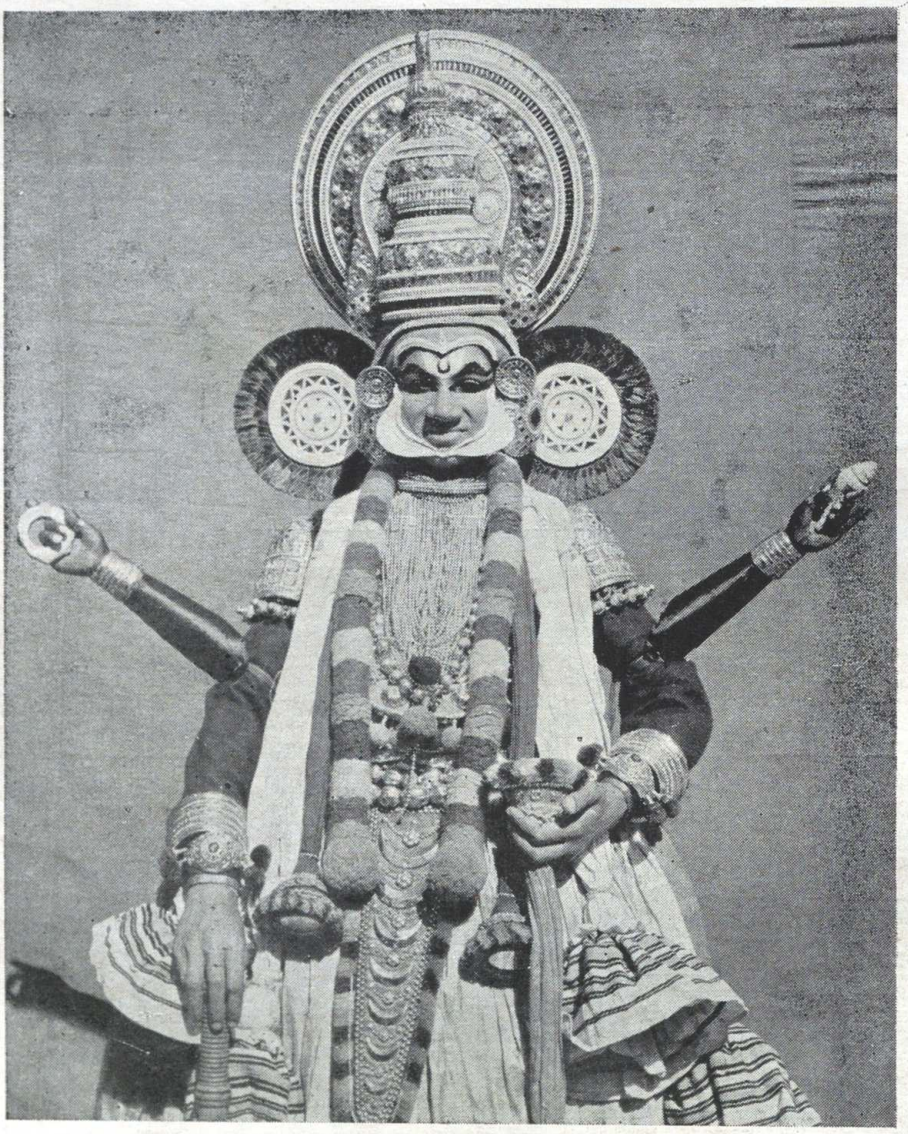
22. The characters which come under this group are the red beard, the white beard and the black beard according as the beard worn is red, white or black. The red beard is an embodiment of elementary untamed passions, massive and overpowering (Plate 9). This type represents vicious and vile characters and power-intoxicated men like Dussasana and Bakasura. The great monkey generals of Ramayana like Bali and Sugriva are also included in this category as they typify the brute force and undisciplined violence of wild life. The red beard's glances are invariably furious and his gestures emphatic, aggressive and haughty. "His dance is tempestuous and earth shaking. Like rolling thunder his cry is the graduated growl of a savage beast." He mocks and sneers a great deal. His laughter is often boisterous and extremely derisive. In the make-up the red beard varies markedly from the *pacha* and the *kathi* types. The wide *chutti* framework, the elongated eye-lines, the arched eyebrows and vivid red lips of the *pacha* and *kathi* characters are significantly absent in the case of the red beard. The white knobs fixed on the nose and forehead are bigger than those of the *kathi*. An artificial red beard is tied round the chin and cheeks. The lips and the portions round the eyes are painted black. All the remaining parts of the face are painted red. Two rows of ready-made *chutti* artistically cut from thick white paper are fixed on the two sides of the nose. The canine teeth and the white balls are similar in this case as in that of *kathi*. The red beard wears a red fur-coat as jacket. It is usually bigger in size than the jacket of the *pacha* and *kathi*. The colour of the hair is also red. The headgear is larger in size than that of *kathi* or *pacha* though it is of the same pattern. It is called *kuttichamaram*. The red beard does not wear bangles or *tholppoottu*, but only the bracelet i. e., *hasthakatakam*. This character also wears striped scarf *(kara uthariyam)* tied to each of his hands as in the case of *kathi* characters besides other scarfs. The *thoda* and *kazhuthunada* are absent in the case of this character. The rest of the details are almost the same as that of *pacha* or *kathi*. Suitable modifications are made in the case of the faces of the monkey generals Bali, Sugriva, Malyavan, Mali and Sumali to differentiate them from human beings.



Pl. 3. A GREEN-ROOM SCENE



Pl. 4. KRISHNAMURTI



Pl. 5. LORD VISHNU IN DURYODHANA VADHOM
(A Pacha character with slight modifications)



Pl. 6. LORD KRISHNA AND HIS CONSORT RIDING
ON GARUDA IN NARAKASURAVADHOM
(Garuda, a Miscellaneous character)



Pl. 7. A CLOSE-UP OF DUSSASANA
(A Red Beard)

23. The white beard is supposed to represent a higher type of being than the red beard (Plate 10). Hanuman celebrated for his piety and devotion for Rama and at the same time for his unrivalled strength and Jambavan come under this group of characters. The make-up is such as to suggest the animal. The upper half of the face from the nostrils is painted black and the lower half red demarcated by white border lines. On the chin is a rosette in white with red heart. The lips are painted black and a moustache-like pattern in white is traced on the upper lip. The nose is painted green. Above it and over the forehead are two ovals in red. A white *chutti*-like pattern on either side of the cheeks forming a loop in red spots branches off in a curve over the forehead up to the end of the eyebrows. The headgear is circular in shape and is round crested in the top ending in a bud-like finial and adorned with tassels. It looks like a Chinese hat. The jacket is hairy and white, in the case of Hanuman and black in the case of Jambavan. Likewise the beard also is white. Instead of *kuralaram* the white beard wears a breastplate called *marmala* tied above the *uthariyam*. The *tholppoottu*, bangles, *kazhuthunada* and *thoda* are absent in the case of this character. The white beard has *damshtras* as in the case of *kathi*.

24. The black beard has a similar make-up as that of the red beard with the difference that the colour of the jacket, beard etc., is black instead of red as in the case of the red beard. In the face make-up, the black colour is applied for the black beard in places where red colour is used in the case of red beard and *vice versa*. On the forehead a white mark *(thripundra)* is also made. According to the new system, sometimes, additional *chutti* border is also provided. Kali is typical of this type of character. As to whether hunters fall in the group of black beard or *kari* has been susceptible to difference of opinion. While the author of 'Kathakali, the sacred dance-drama of Malabar' prefers to include hunters in the category of black beards, other writers include the hunters in the *kari* type. In the case of a hunter, the face is painted deep black (Plate 22). It is broken up by bracket like patterns around the eyes with white border and red inside. White bristles of paper are stuck to the ridges. The lips are painted flaming red. A ring with *chutti* paste is painted on the tip of the nose. In the centre of this a red spot is also given. The beard is black and the headgear consists of a crown of peacock feathers resembling an expanding lotus. The *kattalan* (hunter) in the story of 'Kiratam' has a mark of crescent moon on his forehead, which is absent in other *kattalans*. The colour of the jacket and skirt is black. He does not wear *thoda*. Other costumes and accessories are the same as those of *pacha* type.

25. In the case of vile *rakshasis* (ogresses) like Surpanaka and Simhika who belong to the *kari* type of characters the face is painted in lampblack with weird pattern in white (Plate 11). Arcs are put with *chutti* fluid above the eyebrows and below the eyes. Bristles of thick white paper are also fixed in these portions. A bigger arc is drawn above the eyebrows in white *chutti* fluid. On the tip of the nose, a circular piece of white paper is fixed instead of the knobs in the case of *kathi* and red beard. A white line is drawn around the chin and the jaw-bones. A circular flower is painted on the chin right in the centre. The canine teeth *(damshtras)* complete the horrid picture. Artificial long protruding breasts pointing upwards are tied round the chest forming a gruesome substitute to the elegant *mulakuralaram* of normal women characters. Three *kara uthariyams* and one red *uthariyam* are worn by these types of characters. The jacket and skirt are black. A white cloth is frilled and fixed above the skirt. The headgear is the same as in the case of the hunter.

The Minukku (Polish)

26. The *minukku* or polished group of characters represent gentleness, restraint, poise and high spiritual qualities. The costumes and ornaments of the male characters are unostentatious. The bulging skirts,

the big overcoats and the great headgears of the characters of other groups are absent in the case of *minukku* characters. Female characters (except *rakshasis*), Brahmins, *rishis* and servants or menials fall in this group.

Female Characters (Plate 13)

27. The face is painted in delicate flesh colour with mixture of yellow and red arsenic. The eyes and eyebrows are pencilled with collyrium which makes them black and elongated. The lips are vivid red. Though red ink was used for painting the lips formerly, lipsticks have taken its place now. Mica powder is sprinkled over the face of women characters to give a shining look. This indicates a subtle glow of an inner light. The women characters form a separate class by themselves. They have no headgear. Instead, they wear tuft called *kondakettu* made of black cloth which resembles the hair gathered into a knot near the top of the forehead slightly to the left. A veil is put over this, which is often light coloured and ornamented with a border of gold or silver. This falls over the back to the waist like the end of a saree. A circular mark *(thilakam)* is put on the forehead. A nose-ring is also worn. Some, however, do not wear this. As a rule, the celestial women, royal women, chaste women and prostitutes should have stroke of sandal pigment *(pathikkeettu* or *pathralekha)* on their face. The Brahmin females need not necessarily have *pathikkeettu*. The body and the arms are encased in a tight fitting red jacket admirably suited to enhance the effect of the gold coloured ornaments. Over the chest is a gilt breastplate with breasts covered by a tight fitted scarlet blouse. This breastplate is called *mulakuralaram*. The Brahmin woman in Santhanagopalam story, however, wears a breastplate showing the breasts and abdomen of a female in the family way, instead of the *kuralaram*. A white scarf *(uthariyam)* flows over the shoulders covering them. Around the neck is tied a lace covered with coloured glass beads. The ear-rings called *kathila* cover the ears. Artificial locks are tied behind the head to cover the otherwise open back of the jacket. A long white saree with folds covers the lower half of the body. An ornamental belt passes round the loins. One end of the saree is passed between the thighs and tucked in behind. Bangles are worn on the hands and anklet on the left ankle. Gingling bells of smaller size than *kechamani* used by male characters attached to leather pieces are tied round the legs just below the knee. These are called *chelankamani*. On the whole an air of repose and tenderness distinguish the female characters falling in this category in striking contrast to the exhuberance and expansive movements of the male characters. Their poses, gestures and movements reflect tenderness and grace.

28. The make-up of female characters slightly varies with individual characters. For instance, Saraswathi is presented with the face make-up and costumes below the neck of other female characters of the *minukku* pattern, but in the place of *kondakettu* and veil worn by other females, Saraswathi has a conical-shaped headgear (Plate 14). *Chevippoovu, thoda, chuttithuni* and *nettinada* which are absent in other female characters are also worn by this character. The make-up of Mahalekshmi is identical with that of Saraswathi. But the colour of the *putava* (saree) is light red. Parvati is presented in the same way as other female characters excepting that the colour of her *putava* (saree) is green. Bhoomidevi has the same make-up of Saraswathi. But the colour of the *putava* (saree) of Bhoomidevi is red. The colour of the veil of Rambha is blue. Other make-ups of Rambha are identical with that of usual female characters. Sakuntala, Priyamvada and Anasuya should have the costumes suitable to a hermitage. They have a breast cloth. In the place of the usual *putava*, they have a mendicant's red dyed cloth, the end of which is taken over the shoulders and fixed on the girdle at the back. Hands, neck and *kondakettu* are decorated with flower garlands. Their ear pendants are of flowers. The wife of Kuchela, even though



PL. 8. HIRANYA KASIPU AND HIS CONSORT IN PRAHLADACHARITAM
(Kathi and Minukku characters)

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a Brahmin female has only faded costumes, in order to show her poverty.

Brahmins

29. While all the Brahmins have some common features, they are presented with suitable changes varying with each character. For Kuchela and Mrikandu, the faces are smeared with holy ashes and sandal and ash marks are made all over the body. A *namaskaramudra* (a scar on the forehead due to the daily prostration) is made on the forehead. On the head, a white cloth with border is tied and a rosary is put around the head. A white Brahmin beard is tied. The *vasthram* (a long plain cloth) is tied on the loins in front and one end is passed between the thighs and tucked in behind. A sacred thread is worn as is the usual custom among Brahmins. Rosaries are put on the hands and neck. A shawl *(angavasthram)* is put on the arm. The colour of the *vasthram* of Mrikandu is bright white whereas Kuchela has only soiled cloth. Kuchela has also one palm leaf umbrella.

30. For the Brahmin in Santanagopalam, the face is painted in delicate flesh colour. The eyes and eyebrows are pencilled with collyrium. Lips are painted red and a *namaskaramudra* is made on the forehead and ash and sandal marks are made. On the head, a white cloth with border is tied. *Nettinada* and a white Brahmin beard are tied. A white *vasthram* is tied on the loins in front and one end is passed between the thighs and tucked in behind. The sacred thread and *angavasthram* are also worn.

31. The Brahmin in Bakavadhom is presented almost in the same way as the Brahmin in Santanagopalam. But the Brahmin in Bakavadhom wears a tuft and has a supporting stick in his hand.

32. The Sundara Brahmin appearing in Rugminiswayamvara and other Brahmins in the stories of Rugmangadacharita, Rajasuya, Dakshayaga, Nalacharita and Ambarishacharita do not have beards. In their case, the face is painted in delicate flesh colour. The eyes and eyebrows are pencilled with collyrium. Lips are painted red. Ash and sandal marks are put. A white piece of cloth with border (*vellaval*) is tied on the head and over it the *nettinada* is tied. They wear a dhoti with a border in the typical Malayali style. They have also the sacred thread and *angavasthram*.

33. The Kongana Brahmin in Nalacharita has sacred thread and the marks of ash and sandal like other Brahmins. He has a white turban with a tail at the back. He wears a *soman*, (a long dhoti of about 4½ yds.) one end of which is passed between the thighs and tucked in behind. A caste mark *(namam)* is drawn on the forehead and a woollen thread is tied on one hand. He has a moustache, and rings on the ears. A white cloth is also tied across his shoulders. He has a bundle on the back of his shoulders.

34. For Madavyan appearing in Sakuntalam, the face is painted in delicate flesh colour and the eyes and eyebrows are pencilled with collyrium. Lips are painted red. Ash and sandal marks are put on the forehead. A Vaishnava caste mark is also made on the forehead. A moustache is drawn and rings are suspended from ears. He wears a white *soman* and a white turban with a tail to the back. A white cloth is tied across his shoulders and a garland of beads is worn on his neck. He has the sacred thread and a walking stick with a bent at the top.

Rishis

35. *Rishis* have grey, black or red beards and headgears that resemble *jatamakuta*. For the characters like Narada who have white beards, the face is painted in delicate flesh colour and the eyes and eyebrows are pencilled with collyrium. Lips are painted red. A moustache is drawn and ash marks are made on the forehead and on the body. A white beard is tied along the cheek and chin. *Rishimuti* (headgear), *chevippoovu*, *nettinada chuttithuni*, white locks, *paruthikamani*, *hasthakatakam*, *patiaranjan*, *thandappathuppu*, nails and sacred thread are also worn. The middle portions of the

uthariyams are tied together on the chest. A red dyed cloth is worn by these characters. Narada has a *veena* in his hands (Plate 15). Saivites can have rosaries of Saivites.

36. Even though Janakan is not a sage in the strict sense, he can also be included in this group. The face is painted in delicate flesh colour and the eyes and eyebrows are pencilled with collyrium. A white Brahmin beard is tied along the cheek and chin. The rest of the make-up is that of *pacha*.

37. For Bhishmar, the face is painted white and the eyes and eyebrows are pencilled with collyrium. A caste mark and marks of ashes and sandals are put on the forehead and the lips are painted red. Rosaries of Saivites are tied on the hands and neck. A white Brahmin beard is tied along the cheek and chin. He wears a white *soman*. A white turban with a tail to the back, a white cloth tied across his shoulders, the sacred thread, nails, bow and arrows are the other items of the costume.

38. The make-up of Kripar is almost identical with that of Bhishmar. But instead of the turban, Kripar wears a tuft having white matted hair.

39. For Dronar, the face is painted in delicate flesh colour and the eyes and eyebrows are pencilled with collyrium. Lips are painted red. A long white beard is tied along the cheek and chin. Turban, ash mark, sacred thread, nails, *soman*, cloth tied across the shoulders, bow and arrows are the other items of costume.

40. For Ashwathama, the face is painted as in the case of Dronar. Ash and sandal marks are made on the forehead and body. A black moustache is drawn. Yellow *soman*, *hasthakatakam*, white turban, sacred thread, yellow cloth tied across the shoulders, nails, bow and arrows are the other items of the costume.

41. The *rishis* like Viswamitra and Sukra have long black beards. The faces of these characters are painted in delicate flesh colour and the eyes and eyebrows are pencilled with collyrium. Lips are painted red. Ash marks are made on the forehead and on the body and a red dyed cloth is worn. Rosaries of Saivites are also worn. Black beard, *rishimuti*, black locks, *chevippoovu*, *nettinada*, *chuttithuni*, *paruthikkamani*, *hasthakatakam*, *patiaranjan*, sacred thread, white *uthariyams*, *thandappathuppu* and nails are the other items of the costume. The middle portions of the *uthariyams* are tied together on the chest. On appropriate occasions, they also wear *yogadandu* and *kamandalu*.

42. Even though Parasurama wears black beard, his make-up is slightly different from that of other *rishis* wearing black beards. He has black Brahmin beard, and black matted hair tied at the top, yellow cloth, rosary of Saivites, ash marks, axe, nails, sacred thread, bow and arrows. He has a red cloth tied round his loins and another red cloth across his shoulders. In former days, Parasurama was presented with an orange paint on his face with *chutti*, red beard of a sage, and other make-ups of *pacha*.

43. The sages Durvasavu and Bhrigu have red beards. The face is painted in light red colour. Eyes and eyebrows are pencilled with collyrium and the lips are painted red. A moustache is drawn and a caste mark is made on the forehead. Ash marks are also made on the forehead and on the body. An *uthariyam* is knotted on the chest. Other costumes are worn in the proper places. A black crescent moon is drawn on the cheek of Durvasavu. But Bhrigu does not have this mark.

Servants or Menials

44. The characters like Valalan, Mathali etc. who come under this group, have simple make-ups, which vary slightly with individual characters. For Valalan, the face is painted in delicate flesh colour, the eyes and eyebrows are pencilled with collyrium, and a moustache is drawn. The lips are painted red and a caste mark is made on the forehead. Ash marks are also made. The costumes are worn in the respective places. A red turban is fitted to the head with a tail to the back. Two *nettinadas* are tied obliquely over the turban. The *uthariyam* is



PL. 9. DUSSASANA CHALLENGING BHIMA IN DURYODHANAVADHOM
(A Red Beard character)

knotted on the chest. He has also a *chattukam* (flat metal spoon) in his hand. Mathali, Jeevalan and Varshneyan have the same make-up of Valalan. But they do not have the sacred thread. Instead of the metal spoon, they have a whip in their hands.

45. *Doothan* (messenger) is like Mathali. But he does not have the whip in his hand. Chithragupta is also like Mathali. But he has a book and pencil in his hands. Mallan and Mannan are like *doothan*. But Mannan (washerman) has a small bundle of cloths on his back.

White

46. The make-up of the characters falling in this group is similar to that of *pacha* with the only difference that in the place of the green paint within the *chutti* border on the face white paint is used. Characters like Brahma, Varuna etc., come in this group. The colour of the jacket of Varuna is, however, green while the remaining characters of this group have red jackets. When Brahma is represented wearing a four-faced mask in some stories artificial wooden hand on the left with *kindi* (water-vessel with a spout) and another artificial wooden hand on the right with rosaries are tied.

Orange

47. Balabhadra (the elder brother of Lord Krishna) etc. come in this group (Plate 16). These characters have orange paint inside the *chutti* border on the face. In all other respects they resemble the characters of the *pacha* type. But Balabhadra wears yellow jacket and blue skirt. He also has a plough in his hand. While appearing with Lord Krishna he wears a coronet resembling that of Lord Krishna. But in the place of the peacock plumes, there is only a tuft for the coronet of Balabhadra with a red garland around it. Although Siva comes under *minukku* normally, in the story of Dakshayaga Siva is represented with the costumes and make-ups of Balabhadra but with a skirt resembling tiger skin.

Red

48. Characters like Aditya (sun), Agni (fire) etc., come in this group. These have red paint inside the *chutti* border on the face. The rest of the make-up of Aditya is that of *pacha*. Agni differs from Aditya in one respect viz, the colour of the skirt of Agni is red, whereas that of Aditya is white. The make-up of Kritika who also falls in this group is, however, almost identical with that of *rakshasis* like Surpanakha but the colour of the jacket, skirt, hair and headgear is red, unlike in the case of *rakshasis* who have black colour for these items. The face of this character is painted red and lips black. There is also a mark of crescent moon on the cheek. Similarly, the make-up of Madolkatan, another character in this group is the same as that of a *kattalan* (hunter) except in the colour scheme. The colour of the dress, headgear, beard, and locks is red in this case. In the face make-up of Madolkatan, red colour is applied in places where black colour is used in the case of *kattalan* and vice versa.

Characters falling outside the Groups

49. There are a few characters appearing in different stories who cannot be grouped in any of the categories mentioned above because of their special types of costumes and make-up.

Characters wearing Masks

50. Ganapathi wears a mask in the shape of an elephant's head with a headgear on it. The other make-up is that of *pacha*. But the colour of the jacket is yellow and the skirt red. The monkeys like Angadan, wear a fur-coat, a pyjama (fur), tail, locks and a mask. The colour of these changes with the characters. The old woman has a mask, white locks, black skirt, breast cloth *(mulappatam)* and a *davani*. The old woman is also represented without using the mask when the face is painted in light black, the eyes are pencilled with collyrium, the eyebrows are painted white and the lips red, a long sandal mark is made on the forehead and grey hairs, *karithoda*, ugly artificial teeth, black skirt and a breast cloth are also worn. *Paruthikkamani* is tied on the neck and a white cloth is tied across the shoulders.

She has a big stick in one of her hands and a broom in the other. For the ox, a white jacket, a white pyjama and an ox-head are worn and the actor stands on his knees and hands in the form of an ox. The body is, however, covered with a white cloth. The pig is also represented in the same manner as ox. But the colour of the jacket and pyjamas is black.

51. For representing the horse, an actor wears the mask of a horse-head and places his hands on his knees. Another man stands on the back side and touches the shoulders of the man wearing the mask by his stretched hands. The bodies of the two men are covered by a cloth. The goat's head is required in the story Dakshayaga. It is substituted for Daksha's head for completing the *yaga*. When Mareecha assumes the shape of a golden deer, the deer's head is used. The mask of buffalo-head is used when Yama appears riding a buffalo.

Other Characters

52. Narasimha, the man-lion incarnation of Maha Vishnu appearing in 'Prahlada-charitam' has his face painted like that of a lion (Plate 18). His jacket is that of Hanuman. The headgear worn by Narasimha is the same as that of *pacha* or *kathi*. White beard is tied along the cheek and chin and also on the forehead. Two artificial ears made of the leaf sheaths of areca are inserted under the headgear. He has also *damshtras*.

53. There is a swan *(hamsam)* in 'Nala-charitham' (Plate 19). Its make-up is almost identical with that of a *pacha* type except the face make-up. The *chutti* is absent for this character and in its place dots are given with arsenic powder. An artificial beak is attached to his mouth, the end of which is slightly bent upwards. Two golden feathers are also tied along his hands. Garuda, the conveyance of Vishnu is also represented in the same manner. But the end of the beak of Garuda is slightly bent downwards.

54. There is another notable character named Bheeru appearing in a few stories (Plate 21). He is the comic element in Kathakali. His headgear is of conical shape and has all kinds of funny decorations. He wears the costumes of other actors in a manner suggesting a bundle of incongruities like wearing the anklet round his neck etc. At times, long artificial teeth cut out of thick paper are also fixed in his mouth to create an ugly look.

55. Lord Siva has also some peculiarities in costumes (Plate 17). He has no *chutti* on his face. The hemispherical headgear worn by him contains the emblems of moon, Ganga and a serpent. The jacket and breastplate are absent in this character. However, the *kazhutharam* is worn by him. But it is covered by rosaries put over it. The chest and the arms bear ash marks. Serpents made of wood are tied on the hands. A white scarf *(uthariyam)* is put over the shoulders. In the place of skirt, a coloured cloth resembling a tiger skin is tied round the loins. A waist chain *(aranjan)* is worn over the cloth round the loins. A peacock fan is held from behind each shoulder.[1]

56. The make-up of Vividan is the same as that of Hanuman. In fact he looks like a blue Hanuman. Wherever black colour appears in the face make-up of Hanuman, Vividan has red colour and in the place of red colour of Hanuman Vividan has black colour. He has blue Hanuman *muti*, black beard, blue jacket and blue skirt. The make-up and costumes of Nandikeswaran are the same as those of Hanuman excepting the colour. The colour of the costumes of Hanuman is white whereas the colour of Nandikeswaran is red.

57. The scene known as *ninam* (blood display) in which Surpanakha the ogress who ventured to abduct Lekshmana streams with blood and howls in pain and rage on her breast and nose being chopped off by the latter is perhaps the most terror-striking and disgusting. The neck and above of this character are given the make-up of *kari*. A white jacket and white pants

(1) In the story of Dakshayaga Siva is represented in another manner referred to supra.



Pl. 10. HANUMAN IN KALYANASAUGANDHIKAM
(A White Beard character)



Pl. 11. SURPANAKHA
(A Kari character)



Pl. 12. LAKSHMANA AND SURPANAKHA IN KHARAVADHOM
(Pacha and Kari characters)

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MADRAS

cover the rest of her body. Two leaf sheaths of areca tree are folded conically to resemble the breasts of a female. The sides of these are stitched and the bases are connected by a rod which is tied to the chest of the actor. The middle portion of each of these artificial breasts is half chopped, the cut portion hanging down. Small circular rims made out of the midribs of the leaflets of the cocoanut palm are connected together in lengthwise order to form a chain of circles running to about 40″ in length. The rings are wrapped in cloths and the whole chain dipped in blood-coloured *ninam* solution. Four or five such chains are hung from the chopped breast of the ogress. A small piece of cloth is placed below the nose and tied to the back of the head, representing the chopped tip of the nose hanging in suspense. Two persons hold the character on either side from behind. A piece of cloth 2½ yds. × 1½ yds. dipped in *ninam* solution is held out by the actor by both the hands behind the head, thus giving a bloody background to the already bleeding form. *Ninam* is liberally applied to her jacket, pants, the breasts, nose etc. Thus the loathsome ogress all black, streaming with blood and howling in pain and rage, emerges from the darkness of night from the opposite end of the Kathakali ground making her way through the audience to the stage like 'the very spirit of the evil let loose'. In front of her two torches are held fed with red resin powder which amidst the lurid glow of the torches shoot out angry tongues of flame. Incessant drumming adds to the thrill. Having regard to the ghastly nature of the scene the audience are warned beforehand of the *ninam* scene in order to facilitate the withdrawal of weak-hearted persons or pregnant women from the place. The *ninam* solution is prepared by mixing five-rupee weight of red powder with the boiled solution of the flour of five measures of raw rice and water. When properly mixed the solution gets the colour of blood. In former days instead of red powder turmeric and lime were used. The *ninam* scene is not exclusively limited to Surpanakha appearing in Kharavadhom. It is staged in other stories as well like Narakasuravadhom, Krimiravadhom etc. in which the ogress, however, is not Surpanakha but, Nakrathundi, Simhika and similar characters.

58. The face of Bhadrakali is painted in light blue colour. The eyes and eyebrows are pencilled with collyrium. Lips are painted red. On the cheeks small crescent moons are drawn and red colour marks are made on the forehead, on the tip of the nose and chin resembling the scar of smallpox. The jacket has also got similar dots in white or yellow colour.

59. Jatayu has black and red dots on the face. He has big red beak, red jacket, white *karaval*, large wings, and black locks. Other items are the same as of *Hamsam*.

60. The face of Garuda is painted green. The eyes and eyebrows are pencilled with collyrium. He has red beak, red jacket and red wings. Other items are like those of Jatayu.

61. The bird appearing in Nalacharitham is represented in the same way as *Hamsam*.

62. The face of *kolayali* (executioner) is painted in light black. Moustaches, black pyjamas, black jackets, black locks and *damshtras* are also worn. He has also various weapons in his hands.

63. The face of yavanan is painted in delicate flesh colour and the eyes and eyebrows are pencilled with collyrium. Lips are painted red. Long white beards and moustaches are tied. A mark representing the scar produced by the daily religious services is made on the forehead. A white turban and a white prayer gown are worn. He has a slightly protruding belly. A long cloth is tied across the hip. On his neck, a chain of black beads is put. He holds in his hands a rosary and a prayer book. His disciples wear *lunki*, belt, muslim cap or turban and also an amulet on the left hand. A long knife is put on the belt. They hold shields and swords in their hands.

64. Face of mahout is painted in light colour. Eyes and eyebrows are pencilled with

collyrium. He has moustaches and marks of ashes. A cloth with border lines is worn in the Malayali style along with a turban. Another cloth is tied round his hip and a knife is inserted in the girdle. He also wears ear-rings. He has an iron goad, a stick made of a thorny shrub and an earthen pot in his hands.

65. The face of washerman is painted in light flesh colour and eyes and eyebrows are pencilled with collyrium. Lips are painted red. Moustaches are drawn and a finger-mark *(thilakam)* is made on the forehead. Small rings are worn on the ears. He wears a white turban and a white *soman*. Ash marks are also made. He has also a bundle of cloths.

66. Fisherman's face is painted in light flesh colour. Eyes and eyebrows are pencilled with collyrium and the lips are painted red. A moustache is also drawn. He wears rings on his ears, red conical cap on his head, an amulet on his left hand, a chain of glass beads on his neck, a red *lunki* round his loins reaching upto the knee with its end tucked behind, and a paddle in his hands.

67. The face of Mumukshu is painted in light flesh colour and a white Brahmin beard is tied on his cheek and chin. On the forehead a mark produced on account of the daily religious services is put. He has also ash and sandal marks. Matted hair is tied on the head. He wears white *soman* and a sacred thread. A white cloth is tied across his shoulders.

68. The face of Kankan is painted in light flesh colour and the eyes and eyebrows are pencilled with collyrium. Lips are painted red. A mark is put on the forehead (produced as a result of the religious services). He wears a red dyed cloth. Another red dyed cloth is put over his head. He has a long bamboo stick with its top portion covered by red dyed cloth.

69. The painting of the face of *kattalasthree* (hunter-woman) is in light blue colour. A mark of the crescent moon is made on the cheeks in white and red colour. Other costumes are worn in the proper places as usual. This character is also sometimes represented without having the head-gear. In such cases, the head-dress and ear-rings will be those of other female characters. But the colour will, however, be black.

70. The face of carpenter is painted, in light flesh colour, eyes and eyebrows are pencilled with collyrium and ash marks are put on the arms etc. A long sandal mark is made on the forehead, lips are painted red and teeth are made a little ugly. Black locks are tied at the top of the head with ends flowing down the back. A red cloth is tied across the forehead with its ends collected on one side. He wears a red cloth in the Malayali style reaching just below the knee. The *patiaranjan* is tied over it. White *uthariyams* are worn with a twist on the chest. *Paruthikkamani* and *hasthakatakam* are also worn. He has an axe resting on his shoulders and a scale and chisels in his hands. In his armpit, he keeps a bundle containing chewing materials.

71. The face of Karkotakan is painted in five colours resembling the hood of a serpent. He has black jacket, black skirt and white *uthariyams*. The remaining costumes are the same as in the case of the *pacha* type.

72. Washerwoman is represented as a female character with a tuft, half sleeved jackets, bangles, saree etc.

73. The face of Nagakanyaka is painted in delicate flesh colour. Nose-ring and *kathila* are worn. A cloth and a crown resembling the hood of a serpent are worn on the head. The jacket and the *putava* should resemble the remaining parts of a serpent. The rest of the make-up is that of a female character in *minukku*.

74. *Thapasi's* (female ascetic) face is painted in the usual manner. But it is so designed as to make the appearance of an old woman. Grey locks are tied slightly bending to the back. Breast cloth is also tied. A white saree is worn reaching below the knees and one end is taken to the back over the shoulders and tucked in behind. Other



Pl. 13. POOTHANA IN THE DISGUISE OF A CHARMING DAMSEL TRYING TO POISON SREE KRISHNA IN POOTHANAMOKSHAM

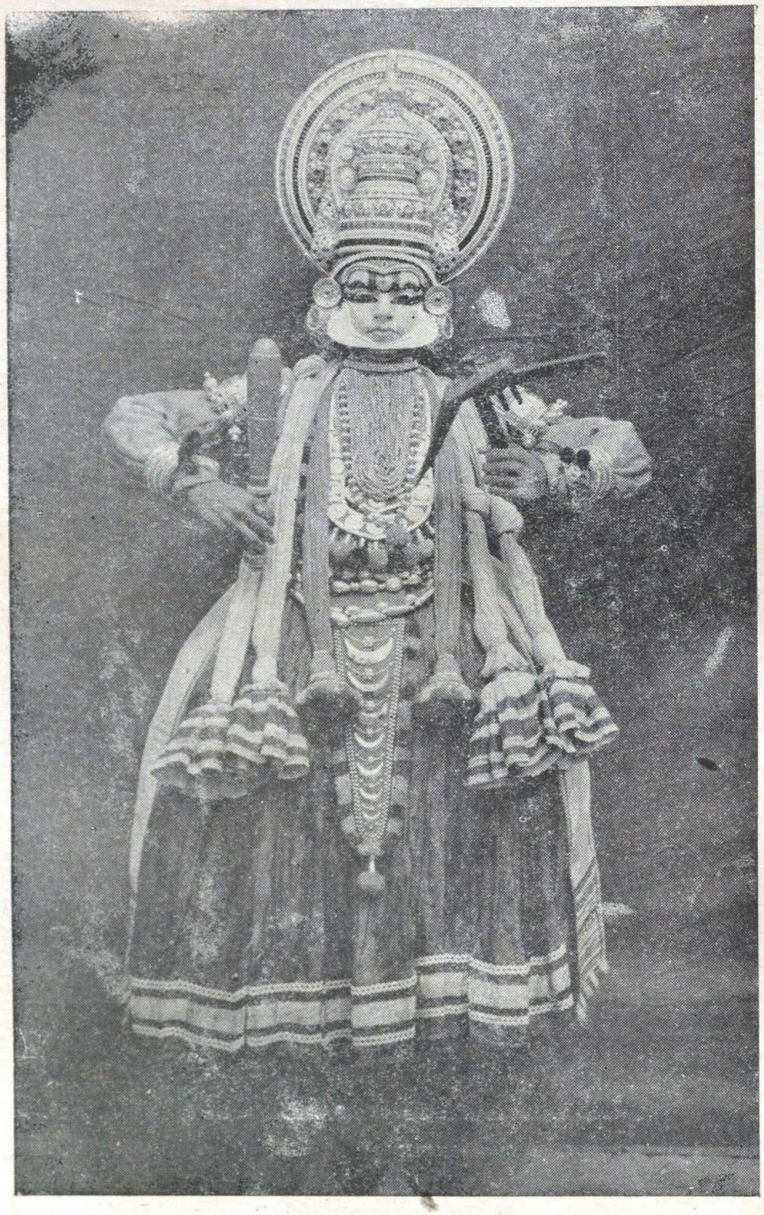
(A Minukku character)



Pl. 14. SARASWATHI IN NALACHARITHAM
(A Minukku character with modifications)



Pl. 15. SAGE NARADA IN BALIVIJAYAM
(A Minukku character)



Pl. 16. BALABHADRA IN SUBHADRAHARANAM
(An Orange character)

ornaments are limited to the minimum.

75. The face of Samhararudran is painted in orange and an eye is drawn on the forehead. Lips and moustaches are drawn as in the case of Raudrabhima. He wears a skirt resembling tiger's skin. He has also a long trifoliate pike in his hand. The rest of the make-up is that of *pacha*.

76. The face of Markandeya is painted in delicate flesh colour, the eyes and eyebrows pencilled with collyrium and the lips coloured red. Ash marks are put on the arms etc. and a Vaishnava mark is put on the forehead. Locks reaching upto the shoulders are tied on the head. On the forehead and across the head, glass bead chains are tied. Rosaries of the Saivites are tied on the hands and on the neck. The sacred thread, yellow cloth with its end tucked in behind, a red tie at the hip, and a cloth tied across the left shoulder are the other items of costume.

77. Barring the rosaries of Saivites, Vamana has almost the same make-up of Markandeya. But the yellow cloth reaches only upto the elbow and a thread made of *dharbha* grass is tied on the hip. He also wears across his shoulders a tape of black antelope's skin. He has a stick of *chamatha* (Butea frondosa), a water-pot of the devotees and an umbrella made of palmyra leaf.

78. The face of Brahmin boys is painted in light flesh colour, eyes and eyebrows are pencilled with collyrium and the lips are painted red. Sandal and ash marks are put as usual and the tuft tied into a knot. A cloth with lined border is worn and another folded cloth is tied over it from the loins with its ends hanging in front. If the boy has passed the age of *upanayanam*, sacred thread and a tape made of the leather of a black antelope are worn. If the *samavarthanam* is over, he wears a second cloth, and a sacred thread and his head is covered with a small cloth.

79. In the case of *rakshasis* like Thrijata the face is painted in light black colour. The eyes and eyebrows are pencilled with collyrium and the lips are painted red. The hair is untied and matted. Rings are worn on the ears and nose. Black breast cloth, black skirt and black jacket are also worn. Other costumes are those of ordinary female characters.

CHAPTER III

HISTORY OF THE COSTUMES IN KATHAKALI

80. The costumes of *Ramanattam* which paved the way for Kathakali were not so elaborate and majestic as that of Kathakali in its present form. In early stages, the actors used to wear masks made of the leaf-stalks of areca trees. This practice was subsequently abandoned and the use of arsenic on the face of Rama and Lakshmana and masks for monkey and demon characters came into vogue. The male characters had some sort of headgears. The *ututhukettu* and ornaments had also been designed on the model of the main character in the *kootiyattam*.[1]

81. The Vettathu Raja who lived in the 17th century A. D., made valuable contributions to the Kathakali costumes and accessories. The masks of demon characters were replaced by headgears. The jackets and scarves *(uthariyams)* were introduced. The headgears and ornaments were designed in a more attractive manner. The introduction of the drum *(chenda)* along with long finger drum *(maddalam)* is also the contribution of Vettathu Raja. The use of gongs *(chengala)* by the chief musician and the cymbals by the assistant musician had its origin in Kurichi of Travancore. But the names of *ponnani* and *sankiti* for the chief musician and assistant musician are of North Kerala.[2]

82. The period of Kottayathu Raja, the latter half of the 17th century A. D., marks another stage in the development of the costumes. Imitating the make-up of the main character in *kootiyattam* he introduced the use of *chutti*. The headgear was made more artistic and the *krishnamuti* used in *Krishnanattam* was adopted in Kathakali. The diameter of the *kuttichamaram* (headgear) used by demon characters was increased. The Kottayathu Raja was also responsible for the use of red scarf *(uthariyam)* along with white scarf.

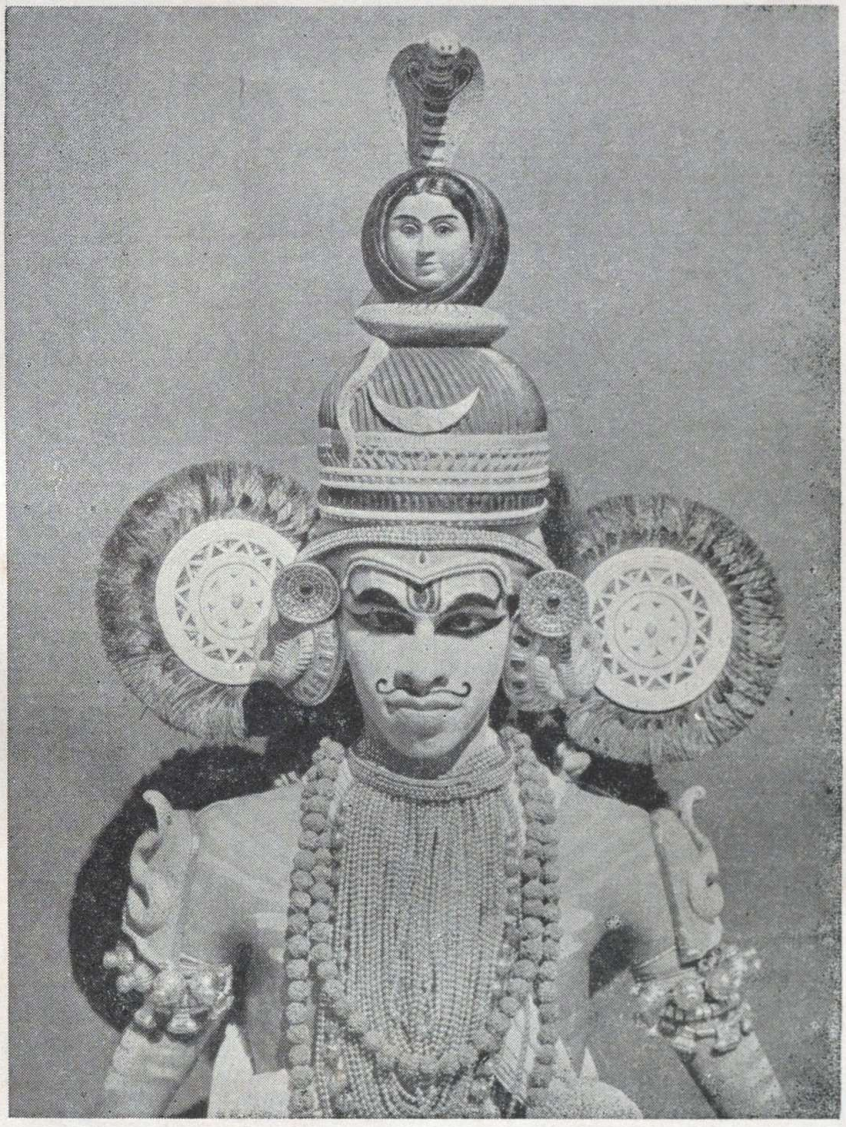
83. It is said that *vattamuti* used by Hanuman, the monkey-god, was designed by one Katathanattu Raja who died in 1727 A. D. The story goes that he designed the *muti* on the model of a hat presented to him by a French captain.

84. An important epoch in the evolution of Kathakali costumes was started by Kaplingattu Nambuthiri.[3] He fashioned the *chutti* in a more artistic manner. The *chuttippoovu* for *kathi* and the red beard, the *rishimuti* and the use of arsenic for *rishis* as in the case of female characters were the main contributions of Shri Nambuthiri. According to one school of thought, the Kaplingattu Nambuthiri is the father of the present Kathakali costumes. It is said that he was meditating over the question of reforming the costumes used in Kathakali when one night he saw an apparition of the mythological figures from the waist upwards appearing over the waves. The story goes that the make-up of the characters was designed on the basis of this vision and the *thirassila* (curtain, literally wave cloth) derived its name from the waves on which the figures appeared. Corroboration of this legend is sought in the practice of draping almost all characters in the billowing, wavy skirt which symbolises the foamy, heaving sea surface over which all the forms appeared.[4] It has to be mentioned that the same legend is attributed to the Raja of Kottarakara and the Kottayathu Raja

(1) See 'Kathakalirangom' by Shri K. P. S. Menon. (2) Ibid.

(3) The exact period is not known.

(4) Kathakali, the sacred Dance drama of Malabar, K. Bharatha Iyer, page 54



Pl. 17. LORD SIVA IN KIRATAM IN HIS REAL FORM
(A Miscellaneous character)



Pl. 18. NARASIMHA IN PRAHLADACHARITAM
(A Miscellaneous character)



Pl. 19. HAMSAM (SWAN) IN NALACHARITHAM
(A Miscellaneous character)



Pl. 20. REAR VIEW OF NARASIMHA IN PRAHLADACHARITAM
(A Miscellaneous character)

It might, perhaps, be more reasonable to trace the origin of the term *thirassila* to the Sanskrit word *thirassu* which means that which hides.

85. The headgears in the wood carvings in Kerala temples like Triprayar, Ettumanur, Thiruvarpu and Chathankulangara are almost identical with the headgears used in Kathakali.[1] The carvings in the Narasimha temple at Chathankulangara near Chengannur have been attributed to the fourteenth century by Shri R.V. Poduval on the basis of the *vatteluthu* inscription engraved on the entrance to the temple.[2] An inscription on the base of the central shrine of the Siva temple at Ettumanur shows that the repairs to the temple were started in 1542 A. D, and the consecration ceremony was performed in 1545 A. D. The carvings can, therefore, be taken to belong to the sixteenth century. Kathakali having originated between the 15th and the 17th centuries A. D., it is not erroneous to think that the improvements to the early headgears in Kathakali would have been modelled on the headgears from these wood carvings.

86. One figure in the Thiruvarppu temple near Ettumanur has the face make-up which resembles the face make-up of the *kathi* type of characters in Kathakali. The period to which the figure belongs is, however, not known. But the carvings in the Thiruvarppu temple bear close resemblance to the figures in Ettumanur temple in form, gesture and costumes. Considering the nearness of these temples and the resemblance in the carvings it is probable that the carvings of the Thiruvarppu temple also belong to the same period as of the Ettumanur temple. On this hypothesis it is possible that the carving of the *kathi* character in the Thiruvarppu temple might have influenced the face make-up of the *kathi* type of characters in Kathakali.

(1) Vide illustration No. 2 of Plate 4 under Wood Carving infra

(2) Travancore Wood Carvings by R. V. Poduval, in Arts and Crafts of Travancore page 108.

CHAPTER IV

DESCRIPTION AND PROCESS OF PRODUCTION

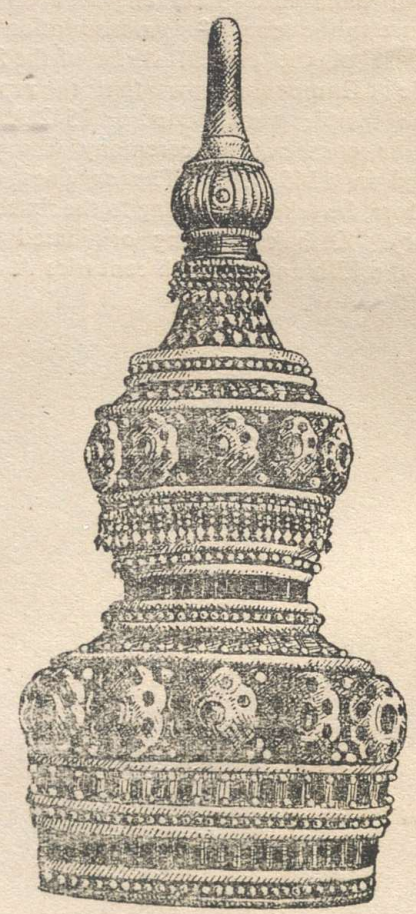
87. Chapter II of the foregoing portions gives an account of the characters in Kathakali with reference to their costumes and make-up enumerating the types of costumes worn by them. It now remains to give a full description of each type of costume and the processes involved in the production of the same.

Headgears

88. Of all the costumes and accessories in Kathakali, the headgear is, perhaps, the most outstanding. It is this, more than all, that gives the characters their supernatural majesty and splendour. Not only it lends height to the figures in proportion to the bulk added by the overcoat, ornaments and skirt, but also helps to maintain the balance of the actors in their movements. The headgears vary with different characters and can be classified as those of *pacha* and *kathi*, of the red and black beards, the white beard, of the *kattala* (forestman), the *rishi* (sage), Bheeru, Lord Krishna, Saraswathi and Siva.

The Headgear of the Pacha and Kathi Characters

89. The headgear of the *pacha* and *kathi* characters is the most imposing of all types of headgears. Consisting of a coronet called *kiritam* of two super-imposed domes ending in a bud-shaped finial, an enormous circular disc behind the coronet called *kesabharam* and a halo known as *prabha* between the coronet and the *kesabharam* this is a perfect dream in ornamental art. The *kiritam* is the most important of the three main components of the headgear. Carved and decorated on a wooden frame, it is hollow in the centre. The edge of the hollow bottom is covered with red scarlet. From here up to the top of the first dome the hemispherical portion is decorated in ascending order with a row each of closely knit round silver beads on red scarlet base, shelly wings of beetles set vertically in parallel rows, thick pieces of ground glass fixed on aluminium foils, large flowers of glass petals with aluminium foils below and small silver flowers on red scarlet base on either end of every large flower. These rows of decoration are interlined with either a single ridge of peacock feather stem or a double ridge of the same with a line of



KIRITAM



Pl. 21. BHEERU
(The comic character)

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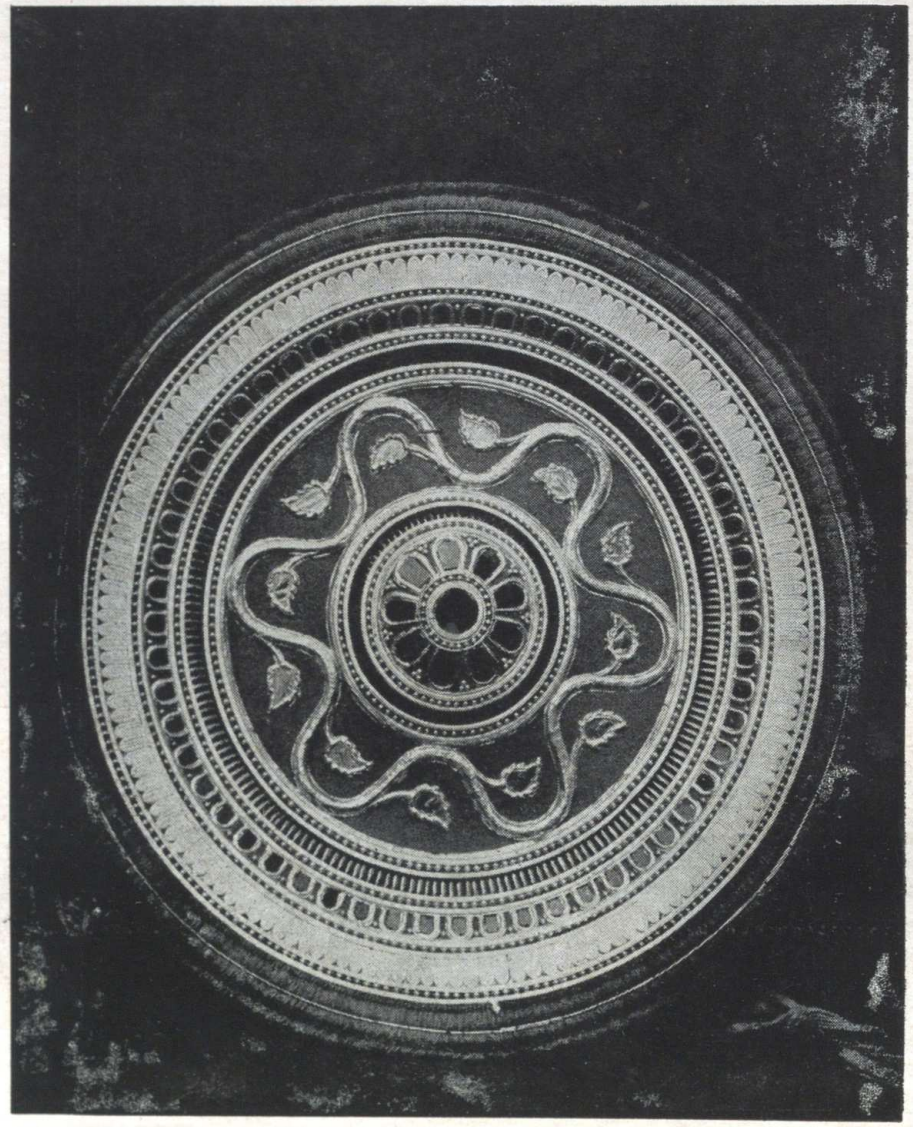
Pl. 22. LORD SIVA AND PARVATI IN THE GUISE OF HUNTERS IN KIRATAM

(A Kattalan (hunter) and his wife)



PI. 23. REAR VIEW OF KUTTICHAMARAM

silver beads in the centre. The top of this dome commences with a number of concentric circles starting with a double ridge of peacock feather stem with silver beads in the centre followed by a row of thick ground glass pieces set on aluminium foils and again another double ridge of peacock feather stem with silver beads in the centre. The second dome rises from this with a base of shelly wings of beetles placed vertically in parallel order. Two circular rows of peacock feather stem with red scarlet lining in the centre follow this decoration. Ornamental silver fringes are suspended above these rows of peacock feather stem followed by successive circular rows of thick large ground glass pieces, large flowers of glass petals fixed on aluminium foils interlined with small silver flowers knit to red scarlet base and small ground glass pieces fixed on aluminium foils. Double ridges of peacock feather stem with silver beads in the centre are given after every circular row. Between the top of the second dome and the bud-shaped finial is a neck of green glass pieces resembling that of a peacock. Above this rises the bud-shaped finial decorated by silver fringes suspended from its bottom and lined with silver beads and aluminium foils converging towards the spearhead.

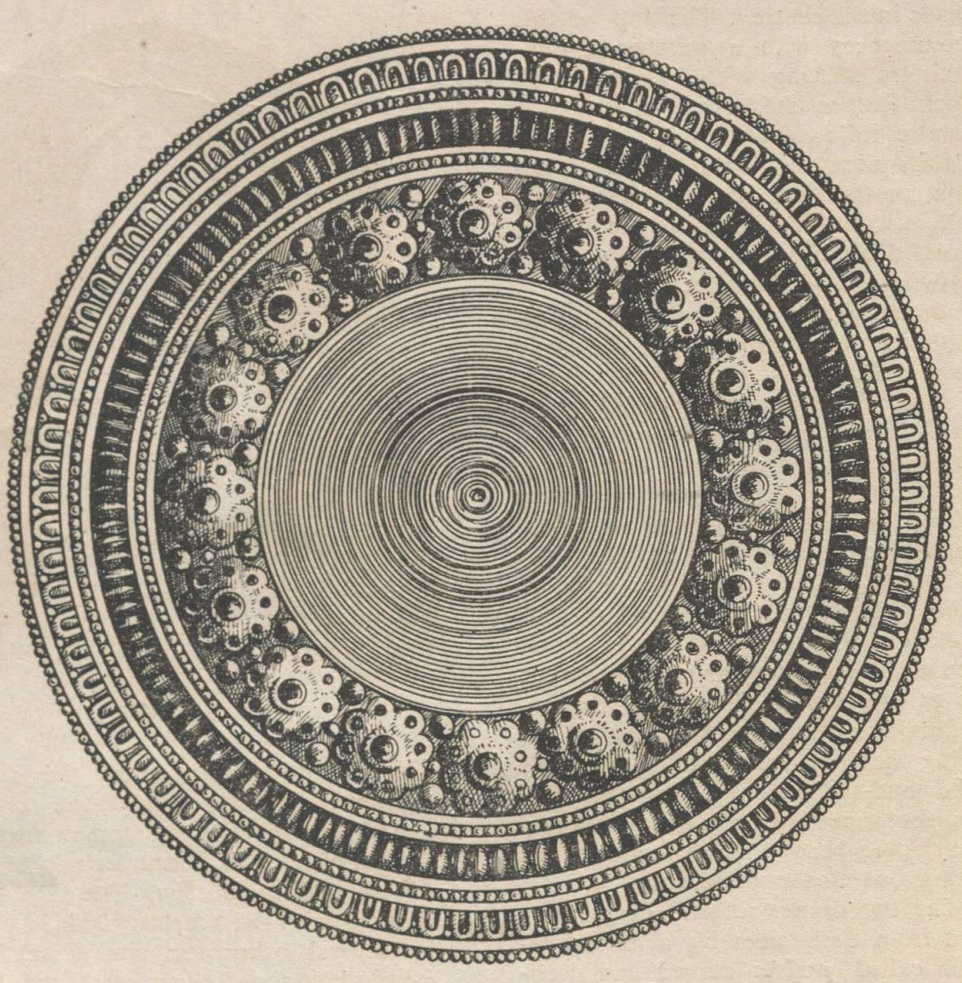
90. The two domes of the *kiritam* are encircled from both sides by a horseshoe-like halo called *prabha* carved and decorated on wooden frame. This halo consists of two semicircular parts. At the bottom of each is a round flower of glass petals placed over aluminium foils with two concentric circles of silver beads encircling the central portion of the outer border of the flower. This flower is connected with the horseshoe portion of the halo by vines carved on wood and decorated with aluminium foils. The decoration on the horseshoe portion of the halo consists of a number of concentric circles beginning with a row of small glass pieces fixed on aluminium foils and followed by another line of peacock feather stem and yet another of closely knit round silver beads. Silver



PRABHA

flowers and beads cover the remaining portion of the halo close to the coronet.

91. The *kesabharam* comes next behind the *prabha*. This forms a circle behind the *kiritam* and the *prabha*. The edge of this is covered with red scarlet. This is succeeded by several concentric circles starting with closely knit round silver beads and followed by lines of peacock feather stems, silver beads knit apart, glass pieces fixed on aluminium foils, peacock feather stem, closely knit round silver beads, peacock stem and shelly wings of beeties, a double ridge of peacock feather stem with silver beads in centre and a line of large flowers of glass petals fixed on aluminium foils alternated with pairs of small silver flowers. The backside of the *kesabharam*, the outer edge of which touches the very base of the *kiritam*, naturally forms the rear of the entire headgear. As the actor in the course of his dance is at times likely to turn his back, it is quite essential that the back of the headgear should also be picturesque.



KESABHARAM

Several concentric circles of decoration cover this portion of the *kesabharam*. The edge and the surface up to the 11th circle present the same order of decoration as the front portion. The eleventh circle is succeeded by a circular row of vines of golden stem and leaves, green buds and grapes. This is fringed on either side by stems of peacock feather interlined by silver beads. Circles of shelly wings of beetles, peacock feather stem with silver beads in the centre, large flowers of glass petals with three silver beads at each corner of the petals, a line of silver beads set against red scarlet base and a golden circle of aluminium foils follow converging in a round piece of glass in the centre fixed on aluminium foils. The portion inside the circle of vines rises in a convex shape of several storeys so as to give the appearance of full blossomed flower to the various concentric circles of decoration. This is called *thodappoovu*. The vines are shaded by aluminium foils.

92. The three components of the headgear are tied together at the adjoining points by strings. At the bottom of the headgear two ribbons called *kettukacha* are suspended to facilitate the tying of the

headgear to the head. The diameter of the headgears of the *pacha* and *kathi* characters is normally about 18 inches. While the height of the *kiritam* is either equal to or a little above the diameter of the *kesabharam* in the former Malabar and Cochin areas, it is always less in the Travancore area.

93. The frame of all the three parts of the headgear is made of wood. The type of wood required for the purpose has to be light, as otherwise the actor can hardly stand its weight. The wood of the *kumil* tree (Gmelina asiatica) is, therefore, preferred for the purpose. This is cut into suitable sizes and the surface shaped with tools and lathe. In the case of the *kiritam* it is also drilled with a view to cut out a hollow in the centre. Necessary carving is done on the surface with the aid of a chisel. The fixing of the glass pieces with mercury back, the scarlet and shelly wings of beetles to the wooden base is done with the aid of a *koottumezhuku* prepared by mixing viscous juice of jack fruits, black and white wax in the ratio of 6: 1: 1, melting and filtering the same. Where glass pieces are placed over aluminium foils the edges are gummed with the glue of neat's hides. The peacock feather stem is fixed on the wooden base by stitching the same on scarlet base. Since shelly wings of beetles are rare, pieces of glass bangles are also substituted for the same. The stem of peacock feathers requires special handling before it is rolled into shape. The feather is removed from the stem and the outer white cover on the three sides of the stem is peeled off with the aid of a knife. The stem can then be bent towards the side from which the outer cover has been peeled off, in any shape one wants. But if the direction is changed, the stem will immediately break into pieces.

94. Before wearing the headgear, pieces of cloth of 3 ft. square varying from 2 to 4 in number are tied over the head to give a suitable base to the hollow bottom of the headgear. These pieces of cloth are called *thalekettuval.*

Headgear of the Red and Black Beard (Kuttichamaram)

95. This headgear of the red beard and the black beard is the largest among headgears. It resembles the headgear of the *pacha* and *kathi* characters in most respects. There are, however, a few minor differences. The edge of the *kesabharam* (circular disc) of the *kuttichamaram* is decorated with woollen tufts with a base of peacock stem rolled into oval shaped flowers arranged in a circular row. The headgear of the red beard has red tufts and that of the black beard black tufts. In the case of *prabha* it is given an outer edge of woollen tuft in addition to the decoration in the *prabha* of the headgear of the *pacha* and *kathi.* On the back side of the *kesabharam,* instead of the vines with grapes and buds, vines of golden stem and green leaves with golden border are given (Plate 23). The rest of the details of this type of headgear are the same as in the case of the headgear of *pacha* and *kathi.* Normally the diameter of the *kuttichamaram* is 24" to 28" as against 18" of the headgear of the *pacha* and *kathi.*

Headgear of the White Beard

96. The headgear of Hanuman is somewhat like a Chinese hat with two domes ending in a bud-like finial and adorned with tassels. This finial is called *narayam* which is made of silver. The rest of the frame is of cane instead of wood. The outer surface is covered by white flannel and the bottom of the eaves with red scarlet. Four lines of ornamental fringes of silver are suspended in concentric circles from the bottom of the eaves. Between two such lines of fringes, silver flowers are set in concentric circles. An emblem of crescent in silver is also fixed on the bottom of the eaves in front. A circular ridge runs round the bottom of the headgear which rests on the head. The edge of this ridge is covered with red scarlet. Rows of silver beads, stem of peacock feather and shelly wings of beetles run, one after the other, along this ridge. A small sector on the back has no ornamental work. Long artificial locks

of Sterculia villosa suspended from the bottom of the headgear by stitching flow behind the actor representing the locks. These glitter in light. The pattern of the headgear of Nandikeswaran is the same, the difference being only in colour. The outer surface of the headgear and the locks are red in colour. Similarly, the colour of the locks and the outer surface of the headgear of Vividan is blue.

Headgear of the Forestman or Kari type (Kattalanmuti)

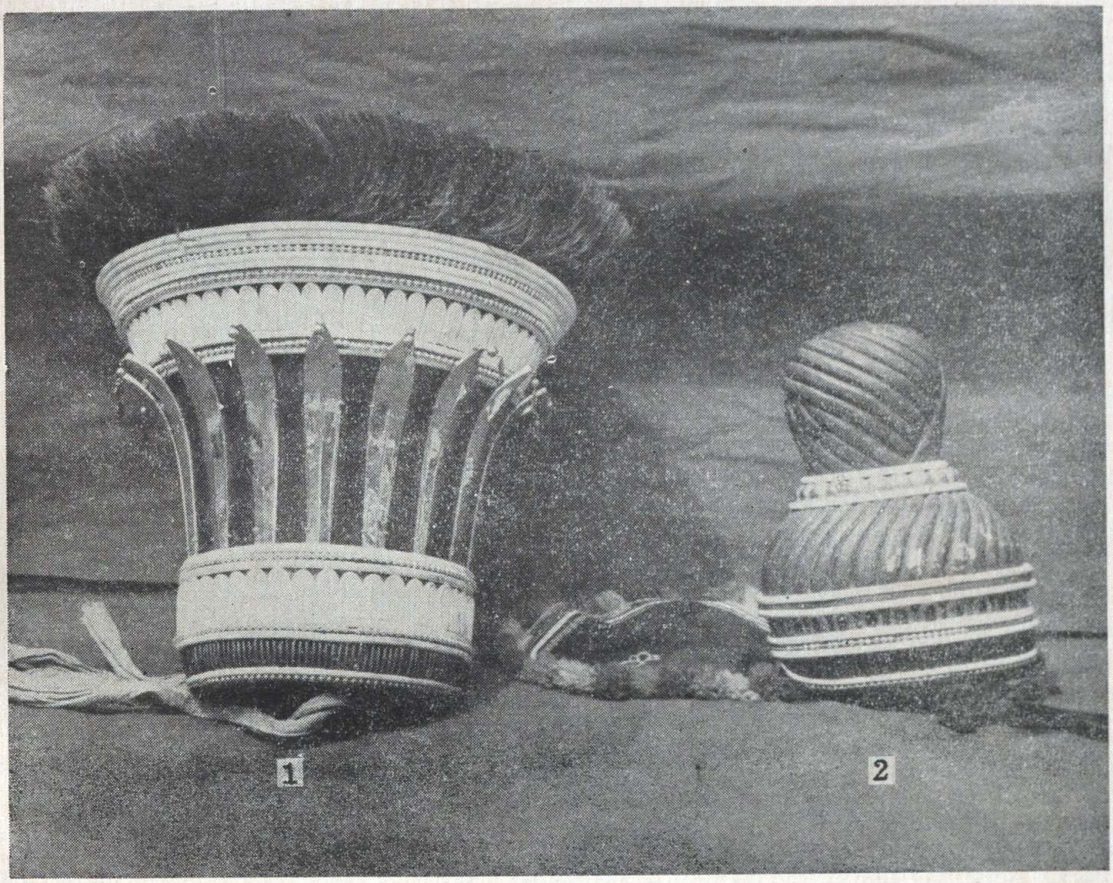
97. This headgear closely resembles an expanding lotus capital (Plate 24). Just above the rim at the bottom which is decorated with the stem of peacock feather is a row of shelly wings of beetles arranged vertically. Above this is a decoration with stems of peacock feather rolled into oval forms and placed one after another resembling white oval flowers. Two rows of stems of peacock feather encircle the headgear above this decoration. Strings of glass beads are tied over these. Red aluminium foils are fixed between the gaps. From the bottom, the frame of the headgear rises in the shape of an expanding lotus capital covering almost half the height of the entire headgear. This frame of cane is covered with black cloth all round. Long strips of silver resembling petals of screw-pine flower are fitted over this dark cloth covering. Ornamental works with the stems of peacock feather continue up to the top and the edges are crowned with the eyes of peacock feathers. Two ribbons are fitted from inside at the bottom for tying the headgear on the head of the character. The headgear of Krithika is of the same pattern as *kattalanmuti*. The only difference is that the colour of the cloth covering the frame is red in the former case instead of black.

Headgear of Sages (Rishimuti)

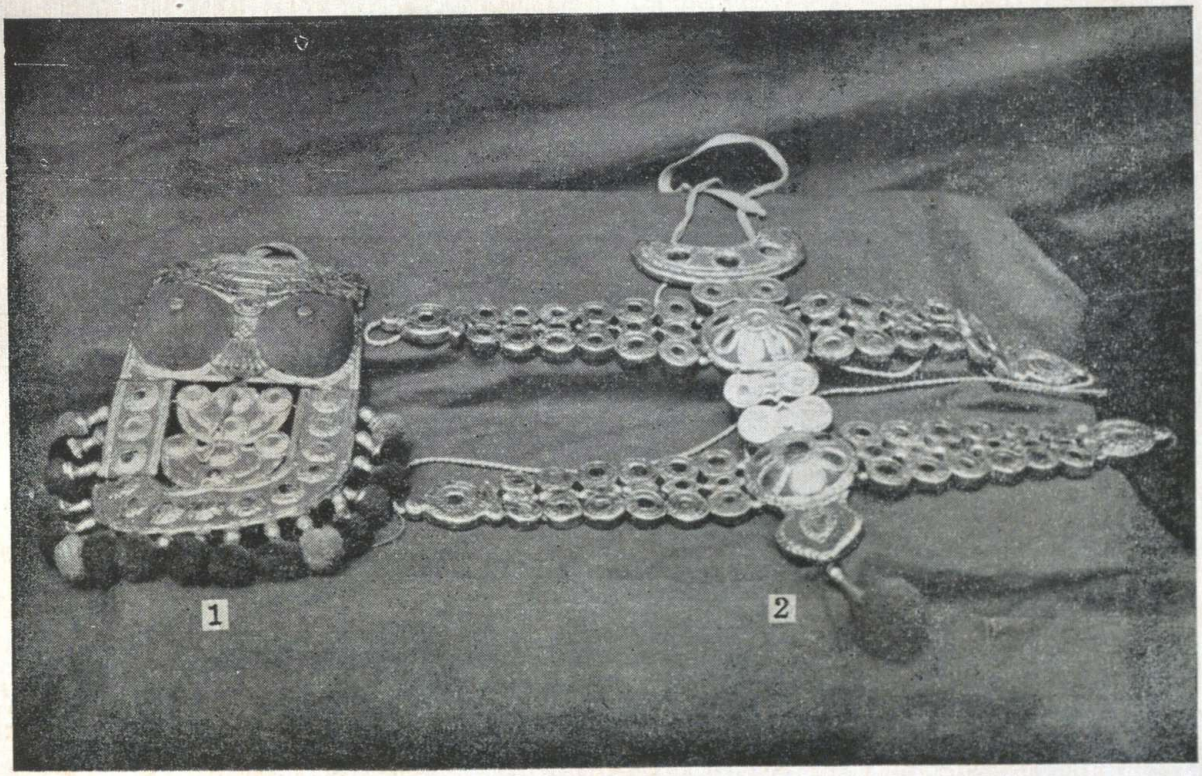
98. In its general appearance it resembles the *jatamakuta* of sages (Plate 24). Thus it consists of two domes, the one below being larger. It is worked in *kumil* wood. The bottom of the headgear which rests on the head is covered with red scarlet on the edge. Over this is a line of silver beads succeeded by rows of shelly wings of beetles arranged vertically in parallel order with a border of peacock feather stem on either side and silver beads, ground glass set on aluminium foils and two ridges of peacock feather stem with silver beads in between. This marks the beginning of the first domelike portion of the headgear. Lines resembling twisted coils are carved on this dome in the right-hand direction. At the end of the first dome of the headgear of the Saivite sages a *rudrakshamala* (rosary of Saivites) with the stem of peacock feather on either edge encircles the headgear. From here the second dome or what may be more appropriately described as the top of the *jatamakuta* rises. This portion is also carved almost similar to the base, but the coils run in the opposite direction. An oval shaped cloth is attached to the hind bottom. As usual two ribbons are fixed from each side at the bottom for tying the headgear on the head. The wooden base is drilled hollow and the surface carved as above.

Headgear of Saraswathi (Saraswathimuti)

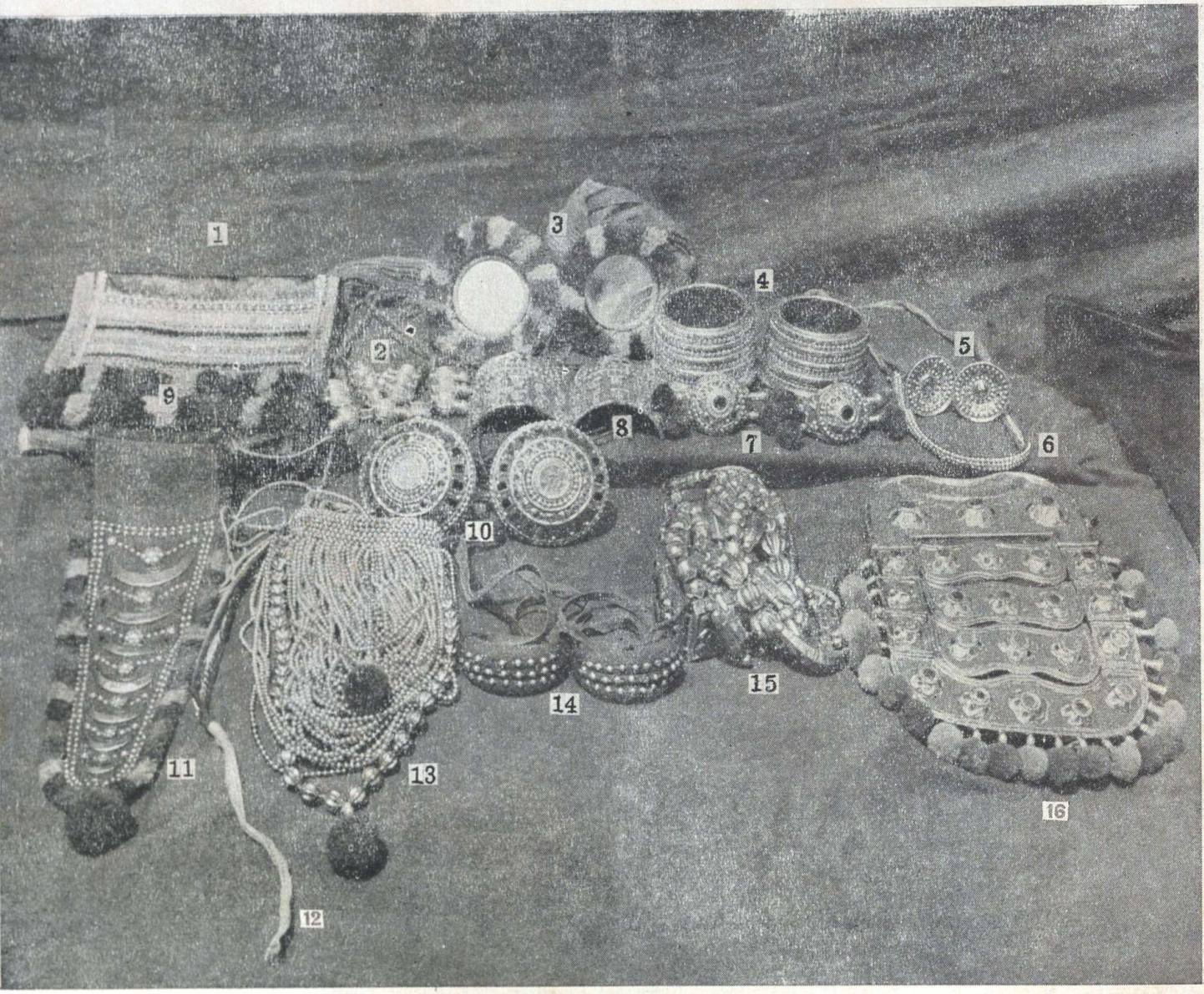
99. This headgear worn by Saraswathi is one devised by the Kerala Kalamandal on the basis of a Ravi Varma painting. Generally it resembles the *kiritam* of the headgear of the *pacha* and *kathi* characters with the difference that the domes are much smaller and the finial at the top has no spear point but ends with a small dome. The framework is in *kumil* wood and of hollow pattern with carvings on the surface. After every row of decorative carving there is a double line of the stem of peacock feather with red scarlet in between. The base of the second dome has four concentric circles, each of them decorated with coloured aluminium foils and ground glass. An oval shaped piece of cloth hangs at the bottom from behind. Ribbons are fitted from inside at the bottom to help fixing the headgear on the head. Troupes other than those of Kerala Kalamandal use the headgear of *pacha* and *kathi*



Pl. 24. 1. KATTALANMUTI 2. RISHIMUTI



Pl. 25. 1. MULAKURALARAM 2. MARMALA



PI. 26. SOME IMPORTANT ITEMS OF COSTUMES

1. Chuvappuval
2. Paruthikkamani
3. Chuvappu Uthariyam
4. Bangles
5. Chevippoovu
6. Nettinada
7. Hasthakatakam
8. Tholpoottu
9. Vanamala
10. Thoda
11. Ottanakku
12. Kazhuthunada
13. Kazhutharam
14. Thandappathuppu
15. Patiaranjan
16. Kuralaram

for Saraswathi instead of the above headgear.

Headgear of Bheeru (Bheerumuti)

100. As already mentioned in the foregoing portions Bheeru is a comical character full of incongruities in his costumes and make-up. There is no prescribed pattern for his headgear. It varies according to the imagination of the artist.

Krishnamuti (Plate 4)

101. The headgear of Lord Krishna consists of a conical hemispherical dome followed by *mutimala* (woollen garland of different colours encircling the tip of the dome) over which eyes of peacock feathers are fixed in the shape of an expanding lotus capital with a decorated margin at the bottom consisting of stems of peacock feather rolled into oval shaped flowers. The tip of the lotus capital is called *pincham*. While the above is the shape of the headgear of Lord Krishna in the northern parts of Kerala, in southern parts there are two domes instead of one, the upper dome being smaller than the lower one. It is said that the *krishnamuti* of the northern pattern is based on the headgear of the image of Lord Krishna in the Guruvayur temple, while that of the south is modelled on the basis of the headgear of the image of Lord Krishna of the Ambalapuzha temple. The frame work of the *krishnamuti* is made either of *kumil* wood or in cane. If it is in wood, it is drilled to make it hollow. At the bottom of the headgear the edge is covered with red scarlet. A line each of silver beads, peacock feather stems and shelly wings of beetles covers the portions above the edge. The hemispherical portion is decorated with five to seven storeys. Each storey is covered with red scarlet with silver flowers over them fixed at intervals of 1 to 2 inches. Silver fringes are fixed to the edges of each storey encircling the circumference. The top of the last storey is encircled by a woollen garland over which are the eyes of peacock feathers. An oval shaped piece of either blue or black cloth with ornamental edges fringed with garland hangs behind the coronet as a beautiful coverage. Two ribbons called *kettukacha* are stitched to the bottom of the inner side to tie the headgear on the head.

Headgear of Siva (Sivanmuti)

102. Generally the headgear of Siva is patterned on that of *rishis*. But there are significant differences as well. The surface of the first hemispherical dome in the case of the *rishimuti* consists of the impressions of twisted coils in the right-hand direction. In the case of *Sivanmuti* these coils are in the left-hand direction. In addition to the normal ornamentation at the base of the dome a crescent in silver is pegged on the front side of the dome. The figure of Ganga carved in wood stands prominently above the tuft portion of the crown. A serpent raising its expanded hood above the head of Ganga coils round the headgear. This is carved in wood and painted in the most natural colour. As in the case of other headgears *kettukacha* or the ribbons for tying the headgear on the head of the actor and an oval piece of cloth are suspended from the bottom of the *muti* the first one being from inside on the sides and the second one from behind.

Kondakettu and Veil

103. With the exception of Saraswathi, Mahalekshmi and Bhoomidevi and characters like Surpanakha, no headgear is worn by female characters. Instead, the locks are gathered into a knot near the top of the forehead a little to the left. This is called *kondakettu*. It is made in the same way as making a cushion by filling cotton or waste cloth inside and stitching it to size. A woollen garland is tied round this artificial tuft. A flower in silver is placed on the top of the tuft and screw-pine flower petals in silver are attached vertically to its sides. These are attached to a head-cover made of black cloth which when fitted on the head resembles exactly the base of the tuft.

104. A light coloured veil, ornamented with border of gold or silver, covers this knot and head, and falls over the back to the waist like the end of a saree.

Jackets

105. The jackets worn by the Kathakali characters command considerable importance among the various costumes. They vary in material and details with the types of characters. Generally, however, they extend from the neck to the waist and open towards the back. But in no case will there be a gap between the skirt and the bottom of the jacket.

Jackets of Male Characters

Scarlet Jacket

106. These jackets are made of red scarlet with lining inside. They have full sleeves and open towards back. *Kathi* and *pacha* types of characters generally wear scarlet jackets.

Velvet Jacket

107. This is the jacket worn by Lord Krishna. It resembles in all details the scarlet jacket but with one difference that instead of red scarlet this is made of blue velvet. In the case of Balabhadra, (the elder brother of Lord Krishna) and the *hamsam* appearing in Nalacharitham the colour of the jacket is yellow.

Jacket of the Red Beard

108. This is produced by stitching a plain jacket on which pieces of woollen threads are suspended each row partly overlapping the previous one. The rows commence from the bottom of the garment. When the stitching of the woollen yarn is complete the entire outer surface of the garment looks like a fur coat. The colour is invariably red.

Jacket of the Black Beard

109. This jacket resembles the jacket of the red beard in every respect except that the colour is black instead of red.

Jacket of the White Beard

110. In the case of the jacket of Hanuman who falls in this category the outer surface of the jacket is of the white whisk of yak's tail. The process of production and the manner of stitching are the same as those of the jackets of the red and black beards. The jacket of Narasimham is the same as that of Hanuman.

Jacket of Vividan and Nandikeswaran

111. The colour of the jacket of Vividan is black and of Nandikeswaran red. The process of production is the same in every respect as in the case of the jackets of red beard and black beard.

Jacket of Kari

112. The jacket of *kari* and *kattalan* is a black one stitched in ordinary black cloth on the pattern of the jacket of the *pacha* and *kathi* characters differing only in colour.

Jackets of Female Characters

113. The jacket of the female characters is of the same pattern as that of the *pacha* and *kathi* characters. But generally, cloths of better quality like velvet and velvetine are used for the purpose. The colour is usually red with designs except in the case of the *ninam* characters where it is white but sprinkled with *ninam*. An inner jacket of plain cloth is worn by all characters wearing the jacket as the latter is not washable. It is a kind of full sleeved banian.

Skirts

114. As already indicated in the foregoing portions, the skirts of the male characters are composed of several small pieces which ultimately contribute to the bulk and heaviness of the costumes. Generally, the skirts are worn only by male characters. But female characters like Surpanakha also wear skirts. The types of skirts vary with different characters. The skirts consist of thick white square cloth pieces of $3\frac{3}{4}'$ called *ulluval* folded and tied round the hips, their number varying from 20 to 30 and [illegible] covered by pieces of cloth with attractive borders at the bottom called *karaval* or *naithuval*. Two ornamented tapes called *chuvappuval* are hung from the loins on the sides of either leg. Another ornamented tape called *ottanakku* is hung in front of the skirt. Above the *ottanakku* an ornamental chain called *patiaranjan* is worn round the waist. Of the above, the *ulluvals* are folded in the centre and suspended on a long piece of cloth of 8" breadth and 18–24' length called *uduthukettukacha* which is tied round the waist of the actor. The *karaval* or *naithuval* consists of a thick variety of white cloth of $3\frac{3}{4}'$ square woven under spe-

cial orders with striped border at one end. This cloth is called *karaval* or *naithuval* because it has got astriped border (*karaval*) and is woven as a special piece *(naithuval)*. Six pieces of such cloth are worn above the *ulluval* completely covering the surface of the *ulluval* and giving the appearance of a skirt with striped bottom. The *chuvappuval* which is hung from the loins on the sides of either leg consists of two pieces of red silk of 45″ in length and 8–10″ in breadth. The lower end of this is provided with an artistic border of 8″ breadth. The end is decorated with woollen tufts. While almost all the male characters wear the above costume as their skirts there are some deviations in the case of Lord Krishna, black beard and *kattalan* (forestman). In the case of Lord Krishna, the colour of the *karaval*, which in this case is called, *manjaval*, is yellow and the colour of the *chuvappuval* is green, though it is called *chuvappuval*. In the case of the black beard and *kattalan* (forestman), while the *ulluval* is the same as in the case of the other characters, the *karaval* is a single piece running round the *ulluval*, black in colour with a stripe at the bottom. This is called *karinjeri* (black frills) and is of 18′ × $3\frac{3}{4}$′ in size. Female characters like Surpanakha also wear this. Instead of the *karaval*, Bahuka and Balabhadra wear *neelaval*, the only difference being in colour, namely, blue.

Vasthram and Rishiyuduppu

115. Brahmin male characters wear instead of skirts a plain cloth of the size of 9′ × 3′. It is tied on the waist and one end of it is taken between the thighs and tucked in behind. The sages tie round their waist a cloth of 6′ × 4′ in the typical Malayali style. The cloth may or may not have designs; but the dominant colour should be red. This costume of the sages is called *rishiyuduppu*.

Costume of the Females below the Waist

116. Instead of the skirts of the male characters, in the case of the female characters, a long piece of cloth of 6 yards in length, usually white in colour with striped border, is tied round the loins and folded in front. One end of this is taken between the thighs and tucked at the back. This cloth is called *striveshaputava* (cloth worn by female characters). In the case of the female characters in the *ninam* scenes, instead of this cloth tight pants are worn.

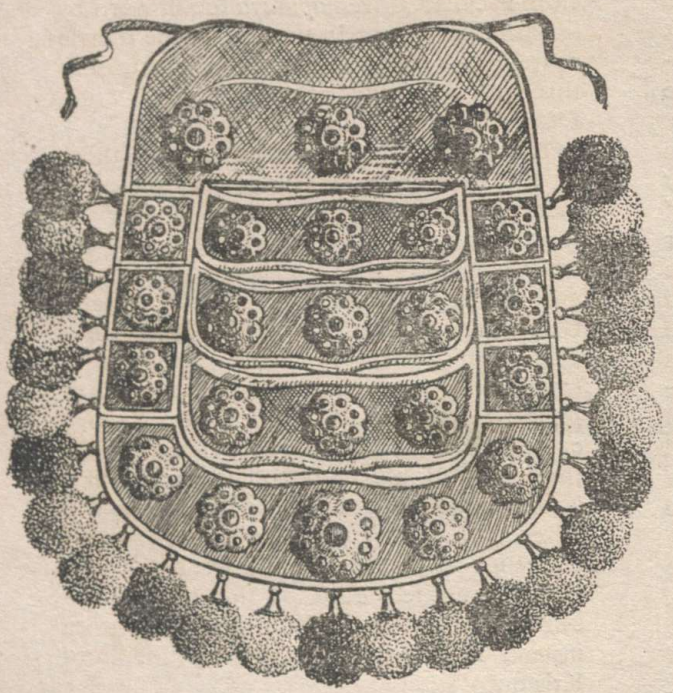
Ottanakku (Plate 26)

117. All male characters except those in the category of *minukku* wear an ornamental triangular piece of cloth 12—15″ in length suspended from the middle of the waist. This is called *ottanakku*. In shape and get-up it closely resembles the traditional ornamental head cover of elephants. The cloth is of red scarlet stitched with suitable lining inside and a black narrow piping on the sides. A woollen tuft of varied colours is attached to the surface of the three sides of this tape. The central part is decorated with a row of crescents in silver with a silver flower each above the crescent. A double line of silver beads runs along the entire border of this row of crescents. The colour of the *ottanakku* is green instead of red scarlet in the case of Lord Krishna.

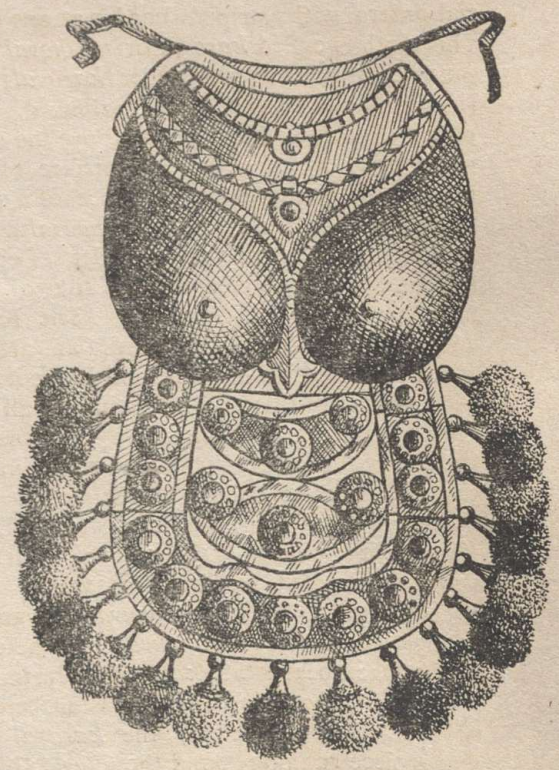
Kuralarams

118. The *kuralaram* is an ornamental breastplate worn by males (Plate 26). In the case of the females this breastplate is called *mulakuralaram* (Plate 25). The *kuralaram* worn by the males is oval in shape and consists of a number of small plates of wood carved to design. Each piece is decorated with red scarlet over which flowers of glass petals and artificial diamonds placed over golden foils are fixed. Each piece is connected with the other with strings in horizontal rows running parallel to each other. The edges of the plate are decorated by woollen flowers set in silver pedicel. In the case of the *mulakuralaram* the top portion of the plate consists of a female's breasts carved in wood, the inside being hollow. The breasts are covered tightly with red scarlet and decorated with two necklaces suitably carved and covered with golden foils. Each necklace has a pendant in the

centre, the last pendant hanging above the sternum. Below the breasts is a plate which



KURALARAM



MULAKURALARAM

covers the abdomen. This is more or less of the shape of a horseshoe consisting of several wooden pieces with decorative designs carved on them, and flowers of glass petals with golden border. A scarlet covering is given to the uncarved portions. In the centre of this horseshoe-like plate are given smaller plates of varying designs, each plate being connected with the other by strings. All round the border of the horseshoe plate woollen flowers set in wooden pedicels with golden foils over the surface are fixed. In the case of the Brahmin lady appearing in *santanagopalam* a breastplate showing the breasts and abdomen of a female in the family way is carved in wood, the inside being hollow and painted in agreeable colours. The entire carving of the *kuralaram* is done on *kumil* wood.

Marmala (Plate 25)

119. The breastplate worn by the white beard (*vella thati*) is known as *marmala*. It is made of wood and decorated with glass pieces, artificial diamonds and scarlet. Generally it consists of circular flowers of varying circumferences, each flower having a piece of glass in the centre with borders of golden aluminium foils. The flowers are arranged in two rows in breadthwise order. The flowers in the centre and at the tips are larger. A woollen flower in single pedicel hangs in the centre in addition to the above.

Kazhutharam (Plate 26)

120. This is the necklace worn by both male and female characters. A number of chains are made with golden glass beads stitched together on a tape which is tied to the neck. Two woollen flowers in golden or silver pedicel are also suspended along with these chains.

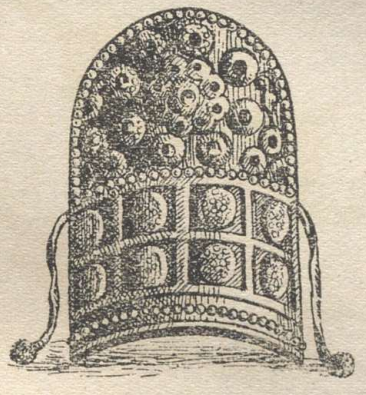
Kazhuthunada (Plate 26)

121. A ribbon on which white glass

beads are closely knit in parallel rows is tied round the neck of those characters who do not have beard. This is called *kazhuthunada* and is worn just above the *kazhutharam* thus giving a continuous decoration of varied colours and designs from the neck down to the waist in the case of all characters except those with beard and still lower down in the case of characters wearing *ottanakku*. The *kazhuthunada* also serves the purpose of covering the naked neck which otherwise is likely to mar the make-up of the actor in striking contrast to the rest of the decorated parts.

Tholpoottu (Shoulder-lock) (Plate 26)

122. Literally, *thol* means shoulder and *poottu* lock. *Tholpoottu* is, therefore, a shoulder-lock worn over the jacket on the shoulders of the actor. All characters who put on jackets, with the exception of red beard, white beard, black beard and characters like Vividan and Nandikeswaran, have to wear the shoulder-lock. Carved in *kumil* wood it consists of a number of square pieces at the bottom and a semicircular piece at the top connected together by strings to form a small rectangle with a semicircular edge at the top. Each of the square pieces is of $\frac{3}{4}$" square. The edges of the square are decorated with golden foils. The border of the semicircular portion above the square pieces is also decorated with golden foils. The entire surface of the shoulder-lock is covered with red scarlet over which a silver flower is knit to the centre of every square piece. A cluster of such flowers is knit on the semicircular portion as well. The backside of the latter is carved in a manner to give it a slightly concave bend which fits in with the surface of the shoulder. Each lock is tied to the shoulder with a string. Another string passing behind the shoulders connects both the shoulder-locks.



THOLPOOTTU

Paruthikkamani (Plate 26)

123. This consists of wooden beads covered with golden aluminium foils connected by a string passing through them. Each bead resembles a cotton fruit which accounts for the name *paruthikkamani*, *paruthikka* meaning cotton fruit and *mani* bead. This string of beads is tied just below the shoulder-lock. It fits with it so well that it is easily mistaken for the fringes of the shoulder-lock. Each bead is chiselled to shape and a hole made in the centre.

Valas or Bangles (Plate 26)

124. The bangles of Kathakali actors are made of *kumil* wood. Four or five bangles are carved in a single piece and covered with golden foils interlined with silver beads after each bangle. All characters wearing jackets except red beard, black beard, white beard, Narasimham, Vividan and Nandikeswaran wear bangles on the forearm.

Hasthakatakam (Plate 26)

125. *Hasthakatakam* is an ornament worn just below the bangles. Made of wood it consists of a central flower of several concentric circular stories of different decorative designs with an imitation stone in the centre. The flower is given a somewhat oval-shaped background with two triangular edges at either end which are decorated with two woollen flowers called *podippu* set in silver pedicels called *kalanchi*. The *hasthakatakam* is tied to the wrist with a string.

Silver Nails

126. Long silver nails fixed on rings are worn on the fingers of the left hand of almost all male characters.

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Patiaranjan (Plate 26)

127. This is a chain of *kumil* wood worn round the waist of both male and female characters except a few of the *minukku* category. It consists of three parts viz, *pati*, *mani* and *elas*. *Pati* is a broad piece tied round the waist on which *mani* and *elas* are suspended. The *pati* is decorated with artificial diamonds and scarlet, and *mani* and *elas* are covered with golden aluminium foils. The former is either round or boat-shaped, while the latter resembles a boat or a rocket. When worn the *patiaranjan* resembles a highly decorated golden belt.

Kechamani and Chelankamani

128. These are jingling bells worn by the male and female characters respectively. The bells are attached to a small leather piece and tied below the knee of the left leg. In the case of *chelankamani* the bells are smaller than those of *kechamani*. With a few exceptions under *minukku* and the characters in *ninam*, all characters have to wear this.

Thandapathuppu (Plate 26)

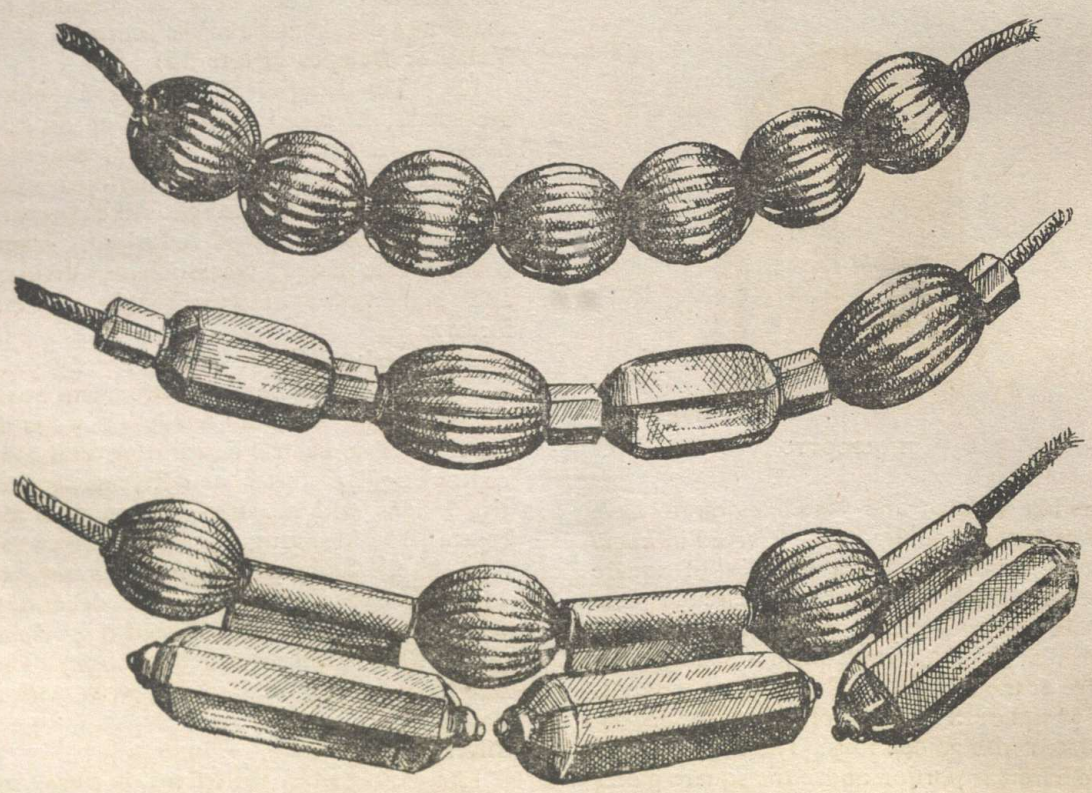
129. This is an anklet worn by characters having hanging locks behind their head and consists of a crescent-shaped red scarlet fixed on a tape and tied round the left ankle. Silver beads are also stitched on the crescent in some cases.

Nettinada (Plate 26)

130. This is a tape on which white glass beads are knit in parallel lines. It is tied on the forehead just above the *chuttithuni* worn by the male characters and also by female characters like Saraswathi.

Kurunira

131. *Kurunira* (ringlets) is a line of ornamental fringes in silver knit on a ribbon



MANI AND ELAS OF PATIARAJAN

and tied round the forehead of a female character coming under *minukku*.

Chuttithuni

132. This is a tape on the forehead of the male characters which marks the upper limit of the facial make-up. In the case of the *pacha*, *kathi* and red beard characters this tape is usually red in colour with painted border line in a double arch.

Thoda (Plate 26)

133. *Thoda* is a circular ring carved in wood and fully decorated, worn by the male characters in Kathakali on ear-lobes with the exception of the red, black and white beards and *kattalan*. This closely resembles the ear-ring of the Nair ladies of olden days with the difference that the latter is of gold. It completely covers the ears of the character. The circular edge of the *thoda* is decorated with golden aluminium foils. Concentric circles of silver beads set on red scarlet base, a line of golden foils, oval shaped glass pieces with golden border, again a line of golden foils, green stones with golden border, again a line of golden foils and a line of silver beads, follow the golden covering of the edge. In the centre is a circular piece of glass set on red aluminium foils with a golden line of aluminium foils around. The *thoda* is hollow and concave on the back, while the front portion is convex resembling a flower of varied petals. A stick is fixed to the centre pointing to the back like a nail. A string is tied on this stick with which it is tied to the back behind the head. A tape put over the head connects the two *thodas*. The process of production consists of chiselling a suitable wooden piece, carving it with appropriate grooves and covering the same with the ornamental materials mentioned above. In the case of the women characters except Saraswathi, Mahalekshmi and Bhoomidevi ear-rings are worn instead of *thoda*. These ear-rings are called *kathilas*. They resemble in shape pumpkin seeds. Made of wood, a *kathila* is covered with three stones at the top, and one stone in the centre of the lower edge. The three stones at the top are either red in colour, when the single stone is blue, or green when the single stone is red. Decorative borders are given with golden foils. It is tied by a string and fitted to the ears when it practically covers the entire ear as in the case of *thoda*. The female character Surpanakha, however, does not wear the *kathila* but wears a *thoda* instead. This is called *karithoda* and has no central stick at the back. It is tied to the ears with a string.

Chevippoovu (Plate 26)

134. This is a small ornament resembling a full blossomed little flower with a long stem which is placed on the joint between the upper ear and the head. It is also tied with a string behind the head. It is carved in wood and decorated with golden aluminium foils. This is worn by all male characters having headgears and women characters coming under *kari* type, and Saraswathi, Mahalekshmi and Bhoomidevi.

The Beards

Red Beard

135. Woollen threads are intertwined and stitched on a cloth and trimmed at the border when likeness of a trimmed beard is obtained. The beard is tied along the cheeks and chin. The size of the beard varies according to the size of the actor.

Black Beard

136. This is made in the same way as the red beard by using black woollen threads or black whisk of yak's tail.

White Beard

137. The process of production is the same as of red beard. But white whisk of yak's tail alone is used.

Brahmanan Thati (Brahmin's Beard)

138. The whisks of yak's tail are stitched to a leather strap. The beard is bent upwards.

Rishi Thati

139. Whisks of yak's tail are intertwined on a string and stitched on cloth. The *rishi thati* flows downwards. It is available in black, white and red colour. Durvasavu has the colour of his beard red

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whereas Narada has white beard and Viswamitra black beard.

Locks

140. The locks of the Kathakali characters are made of the outer cover of Sterculia villosa called *vakka* in Malayalam. This is a plant growing to about 3–4′ in height. Its fibre is exceptionally strong. The plant is usually cut off when it is about five months old, dried in the sun and soaked in water for 2—3 days for retting. It is then dried and the outer cover peeled off. The fibre thus got out of it is long, light and with shining glow. The locks worn by the characters are generally black. In other cases, the colour is the same as that of the beard worn by the characters. For giving the black colour to the fibre of Sterculia villosa, pieces of inknut (Terminalia chebula) are boiled in water and allowed to cool. A small quantity of green vitriol is added to it when the colour of the liquid becomes black. The fibre is then soaked in this solution for a day and dried when it becomes black. For dyeing the fibre in red, the solution in which the fibre is soaked is made of red ink and water. Rest of the processes are the same for red dyeing also. Several long pieces of fibre, whether dyed or not, are attached to a string which is tied behind the head of the character when they form beautiful flowing locks.

Uthariyam (Plate 26)

141. The upper garment worn by the Kathakali characters is called *uthariyam*. There are different kinds of *uthariyams* like red *uthariyam*, *kara uthariyam* and blue *uthariyam*. The red *uthariyam* is made of red silk. A piece of red silk of the size 72″ × 27″ is closely folded and tied at both ends by leaving a margin which is frilled to resemble a lotus flower. Small mirrors are fixed inside this frill which the actor makes use of to look at his face occasionally while on the stage. Glass beads and woollen tufts are also placed on the borders of the frill. In the case of *kara uthariyam* the cloth used is white instead of red silk, and mirrors inside the frills are absent. The blue *uthariyam* has blue colour. The red *uthariyam* is worn by all characters except those coming under *minukku* and the white *uthariyam* by almost all characters including those who wear red *uthariyam* with a few exceptions like Brahmins etc. The number of white *uthariyams* worn by the characters varies with the character. The blue *uthariyam* is worn by Balabhadra and Bahuka.

Vanamala (Plate 26)

142. The garland worn by Lord Krishna is an enormous one made of closely knit woollen tufts of varied colours with circular sides. It is worn over the shoulders just like an *uthariyam*.

Alavattam

143. This is a circular fan made of peacock feathers, with wooden handle. The peacock feather stems are placed in several circular rows in concentric circles. As the centre of the circle is approached, various designs in peacock feather stem with shades of red and green aluminium foils are introduced. The outer border is covered with the eyes of the peacock feathers arranged in circular position and trimmed at the edge. One pound of peacock feather is required for a pair of *alavattams*. The *alavattams* are held from behind on either side of the head of the characters of extraordinary importance like Lord Krishna.

Vivahamala (Marriage garland)

144. This is a beautiful garland made of gilded glass beads with a pendant in the centre used when a marriage is represented on the stage. There is, however, no prescribed pattern for this.

Dice Board and Dice

145. The dice board is made of cloth and the dice of bell-metal.

Python

146. The python which figures in some stories like Nalacharitham is either made of wood and painted or the head alone is made of wood and the body of cloth and painted.

Wings

147. The wings in the case of birds like Hamsam, Garuda etc. are made of leather and painted in suitable colours.

Masks and Weapons

148. The masks and weapons are made of wood and given oil-paint. The masks are used only for those few characters having little of action and expression. The usual masks are goat head, ox head, bear head, horse head, old woman's head, goblin head, monkey head etc.

Thirassila (Curtain) (Plate 27)

149. Curtains are of two kinds. The finer quality curtain is made of silk and held only at the time of *purappatu* and when important characters come on the stage. For other occasions, curtain made of ordinary cloth with less artistic work is held. Both the curtains are of $7\frac{1}{2}'$ to $13\frac{1}{2}'$ in length and $7\frac{1}{2}'$ in breadth. A curtain consists of several rectangular pieces of cloth in different colours pieced together in concentric order. The colour of the central rectangular piece is invariably red. It is the usual practice to fix the figure of a goddess made of silver at the centre of the curtain. The red rectangle is followed by yellow, green, red and black. A yellow piping is given on the sides. At the top corners, two long tails in black cloth ending with a round ball in cloth are fixed. These facilitate the holding of the curtain high.

Melappu (Canopy) (Plate 27)

150. The usual size of the canopy is $9' \times 3'$. Two cloths are stitched together. The inner cloth will be more beautiful than the outer one. The four sides are decorated with frills made of red cloth.

Kathakali Lamp (Plate 29)

151. The Kathakali lamp which is unavoidable for a Kathakali stage even in these days of electric lights is produced in bell-metal by *cire perdue* process. The height of the lamp is about 5'.

Chenda (Drum)

152. The drum consists of two parts, the tun of the drum and the eyes fixed on its two sides. The tun is cylindrical in shape and is made of the branch of jack tree (Artocarpus integrifolia). Only a particular variety of jack tree called *varikka* is used for this purpose. The eyes are made of calfskin. Two circular frames on which the eyes of the drum are fitted encircle either end of the tun. These are connected by ropes made of Sterculia villosa. The tension of the eyes is governed by these ropes. The diameter of the tun is approximately 10" and the height 20". The drum is suspended vertically in front of the drummer by a cotton suspender running over his shoulders like a cross belt. It is played by beating on the top side with two sticks each of 13" to 14" in length made of either the branches of tamarind tree (Tamarindus indica) or brazilwood (Caesalpinia sappan). The bend and shape of the sticks closely resemble those of the elephant tusks.

Maddalam (Finger Drum)

153. *Maddalam* is a long finger drum. As in the case of drum, it consists of two parts viz., the tun and the eyes on both the sides. The tun is a hollow cylinder of 24" in length made of the trunk of the jack tree. The sides taper from the centre of the tun. The diameter of the eyes on the two sides will approximately be 6". The left eye of the *maddalam* is of calfskin while the right eye is either of buffalo skin or ox skin. The frames round the eyes are connected by ribbons of buffalo skin. The finger drum is fastened horizontally on the waist with a cotton string and played with the fingers on both sides simultaneously.

Chengalam

154. *Chengalam* (gong) is a circular disc of 10" diameter made of bell-metal. The weight of this disc comes to about 5 lbs. A string is attached to a notch on the side of the disc. By holding the string with one hand it is beaten with a cocoanut peduncle to produce the sound.

Cymbals

155. Cymbals are a pair of circular discs made of bell-metal, each one weighing about 2 lbs. A string is attached through the centre of each cymbal. By holding the strings the cymbals are made to strike against each other and produce a rythmic sound.

CHAPTER V

CONCLUSION

The Craftsmen

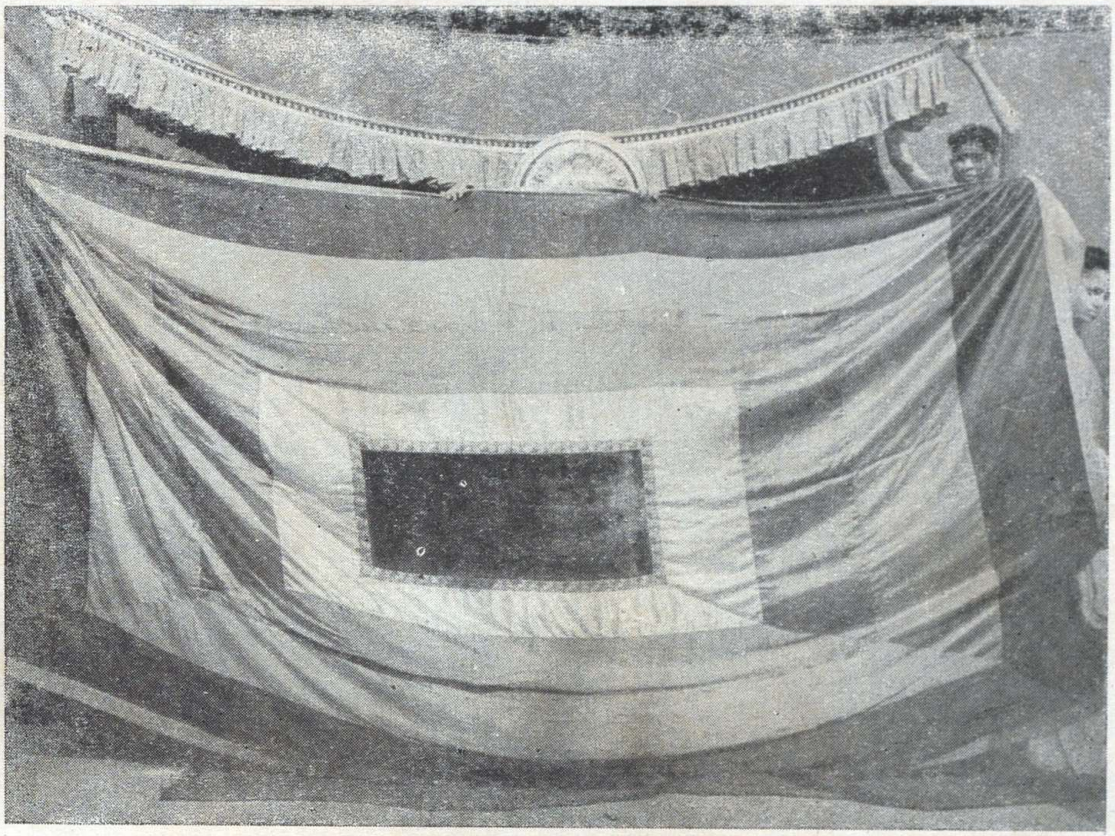
156. The costumes and accessories in Kathakali form a combination of several items and the products of different crafts. While the carpenter shapes the wooden frame, the costume maker called *koppu-panikkaran* does the decoration on the frames, the goldsmith makes the silver beads and crescents, the weaver weaves the special items of cloth like *naithuval* etc., the bell-metal smith (Moosari) moulds the jingling bells and the cymbals, the blacksmith produces the tools for the costume makers and the cobbler fashions the leather pieces like the wings of Garuda or the base of *kechamani*. The work of these different artisans is co-ordinated and their products assembled by the costume maker who may be called the designer. It is he who gives the directions for the production of the various parts, collects them and gives the final touches to the assembled products. In giving this final shape he contributes certain items of work himself like painting, stitching the costumes, stitching ornaments on the costumes, spinning the beard etc. The costume makers are drawn from almost all forward Hindu communities. But in North Malabar only the members of the Mannan community take to this work. The work of carpentry, and smithy is done by professional craftsmen. Except in some major institutions like Kerala Kalamandal, the craftsmen do not have work throughout the year and most of them take to this only as a subsidiary occupation. While engaged in this work a costume maker gets about Rs. 5 a day. Due to the limited scope in the employment field, the number of proficient costume makers is on the decline.

Centres of Production

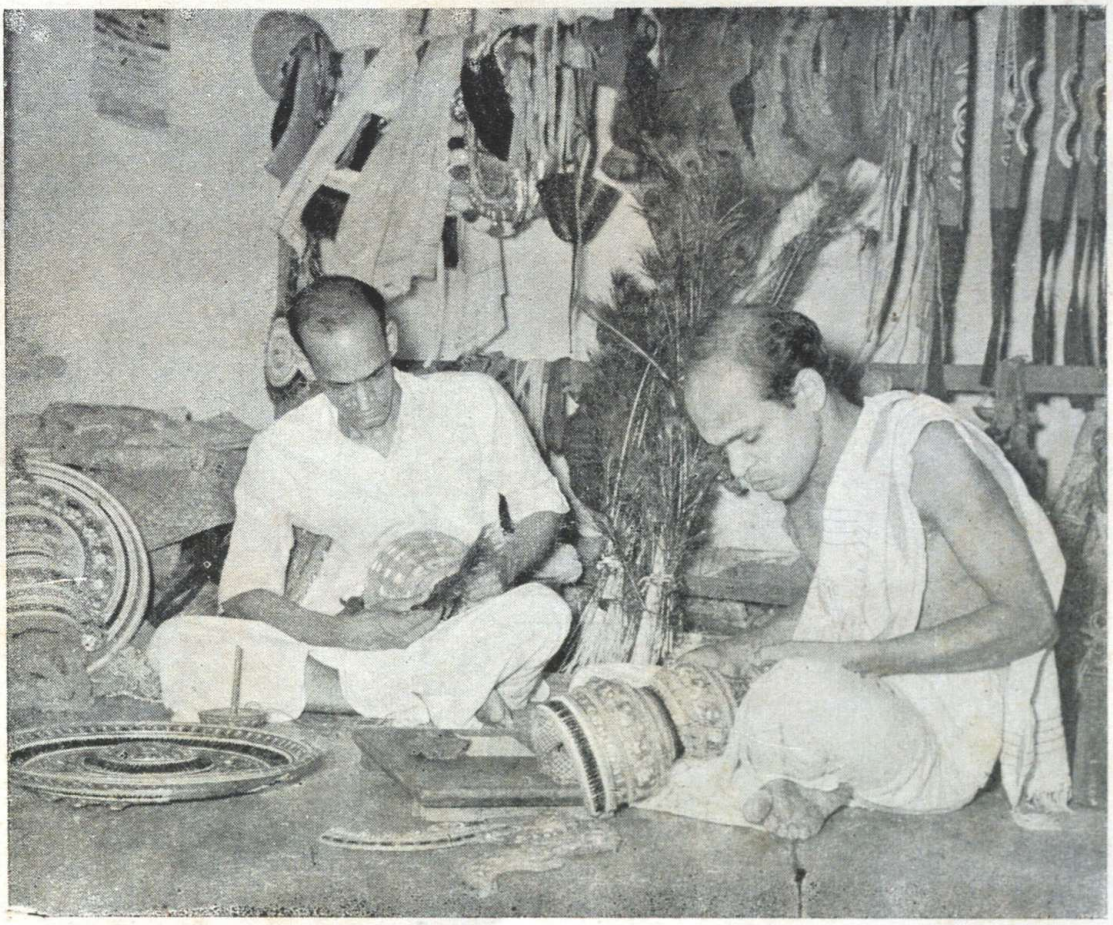
157. Centres where Kathakali costumes and accessories are produced are few. According to the report of the Census of Handicrafts, 1960, issued by the Director of Industries and Commerce, Kerala, the following are the units of production of Kathakali costumes and accessories:—

Place	*Number of units*
Ambalapuzha	2
Mavelikkara	1
Shertalai	1
Thiruvalla	1
Cheruthuruthy (Kerala Kalamandal)	1

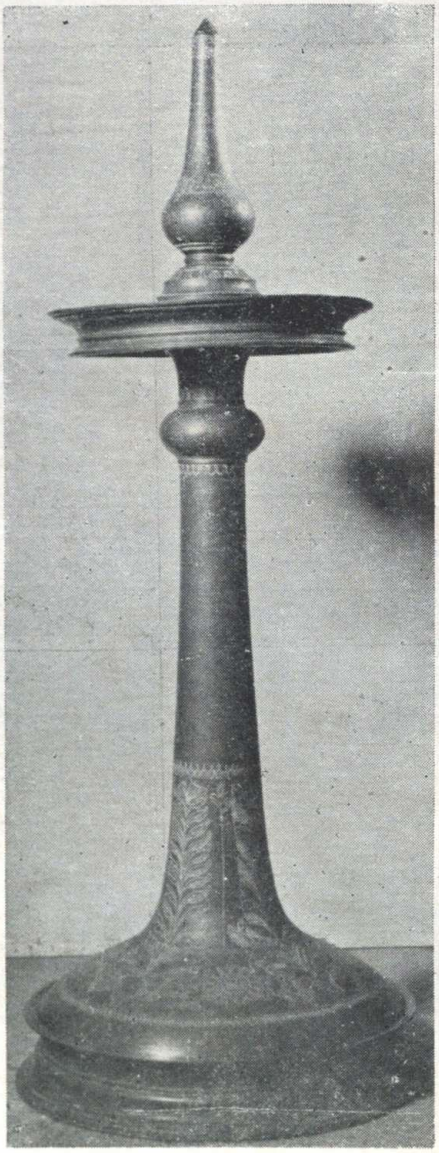
158. Limited as the number of production units engaged in this craft is at present, the question as to whether it is possible to develop this craft deserves a little probe. The future of the craft necessarily depends upon the demand for the articles in question which in its turn is related to the popularity of Kathakali. The more popular Kathakali becomes the greater will be the demand for the costumes and accessories. As observed in the foregoing portions, the admirable efforts of poet laureate Vallathol Narayana Menon have given a revival to this ancient art and made it popular not only in India but also in foreign countries. Apart from the troupes from Kerala staging Kathakali performances in foreign countries, several foreigners have taken the pains to get themselves trained in Kathakali in the Kerala Kalamandal. These lend indications of the chances of Kathakali gaining greater popularity in both India and outside. But, it is not probable that there will be a proportionate increase in the demand for Kathakali costumes as a set of costumes produced for one troupe can serve that troupe for a pretty long period. Yet there is bound to be some



Pl. 27. THE CURTAIN WITH CANOPY ABOVE



Pl. 28. ARTISANS AT WORK



Pl. 29. THE KATHAKALI LAMP
(Kalivilakku)

amount of increasing demand for Kathakali costumes and accessories in future.

The Kathakali Costume Training Centre

159. The Government of Kerala started a Kathakali Costume Training Centre at Cheruthuruthy in 1961, under the Department of Industries and Commerce. At present only 10 students are being trained here at a time, the duration of training being 1½ years. A stipend of Rs. 20 per mensem is also given to every student. This training centre has succeeded in producing a fairly large number of costumes and accessories for Kathakali, and in training so far a batch of students for the production of these items. While difficulties are bound to arise in selecting students with genuine aptitude for this craft, it can nevertheless be hoped that at least a substantial number of the trainees will develop a genius for the craft and be in a position to make their contribution to the development of this rare art-craft. No doubt, these articles not being commercial, the trainees might also have their own problems while taking themselves to actual work. It would, therefore, be necessary to establish a co-operative agency which can make necessary contacts to develop a market for these products and place orders with the craftsmen to keep them engaged without break.

Economics of the Craft

160. At the present market rates the cost of raw materials is as follows:–

Kumil wood (Gmelina asiatica)	Rs. 36.00 per candy
Peacock feathers	Rs. 2.75 per lb.
Cane	Rs. 1.50 ,,
Thread	Rs. 2.00 ,,
Black wax	Rs. 8.00 ,,
White wax	Rs. 1.75 ,,
Glue of neat's hide	Rs. 1.50 ,,
Kechamani	Rs. 20.00 per 100 Nos.
Chelankamani	Rs. 9.00 per 100 Nos.
Yarn (white)	Re. 0.88 per hank
Yarn (red)	Re. 1.00 per hank
Glass beads (small)	Rs. 2.00 to Rs. 15.00 per box
Glass beads (big) *(Nellikkamani)*	Rs. 2.00 per box
Aluminium foils	Rs. 2.00 per 100 foils of $10\frac{1}{4}'' \times 4\frac{1}{4}''$ size
Aluminium foils of gold colour (foreign)	Rs. 5.00 per 100 foils
Tape	Re. 0.06 per yd.
Circular mirror	Re. 0.25
Ball Thread	Re. 0.25 per 200 yds.
Woollen thread	Rs. 9.00 to Rs. 16.00 per lb.
Whisk of yak's tail	Rs. 80 per vis (1 vis=3 lbs)
Crome leather	Rs. 2.50 per lb.
Brass wire	Rs. 6.00 ,,
Vakka thread	Rs. 4.00 ,,
Galnut	Re. 0.75 ,,
Shelly wings of beetles	Re. 1.00 per 100 Nos.
Dammar resin	Rs. 77.33 per lb.
Arsenic	Rs. 19.33 ,,
Indigo	Rs. 9.66 ,,
Mica	Rs. 2.41 ,,
Vermilion	Rs. 2.41 ,,
Cork	Re. 1.00 ,,
Black dammar resin	Re. 1.00 ,,
Red ink powder	Rs. 19.33 ,,

161. A headgear would cost about Rs. 600. The cost of the remaining items of costumes and accessories of one character of *pacha*, *kathi* or *thati* type will come to an equal amount. It is estimated that the costumes and accessories required by one Kathakali troupe will cost approximately Rs. 25,000. While it is not practicable to work out the details of the cost of each item, an attempt has been made below to work out the cost of the headgear of a *pacha* character.

Artificial diamonds 700	Rs. 84.00
Artificial diamonds (bigger size) 26	Rs. 16.00
Silver (20 Re. coin weight)	Rs. 50.00
Wages for silver work	Rs. 80.00
Scarlet ½ yard	Rs. 9.00
Peacock feathers ½ lb.	Rs. 1.37
Cloth for *kettukacha* 1¼ yds.	Rs. 1.50

Shelly wings of beetles 200 Nos.	Rs.	2.00
Aluminium foils 15 Nos.	Re.	1.00
Wax, needles etc.	Rs.	3.00
Wages for the craftsmen	Rs.	125.00
Wages for the carpenter	Rs.	200.00
Cost of wood	Rs.	5.00
Miscellaneous expenditure	Rs.	22.13

162. The labour involved in the production consists of a carpenter's work for about 40 days and a craftsman's for 25 days.

Raw Materials

163. A few items of raw materials used in the production of the costumes and accessories in Kathakali have become rare now. The aluminium foils which constitute a major item of raw material in the decoration work were being produced in Kerala at one time. But they have ceased to be available in modern times, probably because the craftsmen producing these have diverted themselves to more remunerative occupations. The aluminium foils which were produced here were so thin that any substitute for them can hardly be found among aluminium foils produced on large scale elsewhere and sold in the market. Similarly shelly wings of beetles are also hardly available now. This item is, however, being substituted by bangle pieces but not with much success. How far it is possible to fill up the gaps by reviving the industry for the production of aluminium foils of the required type or by investigating the sources from where beetles can be got in large numbers is not clear.

A Suggestion

164. Apart from the possibility of a better demand for Kathakali costumes and accessories in future due to the increasing popularity of Kathakali, it is quite possible to create a good market for life-size or large models of Kathakali characters with actual costumes. Even today small size models of Kathakali characters made in wood find a fairly reasonable market. It is bound to be much more in the case of life-size or large models in actual costumes. Some of the characters in Kathakali have such an impressive make-up that even persons who are not aware of the techniques of the art will be attracted by it, all the more so in the case of those who have a taste for art. In case this industry is developed it can produce several subsidiary industries to feed it, like weaving of *karaval*, *uthariyam* etc., carpentry for the production of headgears and other wooden frames, goldsmithy for the production of silver beads, crescents etc.

APPENDIX A

INDIVIDUAL CHARACTERS ALONG WITH THE ITEMS OF THEIR COSTUMES AND ACCESSORIES UNDER EACH GROUP OF KATHAKALI CHARACTERS

Name of the Character	*Items of their Costumes and Accessories*
PACHA TYPE	
Devendra, Pandavas, Nala, Pushkara, King Bhima, Rugmangada, Ambareesha, Vibheeshana, Prahlada, Virata, Utharan, Uthanapada, Druva, Harischandra, Dushyantha, Karna, Dasaratha (has an additional Brahmin beard), Raudra Bhima, Sri Rama, Lakshmana, Bharatha, Sathrugna, Udhava, Kusalavas, Dhritharashtrar (wears a white Brahmin beard instead of chutti and the colour of locks is white), Visravassu (make-up is that of Dhritharashtrar but in the place of Brahmin beard, white long beard is tied), Bahuka (colour of skirt and jacket is blue), Lord Vishnu (the colour of the jacket is black and skirts yellow; he has vanamala, artificial wooden arms, conch, sudarsana, gada and lotus) etc.	Headgear, Thoda, Chevippoovu, Chuttithuni, Nettinada, Locks, Thalekettuval, Tholpoottu, Paruthikkamani, Bangles, Hasthakatakam, Kuralaram, Patiaranjan, Kazhutharam, Kazhuthunada, Kechamani, Thandappathuppu, Chuvappuval, Ottanakku, Chuvappu Uthariyam, Inner jacket, Red jacket, Kara Uthariyams (white), Ututhukettukacha, Ulluval, Karaval (white), Nails
Lord Krishna	Krishnamuti, Thoda. Chevippoovu, Chuttithuni, Nettinada, Locks, Thalekettuval, Tholpoottu, Paruthikkamani, Bangles, Hasthakatakam, Kuralaram, Patiaranjan, Kazhutharam, Kazhuthunada, Kechamani, Thandappathuppu, Chuvappuval (green), Ottanakku (green), Chuvappu Uthariyam, Inner jacket, Blue jacket, Uthariyams (yellow), Ututhukettukacha, Ulluval, Karaval (yellow), Vanamala, Nails
KATHI TYPE	
Hiranyakasipu, Ravana, Kumbhakarna, Indrajit, Sisupala, Danthavakthra, Mahabali, Banan, Kamsa, Duryodhana, Keechaka, Narakasura (towards the end of the story, Narakasura is represented by red beard), Krimira, Nivathakavacha, Dwapara, Khatolkaja, Yama, Sakuni, Mareecha (has an additional long white beard; the colour of his locks is white) etc.	One white scarf and the Damshtras are required in addition to the costumes of pacha type of characters
THATI TYPE	
I. Chuvanna Thati (red beard)	
Malyavan, Mali, Sumali, Bali, Sugriva, Baka, Kalakeya, Jarasandha, Jatasura, Sardoolan, Dussasana, Veerabhadra, Upakeechaka, Vibhruthu, Aghasura, Narakasura (in the beginning of the story Narakasura is represented by Kathi type),	Kuttichamaram (headgear), Beard (red), Chuttithuni, Chevippoovu, Nettinada, Thalekkettuval, Locks (red), Paruthikkamani, Hasthakatakam, Kuralaram, Patiaranjan, Kechamani, Thandappathuppu, Kazhutharam, Chuvappuval, Ottanakku, Inner jacket,

APPENDIX A—*Contd.*

Name of the Character	*Items of their Costumes and Accessories*
I. Chuvanna Thati (red beard)—*Concld.*	
Sivajuram, Subahu, Sudarsanam etc.	Outer jacket (red fur-coat), Chuvappu Uthariyam, White Uthariyam, Ututhukettukacha, Ulluval, Karaval (white), Nails, Damshtras
II. Vella Thati (white beard)	
Hanuman, Jambavan etc.	Hanumanmuti, Beard (white), Chevippoovu, Nettinada, Locks (white), Thalekkettuval, Paruthikkamani, Hasthakatakam, Marmala, Patiaranjan, Kechamani, Thandappathuppu, Chuvappuval, Ottanakku, Kazhutharam, Chuvappu Uthariyam, Uthariyams (white), Inner jacket, Venchamarakkuppayam (white hairy jacket. The colour of the jacket of Jambavan is black), Ututhukettukacha, Ulluval, Karaval (white), Nails, Damshtras
III. Karutha Thati (black beard)	
Kali, Vishnujuaram etc.	The requirements of costumes and accessories are the same as in the case of the red beard. But in the case of these characters, the colour of the beard, locks, jacket and skirt is black. The colour of the woollen tufts at the edge of the headgear (Kutticha-maram) is also black
KARI TYPE	
Kattalan, Guha	Kattalanmuti, Chuttithuni, Chevippoovu, Nettinada, Locks, Black beard, Jacket (black), Thalekkettuval, Tholpoottu, Paruthikkamani, Bangles, Hasthakatakam, Kuralaram, Patiaranjan, Kazhutharam, Kechamani, Thandappathuppu, Chuvappuval, Ottanakku, Chuvappu Uthariyam, Inner jacket, White Uthariyam, Ututhukettukacha, Ulluval, Karaval (black), Nails
Surpanaka, Simhika, Nakrathundi, Hidumbi, Lankasree, Poothana, Thataka etc.	Kattalanmuti, Karithoda, Chuttithuni, Chevippoovu, Nettinada, Locks, Thalekkettuval, Tholppoottu, Paruthikkamani, Bangles, Hasthakatakam, Karimula, Patiaranjan, Kechamani, Thandappathuppu, Kazhutharam, Kazhuthunada, Chuvappu Uthariyam White Uthariyam,Inner jacket, Jacket (black), Ututhukettukacha, Ulluval, Karinheri (skirt), Damhtras, A white cloth
MINUKKU TYPE	
I. Female Characters	
Sathi, Seetha, Indrani, Urvasi, Mandodari, Usha, Chithralekha, Damayanthi, Panchali, Sairandhri,	Kondakettu, Kurunira, Kathila, Veil, Nettinada, Locks, Tholpoottu, Paruthikkamani, Bangles, Has-

APPENDIX A

Name of the Character	*Items of their Costumes and Accessories*
I. Female characters—*Concld.*	
Kunthi, Mohini, Lalitha, Wives of Dasaratha, Wives of Sri Krishna, Brahmin females, Parvati (the colour of the putava is red), Rambha (colour of the veil is blue)	thakatakam, Mulakuralaram, Patiaranjan, Chilankamani, Thandappathuppu, Kazhutharam, Kazhuthunada, White Uthariyam, Inner jacket, Outer jacket, Inner cloth, Striveshaputava (white saree), Nose-ring
Saraswathi	Saraswathimuti, Thoda, Chevippoovu, Chuttithuni, Nettinada, Locks, Other costumes of female characters
Mahalekshmi	Light red putava, other costumes of Saraswathi
Bhoomidevi	Red putava, other costumes of Saraswathi
Sakuntala, Priyamvada, Anasuya etc.	Kondakettu, Flower garland, Breast cloth, Red dyed cloth, Ear pendants of flowers
II. Brahmins	
1. Those with beards	
Kuchela, Mrikandu	Brahmin's beard (white), Thalekkettuval (white), Vasthram, Angavasthram, Sacred thread, Rudrakshamala, (rosary of Saivites), Palm leaf umbrella (for Kuchela only)
Brahmin in Santhanagopalam	Vellaval, Nettinada, White Brahmin beard, Vasthram (white), Sacred thread, Angavasthram
Bramhin in Bakavadhom	White Brahmin beard, Tuft of grey hair, Vasthram (white), Sacred thread, Angavasthram, Supporting stick
2. Those without beards	
Sundara Brahmin (in Rugminiswayamvaram), Brahmins in Rugmangadacharita, Brahmins in Rajasuya, Brahmins in Dakshayaga, Brahmins in Nalacharitam, Brahmins in Ambarishacharitam	Vellaval, Nettinada, Dhoti, Sacred thread, Angavasthram
3. Others	
Kongana Brahmin	White turban, White soman, Sacred thread, Woollen thread, Ear-ring, A long white cloth, A bundle
Madavyan	Ear-ring, Matti, White turban, White soman, Sacred thread, Garland of beads, White cloth, Walking stick
III. Rishis	
1. Those who have white beards	
Narada, Vedavyasa, Vasishta, Gautama, Kanwa, Dhowmya, Valmiki, Sathananda, Sandeepani etc.	Rishimuti, Thalekkettuval, Chevippoovu, Nettinada, Chuttithuni, Locks (white), Long beard (white), Paruthikkamani, Hasthakatakam, Patiarajan, Than-

APPENDIX A—*Contd.*

Name of the character	*Items of their costumes and Accessories*
1. Those who have white beards—*Concld.*	
	deppathuppu, Vella Uthariyam, Nails, Sacred thread, Kashayavasthram (red dyed cloth)
Janaka	White Brahmin beard, Other costumes of Pacha
Bhishmar	Rosaries of Saivites, White Brahmin beard, White soman, White turban, White cloth, Sacred thread, Nails, Bow and arrows
Kripar	Matted hair tuft, Other costumes of Bhismar
Dronar	Long white beard, Turban, Sacred thread, Nails, Soman, Cloth, Bow and arrows
Aswathama	Yellow soman, Hasthakatakam, White turban, Sacred thread, Yellow cloth, Nails, Bow and arrows
2. Those who have black beards	
Viswamitra, Dadheechi, Sukra	Black long beard, Rishimuti, Locks (black), Chevippoovu, Nettinada, Chuttithuni, Paruthikkamani, Hasthakatakam, Kashayavasthram (red dyed cloth), Rosary of Saivites, Patiaranjan, Sacred thread, White Uthariyams, Nails, Thandappathuppu (Yogadandu and Kamandalu on certain occasions)
Parasurama	Black Brahmin beard, Black matted hair, Yellow cloth, Rosary of Saivites, Axe, Nails, Sacred thread, Bow and arrows, Red cloth
3. Those who have red beards	
Durvasavu, Bhrigu	Paruthikkamani, Hasthakatakam, Patiaranjan, Thandappathuppu, Kashayavasthram (red dyed cloth), Uthariyam (white), Rosary of Saivites, Sacred thread, Long beard (red), Rishimuti, Chevippoovu, Nettinada, Red locks, Nails
IV. Servants or Menials	
Valalan	Red turban, Paruthikkamani, Hasthakatakam, Patiaranjan, Kechamani, Thandappathippu, Chuvappuval, Ottanakku, Uthariyam (White), Nails, Sacred thread, Ututhukettukacha, Ulluval, Karaval (white), Kazhutharam, Kazhuthunada, Nettinada (two numbers), Kammal (a kind of ear-ring), Matti, Chattukam (flat metal spoon)
Mathali, Jeevala, Varshneya	Whip, Other costumes of Valalan except sacred thread and Chattukam
Doothan (messenger), Mallan	Same as Mathali except whip

APPENDIX A

Name of the Character	*Items of their Costumes and Accessories*
IV. Servants or Menials—*Concld.*	
Chithragupta	Book and pencil, Other costumes of Doothan
Mannan	Bundle of cloth, Other costumes of Doothan
	White
Brahma, Varuna etc.	Same as Pacha (The colour of the jacket of Varuna is green)
	Orange
Balabhadra	Yellow jacket, Blue skirt, Plough, Other costumes of Pacha
Siva	Skirt resembling a tiger skin, Yellow jacket, Other costumes of Pacha
	Red
Aditya, Agni	Same as Pacha (Agni has red skirt and Aditya white skirt)
Krithika	Krithikamuti (Red Kattalanmuti), Karithoda, Chevippoovu, Chuttithuni, Nettinada, Locks (red), Tholpoottu, Paruthikkamani, Bangles, Hasthakatakam, Mulakuralaram, Patiaranjan, Kechamani, Thandappathuppu, Kazhutharam, Kazhuthunada, Chuvappuval, Ottanakku, Inner Jacket, Outer Jacket (red), Chuvappu Uthariyam, White Uthariyam, Ututhukettukacha, Ulluval, Karaval (red) or Red skirt
Madolkkata	Krithikamuti (Red Kattalanmuti), Chuttithuni, Chevippoovu, Nettinada, Beard (Red), Tholpoottu, Paruthikkamani, Bangles, Hasthakatakam, Kuralaram, Patiaranjan, Kechamani, Thandappathuppu, Kazhutharam, Chuvappuval, Ottanakku, Chuvappu Uthariyam, White Uthariyam, Thalekkettuval, Locks (Red), Inner Jacket, Outer Jacket (Red), Ututhukettukacha, Ulluval, Karaval (Red), Nails
CHARACTERS FALLING OUTSIDE THE TYPES	
I. Characters wearing masks	
Ganapathi	Mask, Yellow jacket, Karaval (red), Other costumes of Pacha type of characters
Monkeys like Angada	Fur-coat, Pyjama (fur), Tail, Locks, Mask
Vriddha (Old woman)	Mask, Locks (white), Breast cloth, Black skirt, Davani
Ox	Pyjama (white), Jacket (white), Mask, White cloth

APPENDIX A—*Concld.*

Name of the character	*Items of their costumes and Accessories*
I. Characters wearing masks—*Concld.*	
Varaham (pig)	Mask, Pyjama (black), Jacket (black), Cloth (black)
Horse	Mask, Cloth
Goat	In Dakshayaga, the goat's head (mask) is substituted for Daksha's head for completing the yaga
Deer	Deer's head (mask) is used when Mareecha assumes the shape of a golden deer
Buffalo etc.	The mask of buffalo's head is used when yama appears riding a buffalo.
II. Other characters	
Narasimha	Headgear, Thalekkettuval, Locks (white), Red cloth (for tying on the back), Chevippoovu, Nettinada, Ears made of the leaf sheaths of areca, Chuttithuni, Brahmin's beard (white), Rishi's beard (white) Paruthikkamani, Hasthakatakam, Patiaranjan, Marmala, Kazhutharam, Kechamani, Thandappathuppu, Chuvappuval, Ottanakku, Chuvappu Uthariyam, White Uthariyam, Inner jacket, White hairy jacket, Ututhukettukacha, Ulluval, Karaval (yellow), Damshtras, Nails
Ninam	White pants, White jacket, Breasts made of sheaths of areca tree, Chains made of the ribs of cocoanut leaflets, A piece of cloth, Kattalanmuti, Karithoda, Chuttithuni, Chevippoovu, Nettinada, Locks, Thalekkettuval
Bhadrakali	Headgear, Thoda, Chevippoovu, Chuttithuni, Nettinada, Locks (black), Thalekkettuval, Tholpoottu, Paruthikkamani, Bangles, Hasthakatakam, Mulakuralaram, Patiaranjan, Kechamani, Thandappathuppu, Chuvappuval, Ottanakku, Chuvappu Uthariyam, White Uthariyam, Kazhutharam, Kazhuthunada, Inner jacket, Red jacket, Ututhukettukacha, Red skirt, Damshtras
Hamsa, Bird	Headgear, Thoda, Chevippoovu, Nettinada, Chuttithuni, Locks (white), Beak, Thalekkettuval, Tholpoottu, Paruthikkamani, Bangles, Hasthakatakam, Kuralaram, Patiaranjan, Kechamani, Thandappathuppu, Wings, Kazhutharam, Kazhuthunada, Chuvappu Uthariyam, White Uthariyam, Chuvappuval, Ottanakku, Inner jacket, Yellow jacket, Ututhukettukacha, Ulluval, Karaval (Yellow)

APPENDIX A

Name of the Character	*Items of their Costumes and Accessories*
Other characters—*Contd.*	
Jatayu	Big red beak, Red jacket, Karaval (White), Big wings, Black locks, Other costumes of Hamsa
Garuda	Red beak, Red wings, Other costumes of Jatayu
Vidyujihvan (Bheeru)	Bheerumuti, Locks (white), Chevippoovu, Nettinada, Chuttithuni, Rings of cocoanut shell (in the place of Thoda), Kechamani (to be tied on the neck), Thandappathuppu (on the hands), White jacket, Ottanakku (on the side), Chuvappuval (front and back), some of the costumes of other characters (to be tied at improper places)
Kolayali (Executioner)	Black jacket, Black pyjama, Black locks, Damshtras, Weapons
Demon, Goblin	Pyjama (black), Jacket (black), Locks (black), Bhoothamukham
Yavana	Long white beard and moustaches, White turban, White prayer gown, Long cloth, Chain of black beads, Rosary, Prayer book
Disciple of Yavana	Lunki, Belt, Muslim cap or turban, Amulet, Long knife, Shield, Sword
Mahout	Cloth with border lines, Long cloth, Knife, Ear-rings, Iron goad, Stick, Earthen pot
Washerman	White turban, White soman, Small ear-rings, Bundle of clothes
Fisherman	Ear-rings, Red conical cap, Amulet, Chain of glass beads, Red Lunki, Paddle
Mumukshu	White Brahmin beard, Matted hair, White soman, White cloth, Sacred thread
Kankan	Red dyed cloths, Long bamboo stick
Kattalasthri (Hunter woman)	Small Kattalanmuti, Locks (black), Thalekkettuval, Veil, Chuttithuni (black), Nettinada, Kathila (ring), Black breast cloth, Kazhutharam, Kazhuthunada, Tholpoottu, Paruthikkamani, Bangles, Hasthakatakam, Patiaranjan, Chelankamani, Thandappathuppu, Inner jacket, Outer jacket with designs, Inner skirt, Black skirt, White Uthariyam, Nose-ring
Carpenter	Locks (Black), Red cloths, Paruthikkamani, Hasthakatakam, Patiaranjan, White Uthariyam, Chisels, Scale, Axe, Packet of chewing materials
Karkotaka	Black jacket, Black skirt, Other costumes of Pacha
Washerwoman	Tuft, Ear-rings, Matti, Half sleeved jacket, Saree, Bangles, Necklace

APPENDIX A—*Concld.*

Name of the Character	*Items of their Costumes and Accessories*
Other Characters—*Concld.*	
Nagakanyaka (Serpent maid)	Kathila, Nose-ring, Locks, Cloth, Crown, Jacket and Putava (with special designs), Other costumes of females
Thapasi (Female ascetic)	Grey hair, Breast cloth, White saree, A few minor ornaments
Samhararudra	Skirt resembling tiger's skin, Spike, Other costumes of Pacha
Markandeya	Short locks, Chains of glass beads, Matti, Rosaries of Saivites, Sacred thread, Yellow cloth, Red cloth, White cloth
Vamana	Thread of Darbha grass, Tape of black antelope's skin, Stick of Chamatha, Water pot of the devotees, Palmyra leaf umbrella, Other costumes of Markandeya excepting rosaries of Saivites
Brahmin boy	Locks, Cloth with lined border, Long cloth, Small cloth, Sacred thread, Tape of black antelope's skin
Rakshasis like Thrijata	Untied matted hair, Ear-rings, Nose-ring, Black jacket, Black skirt, Black breast cloth, Other costumes of female characters
Nandikeswara	Muti (Red Hanumanmuti), Red beard, Chevippoovu, Nettinada, Locks (red), Thalekkettuval, Paruthikkamani, Hasthakatakam, Marmala, Kazhutharam, Patiaranjan, Chuvappuval, Ottanakku, Chuvappu Uthariyam, White Uthariyam, Inner jacket, Red fur-coat, Ututhukettukacha, Ulluval, Karaval (red), Nails, Damshtras, Kechamani, Thandappathuppu
Vividan	Blue Hanumanmuti, Black locks, Black beard, Blue jacket, Karaval (blue), Other costumes of Hanuman.

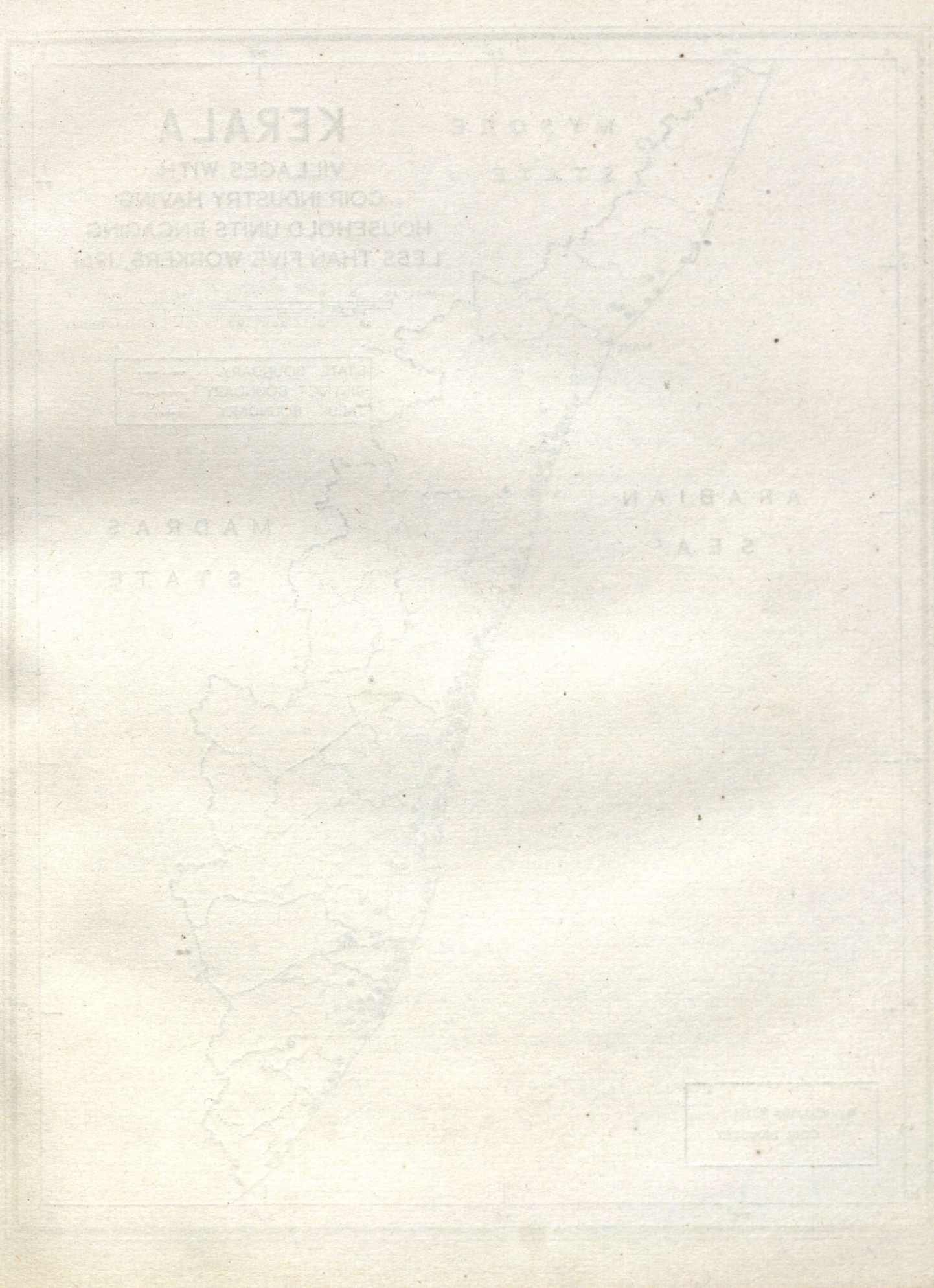
APPENDIX B

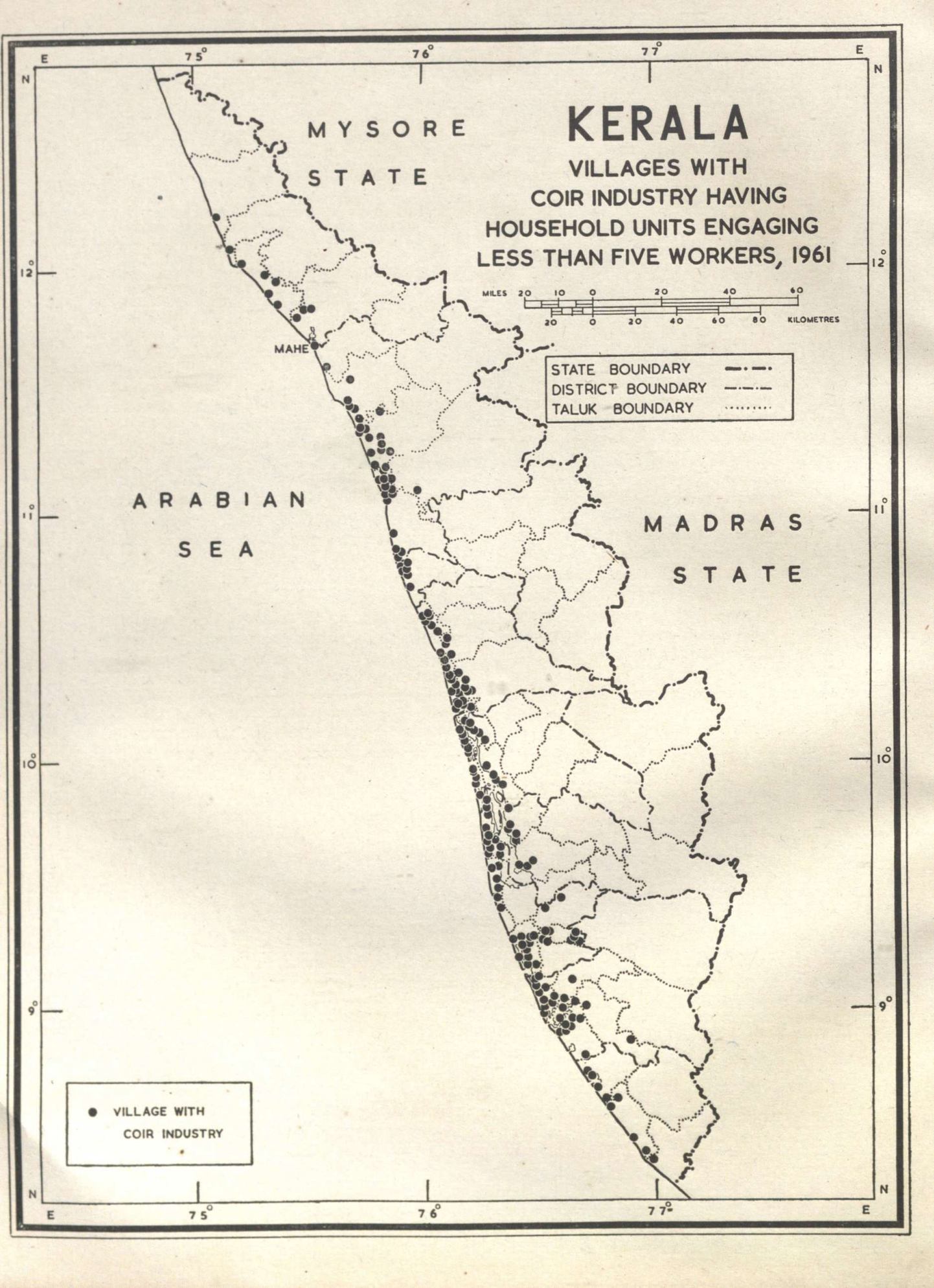
THE REQUIREMENTS OF COSTUMES AND ACCESSORIES OF A KATHAKALI TROUPE

Sl. No.	Name of article	Number required
1	2	3
1.	Headgear	7 Nos.
2.	Kuttichamaram (Head-gear of Chuvanna Thati	2 ,,
3.	Krishnamuti	4 ,,
4.	Rishimuti	2 ,,
5.	Sivanmuti	1 No.
6.	Hanumanmuti	1 ,,
7.	Nandikeswaranmuti	1 ,,
8.	Vividanmuti	1 ,,
9.	Kattalan muti	1 ,,
10.	Krithikamuti	1 ,,
11.	Bheerumuti	1 ,,
12.	Saraswathimuti	1 ,,
13.	Thoda	7 pairs
14.	Chevippoovu	10 ,,
15.	Tholpoottu	10 ,,
16.	Paruthikkamani	12 ,,
17.	Bangles	10 ,,
18.	Hasthakatakam	12 ,,
19.	Kuralaram (Male breastplates)	8 Nos.
20.	Mulakkuralaram (Female breastplates)	4 ,,
21.	Patiaranjan	12 ,,
22.	Kathila	4 pairs
23.	Karithoda	1 pair
24.	Marmala	1 ,,
25.	Vriddhamukham	1 No.
26.	Bhoothamukham	2 Nos.
27.	Vanaramukham	2 ,,
28.	Ox head	1 No.
29.	Deer head	1 ,,
30.	Pig head	1 ,,
31.	Horse head	1 ,,
32.	Goat's head	1 ,,
33.	Male child (wooden)	1 ,,
34.	Bow and arrow	4 sets
35.	Gada	3 Nos.
36.	Sword	3 ,,
37.	Venmazhu	1 No.
38.	Chisels	2 Nos.
39.	Mazhu (Axe)	1 No.
40.	Flute	1 ,,
41.	Akshayapathram	1 ,,
42.	Katakam (Bangle)	1 ,,
43.	Beaks	2 Nos.
44.	Arms with Sanghu & Chakkram	2 ,,
45.	Sudarsana Chakkram	1 No.
46.	Breastplate showing the breasts and abdomen of a female in the family way	1 ,,
47.	Alavattom	1 pair
48.	Conch	1 No.
49.	Vanamala	1 ,,
50.	Marriage garland	1 ,,
51.	Dice Board	1 ,,
52.	Pakita (Dice)	1 pair
53.	Python	1 No.
54.	Wings	2 pairs
55.	Chana (Grinding stone and Kuzhavi)	3 Nos.
56.	Knife	1 No.
57.	Tongs	1 ,,
58.	Mirror	5 Nos.
59.	Pantham (Torch)	1 pair
60.	Stick	1 No.
61.	Chatta (Whip)	1 ,,
62.	Spear	1 ,,
63.	Soolam (pike)	1 ,,
64.	Elephant's tusks	1 pair
65.	Conch with a baby inside	1 No.
66.	Cocoanut shells and sticks	6 sets
67.	Kondakettu	4 Nos.
68.	Kurunira	4 ,,
69.	Kazhutharam	14 ,,
70.	Nettinada	14 ,,
71.	Kazhuthunada	10 ,,
72.	Ottanakku	10 ,,
73.	Chuttithuni	12 Nos.
74.	Chuvappuval	10 pairs
75.	Chuvappu Uthariyam	10 Nos.
76.	Chuvanna thati	2 ,,
77.	Karutha thati	1 No.
78.	Vella thati	1 ,,
79.	Brahmanan thati	1 ,,
80.	Rishi thati (black)	1 ,,
81.	do. (white)	1 ,,
82.	do. (red)	1 ,,
83.	Hair	12 Nos.
84.	Thandappathuppu	12 pairs

APPENDIX B—*Concld.*

Sl. No.	Name of article	Number required
1	2	3
85.	Kechamani	7 pairs
86.	Chelankamani	4 ,,
87.	Curtain	2 Nos.
88.	Melappu (canopy)	2 ,,
89.	Scarletj acket	7 ,,
90.	Velvet jacket for Sri Krishna	1 No.
91.	Female jacket	4 Nos.
92.	Jacket of chuvanna thati	2 ,,
93.	Hanuman jacket	1 No.
94.	Black jacket	1 ,,
95.	Jacket of Vividan (black)	1 ,,
96.	Inner jackets	15 Nos.
97.	Veil for female characters	4 ,,
98.	Manhaval	1 No.
99.	Neelaval	6 Nos.
100.	Karineri (skirt)	1 No.
101.	Kara Uthariyam (white)	16 Nos.
102.	Karaval (white)	40 ,,
103.	Ulluval	300 ,,
104.	Thalekkettuval	25 ,,
105.	Ututhukettu kacha	10 ,,
106.	Rishi utuppu	2 ,,
107.	Sthreevesha putava	8 Nos.
108.	Trousers (white)	2 ,,
109.	do. (black)	2 ,,
110.	Neela Uthariyam	1 No.
111.	Blue jacket	1 ,,
112.	Yellow jacket	1 ,,
113.	Vasthram for Brahmin	1 ,,
114.	Bell-metal lamp (big)	1 ,,
115.	do. (small)	3 Nos.
116.	Chenda	1 No.
117.	Maddalam	1 ,,
118.	Chengalam	1 ,,
119.	Cymbals	1 pair
120.	Aramani	1 set
121.	Chilambu	1 pair
122.	Sword	1 No.
123.	Implements of worship (Bell-metal lamp, Kindi, Kutamani (bell), censer, Kodivilakku, conch, tripod stand for conch and poop-palika).	1 set
124.	Big boxes for keeping the materials.	




KERALA
VILLAGES WITH
COIR INDUSTRY HAVING
HOUSEHOLD UNITS ENGAGING
LESS THAN FIVE WORKERS, 1961
MYSORE
STATE
MAHE
ARABIAN
SEA
MADRAS
STATE
MILES 20 10 0 20 40 60
20 0 20 40 60 80 KILOMETRES
STATE BOUNDARY
DISTRICT BOUNDARY
TALUK BOUNDARY
VILLAGE WITH
COIR INDUSTRY
E
75°
76°
77°
N
12°
11°
10°
9°

THE COIR INDUSTRY

CHAPTER I

Kerala, with her luxuriant gardens of cocoanut palms extending throughout the entire length of her coastal area and parts of the hinterland and holding out the perpetual promise of an abundant supply of the raw material for the coir industry in the husks which form the outer rind of their valuable nuts and a long network of lakes, lagoons and canals stretching from Kasaragod to Parassala in which the green husks are retted to yield their golden fibre for the coir yarn, affords ideal conditions for the growth of the coir industry. It is no surprise, therefore, that the coir industry thrived in Kerala from very ancient times. Although it is believed that this industry existed in Kerala at least two centuries ago, there are ample grounds to infer that it was here much earlier than two centuries, even as far back as the 13th century A. D., if not still earlier. Marco Polo mentions of coir yarn as an article of trade between India and countries like Greece and Rome in the 13th century A. D. No doubt, the coir industry in those times was confined to the production of coir yarn and ropes. The yarn was produced by hand-spinning alone. The spinning wheel which was unknown in those days is said to have been introduced much later by the Portuguese, the Dutch and the English who came in close contact with the people of the coastal areas like Fort Cochin and Anjengo. The manufacture of mats and mattings out of coir yarn was first introduced by a European, Mr. James Darragh, the founder of Messrs. Darragh Ismail & Co., Alleppey in 1859–60.[1] Mr. Darragh, while coming from Bengal, is said to have taken with him a few Bengalis who were adepts in cotton carpet weaving and started his factory at Alleppey where he tried the weaving of mats and mattings with coir yarn on the pattern of cotton carpets.

Importance of the Industry and Volume of Employment

2. The coir industry occupies a pre-eminent place in the economy of the State. According to the 1961 Census as many as 2.51 lakhs[2] of persons have coir industry as their main occupation. Of these, 0.54 lakh are males and 1.97 lakhs females. Out of the above number, 2.28 lakhs of persons are in the rural areas and 0.23 lakh in the urban areas. Most of the workers in the coir industry are engaged in household industry, their number being 1.98 lakhs. The vast majority of these, numbering 1.65 lakhs, are females. The rural areas claim 1.88 lakhs of the workers in the coir household industry and the urban areas only 0.10 lakh. The following table gives the number of workers engaged in the coir industry as their main occupation with household and non-household sectors and rural-urban break-ups in the State and districts.

(1) Travancore British Empire Exhibition 1924, page 22 and Report of the Minimum Wages Committee for the manufacture of coir, p. 5

(2) A worker for this purpose is one who was in employment during any of the fifteen days preceding his enumeration for the 1961 Census. But in the case of a worker in a household industry the person should have had regular work for more than one hour a day throughout the greater part of the working season. If these limitations are ignored, the number of coir workers will naturally be more than the above figure.

Table I

NUMBER OF PERSONS ENGAGED IN COIR INDUSTRY AS THEIR MAIN OCCUPATION

State/District	Total			Rural			Urban		
	Total workers	Workers engaged in household industry	Workers engaged in non-household industry	Total workers	Workers engaged in household industry	Workers engaged in non-household industry	Total workers	Workers engaged in household industry	Workers engaged in non-household industry
1	2	3	4	5	6	7	8	9	10
Kerala State	251,078	198,372	52,706	228,238	188,112	40,126	22,840	10,260	12,580
Cannanore district	3,296	2,566	730	2,894	2,307	587	402	259	143
Kozhikode ,,	25,171	17,931	7,240	19,802	15,501	4,301	5,369	2,430	2,939
Palghat ,,	2,957	1,682	1,275	2,203	1,488	715	754	194	560
Trichur ,,	12,170	7,989	4,181	11,954	7,945	4,009	216	44	172
Ernakulam ,,	26,201	17,485	8,716	24,630	16,951	7,679	1,571	534	1,037
Kottayam ,,	8,990	8,343	647	8,576	7,967	609	414	376	38
Alleppey ,,	99,593	78,985	20,608	89,642	75,958	13,684	9,951	3,027	6,924
Quilon ,,	38,588	34,756	3,832	37,156	33,640	3,516	1,432	1,116	316
Trivandrum ,,	34,112	28,635	5,477	31,381	26,355	5,026	2,731	2,280	451

In addition to the above, quite a large number of people have taken to coir industry as a subsidiary occupation.

3. From a 20 per cent sample of the household schedules recorded in the 1961 Census which contain particulars about the household industries run by the households it is estimated that the total number of households running household industries for the manufacture of coir and coir products in Kerala comes to 63,020 of which that for the manufacture of coir matting, cactus fibre for ropes and rope-making from cocoanut fibre comes to 12,495 and that for coir spinning comes to 50,205. The rest fall in minor categories. The term household industry for purposes of the above household schedules has been defined as an industry not on the scale of a registered factory conducted by the head of the household himself and/or mainly by the members of the household at home or within the village in rural areas and only at home in urban areas. A break-up of the estimated figures of households by districts is given below:—

Table II

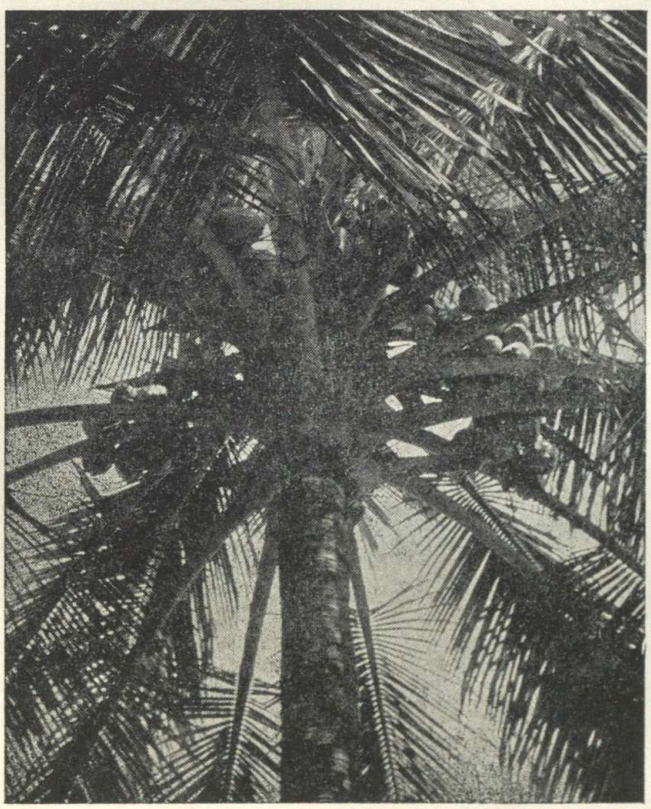
NUMBER OF HOUSEHOLDS ENGAGED IN THE CONDUCT OF HOUSEHOLD INDUSTRY FOR THE MANUFACTURE OF COIR AND COIR PRODUCTS BY DISTRICTS

(Estimated total from a 20 per cent sample)

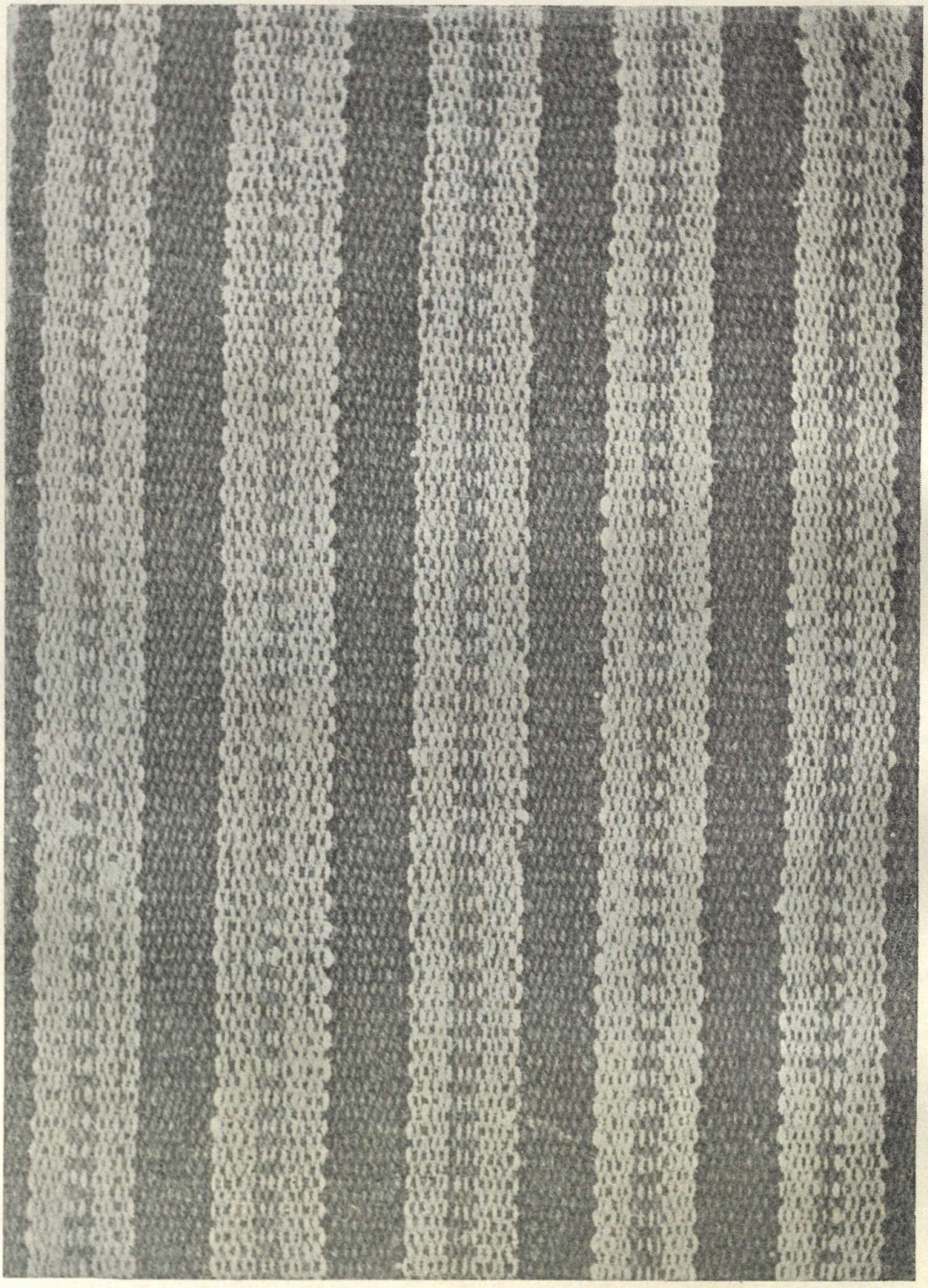
State/District	Number of households engaged in the conduct of household industry in		
	Manufacture of coir and coir products	Manufacture of coir mattings, cactus fibre for ropes and rope-making from cocoanut fibre	Coir spinning
Kerala State	63,020	12,495	50,205
Cannanore district	1,040	125	910
Kozhikode ,,	7,865	265	7,600
Palghat ,,	680	65	615
Trichur ,,	1,550	335	1,210
Ernakulam ,,	3,290	885	2,405
Kottayam ,,	3,275	260	3,015
Alleppey ,,	36,175	8,140	27,805
Quilon ,,	7,450	1,515	5,855
Trivandrum ,,	1,695	905	790



PI. 1. A VIEW OF THE COCOANUT PALM GROVE



PI. 2. A COCOANUT PALM



Pl. 3. COIR MATTING

4. The primary product of coir is the coir yarn. Kerala produces annually about one lakh tons of yarn of which about 0.92 lakh tons are disposed of as yarn itself both locally and by export to foreign countries. The next important product consisting of mats, mattings, rugs and carpets take in 0.19 lakh tons of exported quantities alone. In 1960–61 India exported coir yarn to the value of Rs. 53,376,000, coir mats and mattings to the value of Rs. 25,746,000 and coir carpets and floor rugs to the value of Rs. 3,653,000. Of these as much as 95% could approximately be estimated as coming from Kerala. The coir yarn and mats, mattings, carpets and rugs made out of coir yarn have so much attracted the buyers that today more than 42 countries are importing coir mats and mattings, more than 18 countries are importing coir carpets and floor rugs and more than 43 countries are importing coir yarn from India. The particulars of export showing the value and quantity are given in Appendix A. As a dollar-earning industry, about 55% of the coir yarn and coir goods together and 90% of the coir products alone made in Kerala are exported.[1]

5. The coir industry in Kerala consists of 2 types, the cottage type and the factory type which also synchronize with two stages of the industry. Up to and including the production of coir yarn the industry partakes the nature of either the cottage type or the small scale industrial establishments employing but a small number of workers. This sector of the industry may be called the spinning sector and takes in such operations as collection, retting and beating of cocoanut husks, cleaning the fibre and production of coir yarn. From this stage the industry branches itself into three main groups namely, those engaged in the purchase, curing and pressing of yarn into bales for export, those producing mats, mattings, carpets, rugs and similar products for both export and internal consumption and those producing ropes or cables of small, medium and large sizes either for local consumption or for export. The number of factories registered under the Factories Act comes to 216 as on 30th June 1961, the number of establishments manufacturing coir excluding ropes registered with the Coir Board under the Coir Industry Registration and Licensing Rules to 783 and of rope making units to 47 in 1960. These are spread over 29 taluks in the State, almost all of them being in the coastal areas.

The Cocoanut Palm

6. Coir is the fibrous rind of the cocoanuts with which the latter are thickly covered. To think of coir without the cocoanut palm and its nuts, from which it is taken is hardly possible. A palm found in all tropical countries and the only one according to Yule and Burnell common to the Old and the new Worlds, the cocoanut tree has been given a place of no mean importance in several ancient writings like Roterio of Vasco da Gama and Topographia Christiana of Cosmas and the works of medieval writers like Marco Polo, Fra Jordanus and others. Megasthanese, Ambassador of Seleucus Nicator is reported to have told King Chandragupta of India about the cocoanut palms he saw in Ceylon as early as 300 B. C. Both Silappathikara and Valmiki Ramayana refer to cocoanuts. Speaking of an island in the Indian Archipelago, Marco Polo observes,

"The Indian nuts also grow here of the size of a man's head containing an edible substance that is sweet and pleasant to taste and white as milk. The cavity of this pulp is filled with a liquor clear as water, cool and better flavoured and more delicate than wine or any other kind of drink whatever." A more detailed description of the tree given in Chapter 13 of Book 5 of Purchas runs thus:–

"But of greater admiration is the Coquo tree (of this besides Linschoten, see Garcias ab Horto with Clusius' notes. Exst, li 7-c. 2-6) being the most profitable tree in the world, of which in the Islands of Malduiva

(1) Source: Coir Board

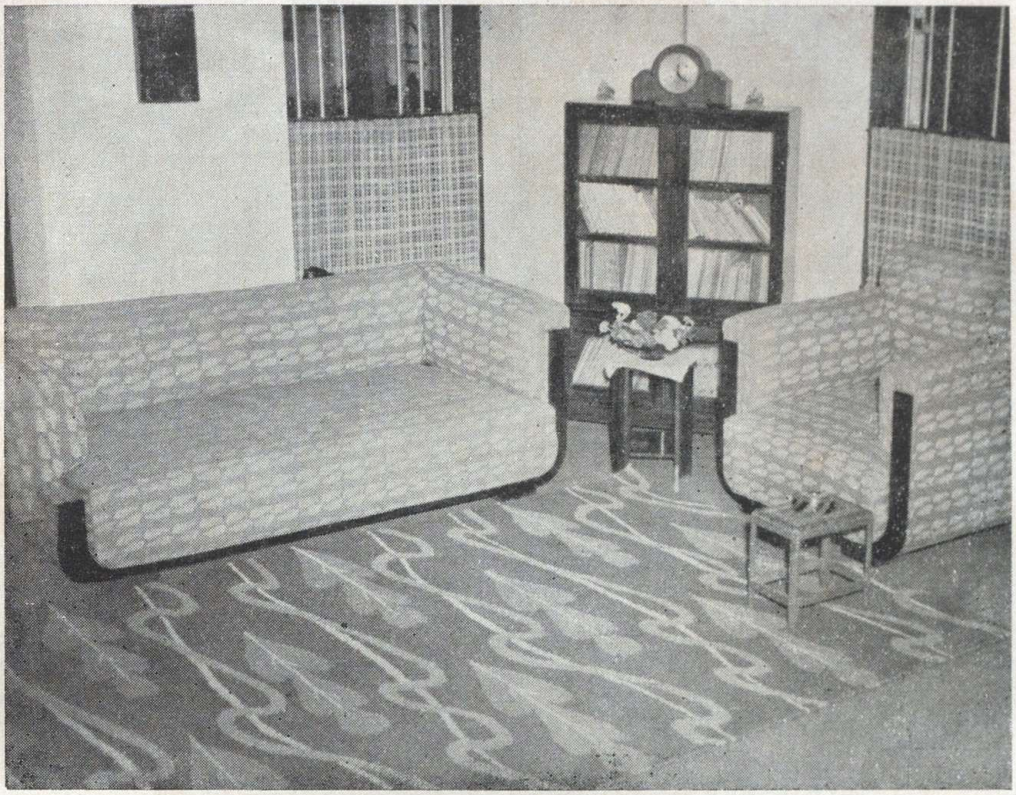
they make and furnish whole ships so that (save the men themselves) there is nothing of the ship, or in the ship, neither tackling, merchandize, or ought else but what this tree yieldeth. The tree groweth high and slender, the wood is of a spongy substance, easy to be sawed, when they make vessels thereof, with cords made of *cocus*. For this nut (which is as big as an Estridge (Ostrich?) egg-hath two sorts of husks as our walnuts, whereof the uppermost is hairy (like hemp) of which they make Occam (okum!) and cordage, of the other shell they make drinking cups. The fruit, when it is almost ripe, is full of water within; which by degrees changeth into a white harder substance, as it ripeneth. The liquor is very sweet, but with the ripening groweth sour. The liquor extracted out of the tree is medicinable; and if it stand one hour in the sun, it is very good vinegar, which being distilled, yieldeth excellent *Aquavitae*, and wine. Of it also they make by setting it in the sun, sugar. Of the meat of the nut dried, they make oil. Of the pith or heart of the tree, is made paper for books and evidences. Of the leaves, they make coverings for their houses, mats, tents, etc. Their aparell, their firing, and the rest of the commodities, which this tree (more plentiful in the Indies, than willows in the low countries) yieldeth, would be too tedious to recite. They will keep the tree from bearing fruit, by cutting away the blossoms, and then will hang, some vessel thereat, which removeth from thence that liquor, of which you have heard. It is the *Canariju's* living, and they will climb up these trees, which yet have no boughs but on the top, like apes. This tree hath also a continual succession of fruits, and is never without some."

7. Coming to the history of the cocoanut palm in Kerala, no reference is seen made to it in the Periplus attributed to the 1st century A. D. It is highly improbable that such a remarkable tree like the cocoanut palm would have escaped the notice of the author of the Periplus if it existed then. In his Topographia Christiana of the 6th century A. D., Cosmas refers to 'Argellia', which it is presumed, is an erroneous transliteration of the Sanskrit word 'Nalikeram' or 'Narikelam'.[1] The inevitable inference is that the cocoanut palm would have been introduced in Kerala some time between the 1st century A. D. and the 6th century A. D. Varthema, Barbosa, Barros and Garcia use the Malayalam term 'Tenga' for cocoanut. While speaking of Ezhuvas it is said by several writers that the cocoanut palm was introduced in Kerala from Ceylon by them. A theory that cocoanuts drifted in the sea from Polenesia and found new abode in many parts of the world is also equally current. That the cocoanut tree and its produce formed the wealth of Kerala for ages is undisputed. The tree was so much valued that kings at war might make peace even when they have killed each other's children but not in case a cocoanut palm of one country has been cut down by the rival army. The Portuguese are said to have resorted to the wholesale destruction of cocoanut trees of the Malabar chiefs against whom they fought. Although the cocoanut trees were formerly found only in low sandy situations within the influence of the sea breeze where they thrive, they have now permeated even into hilly regions where enterprising cultivators are trying their hand on these trees. The area under cocoanut trees in Kerala comes to about 7.5 lakhs of acres. The role played by the cocoanut palms is so great that as early as February 1945 a Cocoanut Central Committee was established by the Government of India with headquarters in Kerala to deal with the varied aspects of cocoanut cultivation including research and propaganda.

Important Coir Products

8. The variety of uses to which coir is put is so numerous that it is difficult to enumerate them exhaustively. Stuffing of couches and pillows, making of yarn and cordage including large sized cable, saddles,

(1) History of Kerala by K. P. Padmanabha Menon, Vol. IV, page 424



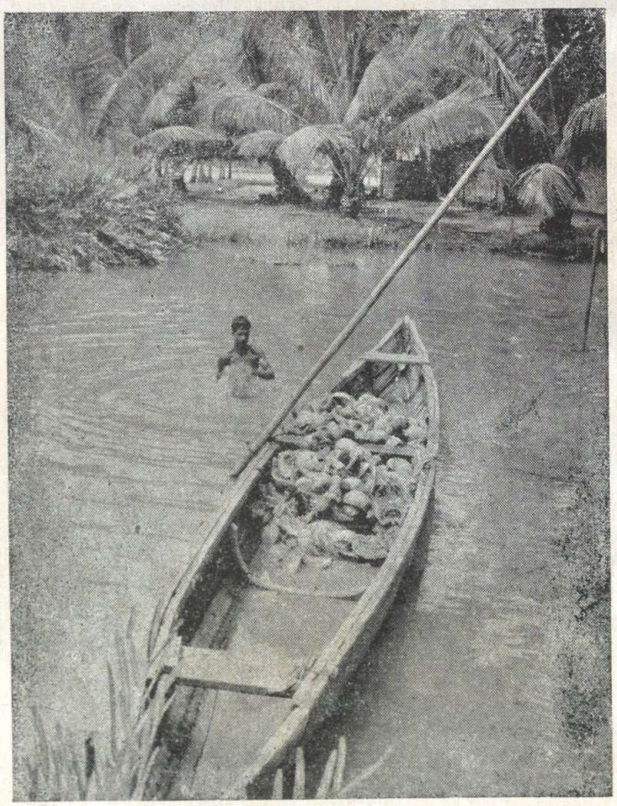
Pl. 4. COIR PROVIDES THE BEST FLOOR COVERING



Pl. 5. SIVA AND PARVATHI - A COCOANUT PITH PRODUCT



Pl. 6. VIGNESWARA—A COCOANUT PITH PRODUCT



Pl. 7. TAKING OUT THE RETTED HUSK

brushes, mats, mattings and carpets, fishing nets, upholstery and even hats and bonnets are but a few of the salient uses to which coir is put. The "character of coir" says Royle "has long been established in the east and is now well-known in Europe as one of the best materials for cables on account of its strength, lightness and elasticity. These cables are further valuable being durable particularly when wetted with salt water. Numerous instances have been related of ships furnished with cables of this light, buoyant and elastic material riding out a storm in security while stronger made, though less elastic, ropes of other vessels have snapped into two, and even when chain cables have given way".[1] Until chain cables were introduced all the ships navigating the Indian seas were furnished with coir cables. The hats and bonnets made of coir are known to have attracted considerable attention in the great exhibition held in London. The cordages have gained such wide popularity in India and foreign countries that they are used for a variety of purposes like those in connection with hops growing, wineyard growing and fencing.

The Coir Yarn

9. The coir yarn is the primary and, in that sense, the most important product of the coir industry. It consists of two coir strands twisted together each winding against the other. Simple in its external appearance, it has a beauty of its own and a strength which can stand comparison with several others of the kind. Basically there are two kinds of coir yarn, one type spun with the hand and the other spun on the wheel or spindle. The varieties of coir yarn are numerous, as many as fifteen. Their names and particulars are given below:-

Table III

Variety of yarn produced	Area of production	Manner of production (whether hand-spun or wheel-spun)	Approximate quantity produced	Principal uses
1	2	3	4	5
Anjengo	Paravoor, Nedumganda, Vakkom, Kadakkavoor, Chirayinkil, Anjengo, Perumathura, Azhoor, Kaniyapuram, Murukkumpuzha and Panathara	Completely wheel-spun	40,000 tons	Approximately 70% used as yarn for export and internal consumption. 30% used for manufacture of mats and mattings locally.
Mangadan	Mangad, Asramom, Kandachira, Perinad, Prakulam, Chavara South, Thevalakara, Kozhivila	Completely wheel-spun	16,000 tons	85% used for export as yarn and balance used for rope-making and agricultural purposes etc.
Aratory	Arattupuzha, Mahadevicad, Mangalam, Karuvatta, Chingoli, Pallana, Muthukulam	do.	9,000 tons	70% used for export as yarn. Remainder is used for manufacture of mats and mattings locally.

(1) Quoted at page 431 of the History of Kerala by K. P. Padmanabha Menon, Vol. IV

Variety of yarn produced	Area of production	Manner of production (whether hand-spun or wheel-spun)	Approximate quantity produced	Principal uses
1	2	3	4	5
Alapad	Alunkadavu, Cheriyazhekal, Maruthoorkulangara and Alappadthura	70% hand-spun and 30% wheel-spun	1,000 tons	75% is exported as yarn. Balance is used up for local manufacture.
Ashtamudi	Kallada, Munro Island, Perumon and Chavara	Wheel-spun	3,000 tons	Only limited quantity is used by indigenous manufacturing industry. 10 to 15 per cent is consumed by local rope-making industry. Major portion is exported as yarn.
Vaikom	Areas in Vaikom and Shertalai Taluks, Vechoor, Thanneermukkom, Chenganda, Poochakkal, Chembu, Thrinayamkudam and Kumbalangi in Cochin area	80% wheel-spun and 20% hand-spun	14,000 tons	Approximately 25% is used by local manufacturers of mats and mattings. 70% is exported as yarn. A small quantity is used for rope making and agricultural purposes.
Beach	Muhamma, Peruneermangalam, Mararikulam, Punnapra and Mannancherri	Hand-spun	2,500 tons	Almost the entire production is used up by local manufacturers of coir mats and mattings, particularly to make low quality door mats and cheap coir runners. A small quantity is exported as yarn.
Rope yarn	Mostly manufactured in Malabar and in a portion of Cochin, Kandasankadavu and Manalur	do.	2,000 tons	A limited quantity is used for rope making. Almost 90% is exported as yarn.
Edavannan	Parur, Cranganore, Vypeen area and Chowghat	do.	1,000 tons	Chiefly for rope making and internal consumption of household and agricultural purposes.
Parur	Vavakkadu, Chittattukara, Pattanom, Kottapuram, Cranganore, Cherai and Njarakkal	Wheel-spun	4,000 tons	Mostly for rope making and internal consumptiom of household and agricultural purposes. About 35 % is being exported as yarn to foreign markets.
Muppiri	South Travancore and some parts of Malabar	Mostly wheel-spun	300 tons	Mostly for internal consumption for household and agricultural purposes.

Variety of yarn produced	Area of production	Manner of production (whether hand-spun or wheel-spun)	Approximate quality produced	Principal uses
1	2	3	4	5
Beypore	Beypore, Elathur Quilandy, Calicut, Kadalundy and Feroke	Hand-spun	26,000 tons	Mainly for export to foreign countries. A small quantity is used for rope making.
Quilandy	Kadalundi and Feroke	do.		
F. U. (Fine unsoaked)	Parappanangadi, Vallikunnu, Kallai and Kozhikode	do.		
MK & SMK yarn	MK is mostly manufactured in Cochin area. Important centres are Kumbalangi, Manasseri and Andikadavu	Completely wheel-spun	1,000 tons	do.

10. From the above names of the varieties of coir yarn one is likely to think that these types of yarn are identified with the localities bearing their names. Such an impression is incorrect. It is true that these types of yarns are produced in the localities bearing their names. But it is not in those places alone that these yarns are produced. There are other places also where these types of yarns are produced as indicated in column 3 of the above table. What really these names connote is the quality of the yarn. The absence of pith is one of the factors which contribute to the best quality of yarn. Hence according to the degree of the absence of pith the qualities vary. Similarly the tightness of the scores, the colour of the fibre etc., also go to determine the quality of the yarn. Thus a bright or golden colour is superior to darkish colour. Tight scores are superior to loose ones. A combination of these qualities helps to assess the classification of coir yarn into the various categories mentioned above. This classification is not an easy operation. It takes years for one to be really an expert in classifying the yarn into the various categories. The characteristics of a few of the above categories of yarn are given below.

11. **Anjengo (Real or Special)** The best Anjengo yarn is made from husks which are carefully soaked for about 12 months in lots basketed together which float about in practically fresh running water. Cheaper grades are soaked for a less time, for about 10 months, buried in mud where suitable supplies of fresh running water are available. The yarn is spun and twisted on wheels which give a harder twist than the hand-spun Alapad and other hand-made varieties. It is usually of a fine clear good colour and regular even twist.

12. **Ashtamudi** The husks are buried for 5–7 months in mud and sand where brackish water regularly flows. The fibre is spun on wheels but somewhat less so than for Anjengo descriptions.

13. **Aratory** This is a clean, white, hard, twisted yarn but its twists are less even than real Anjengo. In appearance it has not the same smooth finish as real Anjengo and is more hairy. The husks for production of

this yarn are soaked for 4 to 6 months in lake water.

14. **Vaikom** The husks for production of this yarn are soaked for 6 to 10 months. The higher grade of this category is of a clean light colour and even but soft twisted. It, therefore, has not the same wearing quality as the hard twisted yarn. The yarn is used for matting but more particularly for the better grades of brush-door mats.

15. **Beach** or the common weaving yarn is spun from the fibre of unsoaked or partly soaked husks. This type of yarn is reddish in colour with varying quantities of pith adhering to the fibre. It is used for the lowest qualities of mattings. The husks for the production of this yarn are soaked mostly in tanks for 2-5 months.

16. **Mangadan** This kind of yarn is thicker but less bright than the Anjengo type. It is usually used for rope making.

The Coir Mattings

17. The coir mattings form an important item of the goods manufactured out of coir yarn. The standard width of a matting is 18″, 22½″, 24″, 27″, 36″, 45″, 54″, 63″, 72″, 108″ etc. A roll of matting is usually of 50 yards in length. The quality of the mattings varies widely from one another. Generally, the mattings are woven to design, each type of matting having its own design. Almost invariably dyed yarn is used in the production of mattings. Plain mattings in single colour or mattings of different colour patterns and designs constitute the bulk of the production in this category. The designs vary from simple to more complicated ones and some of them are highly charming to look at. The mattings are generally used where the lengthwise area to be covered is long and the width is limited e.g., to cover long corridors. Plain mattings with undyed yarn are also rarely produced to meet cheap demands. The main centres of production of coir mattings are Alleppey and Shertalai.

The Coir Carpets

18. The coir carpets are produced to meet the demand for floor coverings of limited length but of greater width than the usual pattern of coir mattings. While there are standard sizes and patterns for coir mattings, these considerably vary according to the terms of the order where they are produced to order. Designs and shades constitute the most important feature of coir carpets. These are either made by dyeing the yarn itself before weaving or by spraying the dyed solution with the aid of stencils. The former is more durable while the latter is cheaper, attractive and to a large extent popular, though the colour fades away earlier than in the former pattern. The designs vary from simple ones to intricate ones. Where intricate designs are woven with dyed yarn, dobby or jacquard looms and a large number of treadles are used. The main centres of production of coir carpets are the same as those of coir mattings.

The Coir Mats

19. The coir mats differ from coir mattings and carpets in that the surface of the coir mats is covered with tufts of coir yarn in most of the cases though there are a few cases where they are covered with yarn itself. The coir mats are generally much smaller than carpets, not to speak of mattings. The standard sizes of mats are:—

No. 0 – 22″ × 12″	No. 5 – 36″ × 22″
No. 1 – 24″ × 14″	No. 6 – 39″ × 24″
No. 2 – 27″ × 16″	No. 7 – 42″ × 26″
No. 3 – 30″ × 18″	No. 8 – 45″ × 28″
No. 4 – 33″ × 20″	No. 9 – 48″ × 30″

There are both uncoloured and coloured varieties among coir mats. Designs are beautifully worked out on coir mats either with the aid of dyed tuft of yarn or by spraying dyes with the aid of stencils. The coir mats serve as absorbers of dust, mud or water from one's feet while entering a building while mattings and carpets serve as floor coverings. There are different kinds of mats according to the pattern. The fibre mat which is usually used has tufts of fibre inserted through the warp to form the top surface. Carnatic mats or rod mats form

another type in which the top surface consists of fibre tufts with the base of yarn. A third type of mats is known as creel mats. In this the weft is made of alternate rows of the tuft of fibre and yarn. There are also mats which are woven with coir yarn alone according to designs. At times mats of quite large size decorated with beautiful designs are produced which might serve even the purpose of a carpet. They, no doubt, are more costly but more charming than the carpets. The main centres of production are the same as in the case of mattings and carpets.

Coir Rugs

20. All the mattings described supra can be bound and supplied as rugs. The designs of these are either woven or stencilled. After the mattings are cut to rug sizes the cut ends are finished in three principal methods. In one type which has fringed ends a double row of stitching is affixed approximately 2″ from the cut edge. The weft strands between the stitchings and the cut ends are then removed so that the warp strand will form a 2″ fringe. In another method known as the 'drawn-in-ends' the weft strands are removed for approximately 1½ to 2″ from the cut edge and the warp strands instead of being left to form a fringe are doubled back and interlaced in the matting thus giving a clean edge approximately 1½″ wide and thicker than the matting itself. This form of finishing tends to prevent the corners of the rug curling in use. This is a costly finishing process. In the third method which is known as 'the bound ends', the cut edge of the matting is secured by covering it with a jute binding which may be plain, solid coloured or fancy coloured to suit the pattern of the rug. The binding is sewed on to the rug by a double row of stitching.

Coir Mourzouks

21. Coir mourzouks are usually manufactured in a variety of sizes and patterns and supplied where a heavy and durable rug is required. Mourzouk weaving differs from matting weaving in so far as it is woven on special cross weaving looms and the surface and pattern of the mourzouk are formed by the weft and not by the warp. On completion of weaving the ends of the warp are drawn back into the fabric to give a strong and straight edged finish. The type of weaving enables the production of intricate geometrical and floral designs.

Designing

22. As already indicated supra the coir mats, mattings, carpets, rugs and mourzouks are rich in decorative designs of highly attractive patterns. Most of the designs are made to order. A purchaser may prescribe any design and the producer carries out the prescription most faithfully. In this sense it should be mentioned that there is hardly any set design or what may be called a popular design. The designs change according to the fancies of the purchaser. But generally it may be indicated that the purchasers from western countries prefer geometrical designs while those from other countries prefer floral and intricate designs. A few of the prevailing designs are given under the descriptions of the concerned variety of coir products.

The Coir Ropes

23. The coir ropes constitute another important item of coir yarn products. Rope making units are only few in number compared to the other manufacturing establishments and are concentrated in a few centres. Of the 9 districts rope making units are found only in 6 districts viz., Trivandrum, Ernakulam, Trichur, Palghat, Kozhikode and Cannanore. There are altogether only about 47 production units. The ropes are produced out of the coir yarn. They vary in thickness according to the number of plies used. The circumference of the rope produced in Kerala varies from ½″ to 6″ and in a few cases a little more. The quality and durability of these ropes have already been referred to earlier.

Cocoanut Pith Products

24. The products of the cocoanut pith form a byproduct of the coir industry made from the cocoanut pith thrown out as

refuse after separation of the fibre from the cocoanut husk. The possibility of making use of this waste matter has been explored and found successful only during the last decade. As a result of the experiments made it has now been found possible to produce all kinds of models which can be made in clay out of cocoanut pith as well with the additional advantage that in the case of models made out of cocoanut pith they are unbreakable. A training Centre for the production of models from cocoanut pith has been started at Kadakkavoor by the Kerala Government. The Industrial Estate at Pappanamcode near Trivandrum has also a production unit for this item.

CHAPTER II

PROCESS OF PRODUCTION

COIR YARN

Plucking and Husking the Nuts

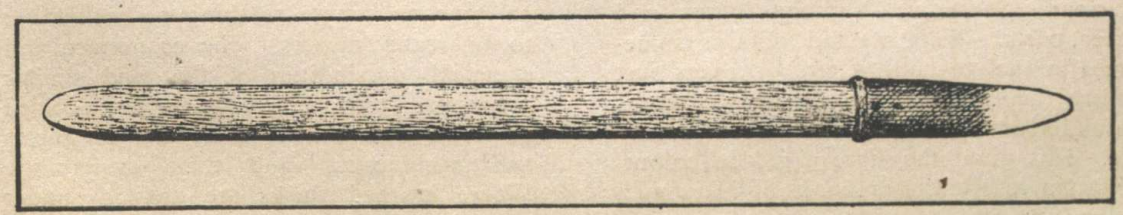
25. The cocoanut trees being quite tall, some of them as tall as 80 to 90 feet, and having no branches, one usually climbs them with the aid of a rope looped round his ankles to pluck the nuts from the top. In some localities a long bamboo stem with stumps and a 'V' shaped support at the top is used as a ladder to climb the tree up to a certain height and thereafter the climbing is done with the aid of the looped rope. Some cut or make steps on the tree above the reach of the ladder at convenient distances to facilitate the climbing of the tree without the aid of the looped rope. On reaching the top, the ripe nuts are cut down in a cluster. They are not damaged by the fall from a height because of the fibrous covering which acts as a shock-absorber. The first process in the production of coir yarn is the separation of the husk from the nut which is known as husking. It is usually done by ramming the cocoanut against a wooden or iron spike fixed on the ground and splitting the husks into three or



COCOANUT BEFORE DEHUSKING



HUSK—THE RAW MATERIAL FOR COIR



SPIKE USED FOR DEHUSKING THE COCOANUT

four pieces. This is a work requiring some skill and experience.

Retting

26. As the retted husks of ripe nuts form the raw material for the coir industry the split husks are soaked in water for a period ranging from six to eighteen months. This process is called retting. The methods of retting adopted in the various parts of the State differ in details. Some of the common methods prevalent are detailed below.

27. Basin-shaped pits are dug on the sides of lakes or canals so as to be within the tidal action of the backwaters. These pits may either have a natural sandy bottom or sand may be put in them. The sides of the pit are lined with cocoanut leaves. The husks are then put in these pits, covered with cocoanut leaves and weighted down with mud so that they may not float when water is admitted. Channels are provided into the pit to facilitate the inflow and exit of water in high and low tides. According to another method the husks are placed in coir nets and kept floating in the backwaters for a few days and then covered with cocoanut leaves and weighted down with mud so as to gradually make them sink under water. These bundles of husks are known as 'Kollis' or 'Malis'. Another method in vogue is to prepare enclosures with stakes in shallow backwaters in which the husks are put, covered with cocoanut leaves and weighted down with mud. Retting is supposed to be caused by the disintegration of the matter binding the fibres brought about by the action of certain organisms.

28. The net system of retting prevails in Thiruvallam-Pachallur, Vakkom-Kadakkavoor, Anjengo, Ashtamudi, Kayamkulam, Haripad, Shertalai, Vaikom, Parur and other parts. This method obtains sometimes in the stagnant waters or rivers just before they fall into the sea where there is an undercurrent and saline water is available. This gives the fibre a golden colour. It is also resorted to in banks of lakes with saline water but with no undercurrent. Here retting takes more time but the quality of fibre will be good. In the pit system of retting it does not give the golden colour to the fibre. Instead it gives the colour of the soil, usually dark to a certain extent, to the fibre which is not very attractive in the market. This method is adopted on the sides of the rivers and canals of the Malabar area. The efficiency and the period of retting depend on the suitability of the water for the action of the organisms. The differences in quality and the yield of the fibre mostly depend upon the husks, the nature of the water, the season and the arrangement for keeping the husks under water. Fresh husks within a few days of husking are best suited for retting. Fresh husks are classified into superior and inferior varieties according to the potentiality of their fibre yield as judged from their freshness, size, thickness etc. Brackish water is preferred for retting. Fibre is classified into 1 F, 2 F, 3 F and 4 F. The best quality is 4 F which is of bright colour and contains no pith. 3 F which is the next best is slightly less bright in colour and has traces of pith in it while 2 F has fibre and pith in the proportion of 50 : 50 and 1 F, the lowest quality, contains a large quantity of pith.

29. The retting of the husks as it obtains today takes a long time. This makes it difficult for the producer of the yarn to ret the husks as he seldom possesses the financial capacity to invest on husks for such a long period with the result that he has to purchase the retted husks from the middlemen, often at high prices. Researches in shortening the retting period have been in progress for some time. It has been found that the period of retting can be shortened by crushing the husk before soaking which could be done on simple crushing rollers similar to sugarcane crushers. The economical and chemical possibilities of this and similar processes, however, remain to be decided in relation to the cost of the chemicals and machineries, and their availability. Where crushed husks are treated under pressure with sodium sulphate or sodium carbonate containing trace of aluminium

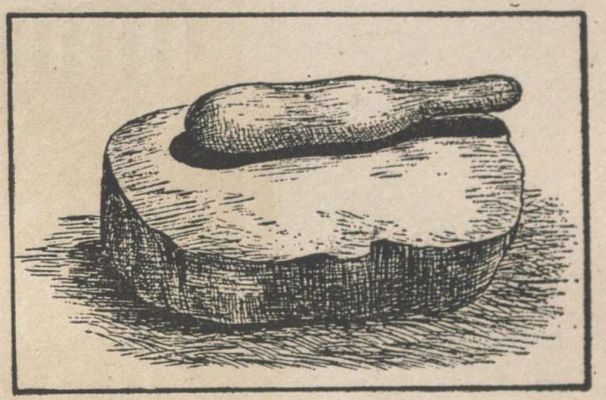
sulphate for one or two hours, the pith has been found to be loosened from the fibre which can be removed by washing. The fibre thus obtained is finer but darker than what is produced under ordinary retting. This is however, in experimental stage. When once it succeeds the chemical process of retting can lead to saving time giving better yield and ensuring uniformity in quality.

Ginning

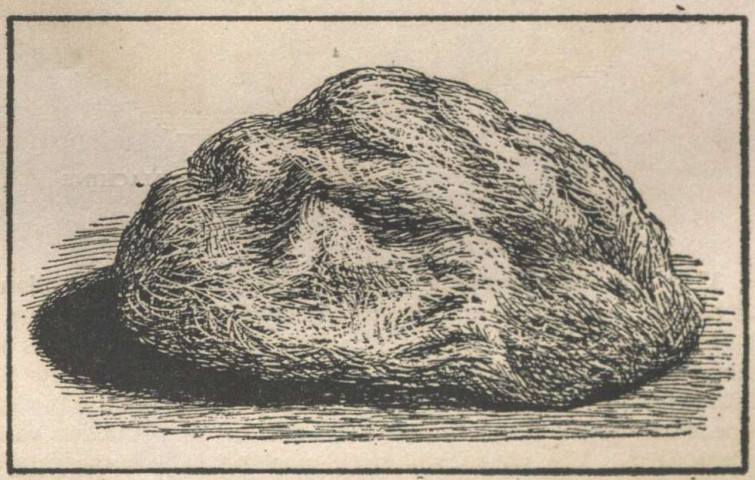
30. The retted husks are taken out and washed in water to remove the mud. The outer skin is then peeled off whereafter husks are placed on either wooden blocks or granite slabs and beaten with wooden mallets to separate the fibre from the pith. There is scarcely a village on the coast which does not present its spectacle of hundreds of coir workers, mostly women and children, beating out the fibre from the soaked husks with hills of husk pith and husk skins around them and amidst a hell of noise and rotting smell of soaked stuff scattered about, ginning the fibre and spinning it into yarn. The ginning process is being gradually mechanised in certain areas by the use of a ginning machine run either with oil or electricity. This, however, has not attained much popularity.

Willowing

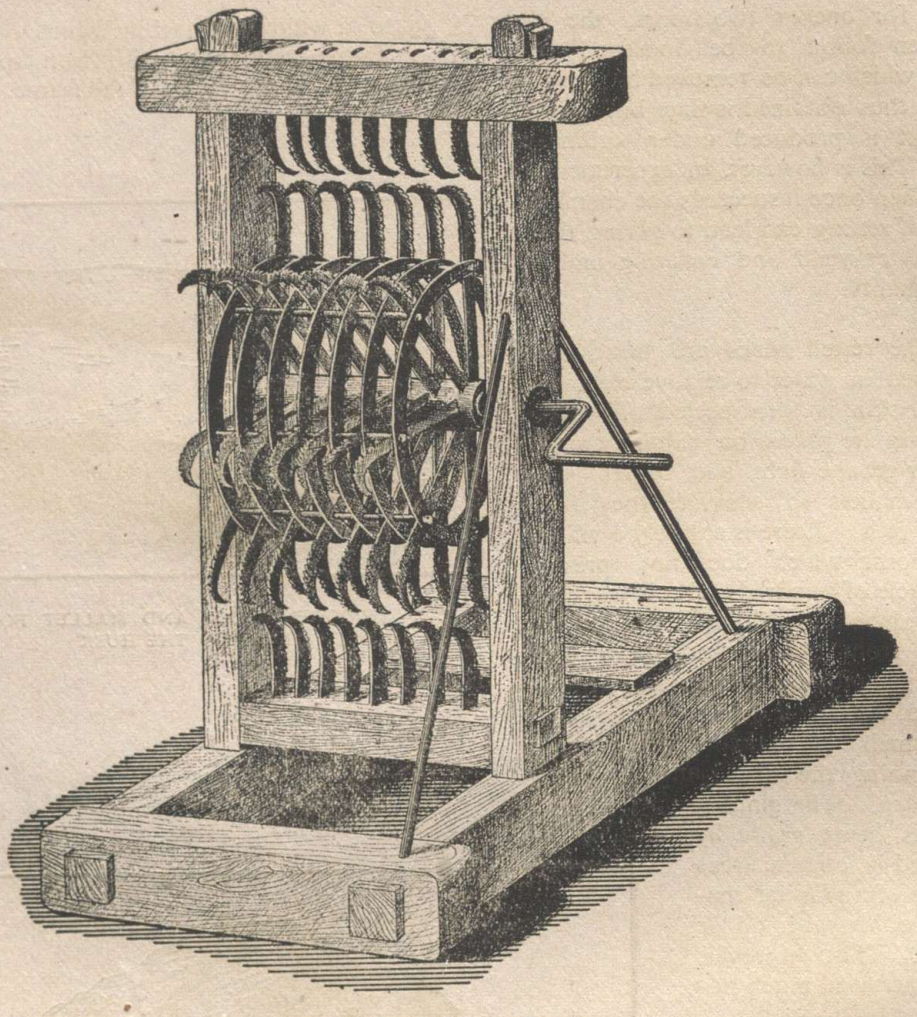
31. The ginning process leaves the fibre mixed with loose pith. Most of the pith can be removed by shaking the beaten husks with hand. The remaining pith is removed by heaping the beaten husks and thrashing them with an iron rod. Thereafter, these are fed into a willowing machine which consists of a frame and roller with iron spikes, the roller revolving between the frame.



WOODEN BLOCK AND MALLET FOR BEATING THE HUSK



FIBRE FOR SPINNING



WILLOWING MACHINE

32. The roller is rotated with the help of a handle and the fibre is held above the roller. As the fibre passes through the roller and the spikes the pith matter is separated from the fibre. The husks of thousand cocoanuts generally yield about 180 lbs. of clean fibre. The use of willowing machine is dispensed with by a few poor class yarn producers by just drying the beaten husk in hot sun and winnowing the fibre to remove the dust particles before it is spun into ropes.

Preparation of Silvers

33. The fibre cleaned by the willowing process is rolled into silvers for spinning. Only the longest and finest variety of fibre is used in spinning the yarn, the coarse and thicker varieties being set aside for the manufacture of brushes and brooms and for stuffing mattresses etc. Both these varieties of fibre are obtained from the same husk, the latter forming mostly rejections.

Spinning

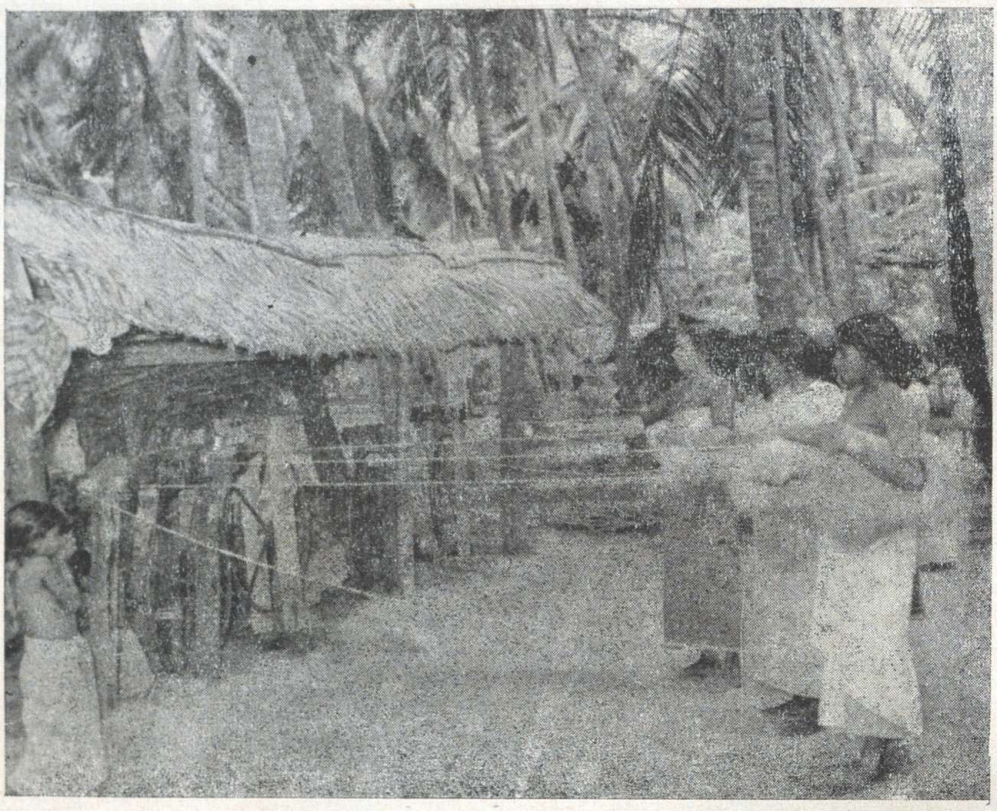
34. The spinning of yarn is done in two



Pl. 8. BEATING THE HUSK



Pl. 9. WILLOWING THE FIBRE



Pl, 10. SPINNING THE STRANDS

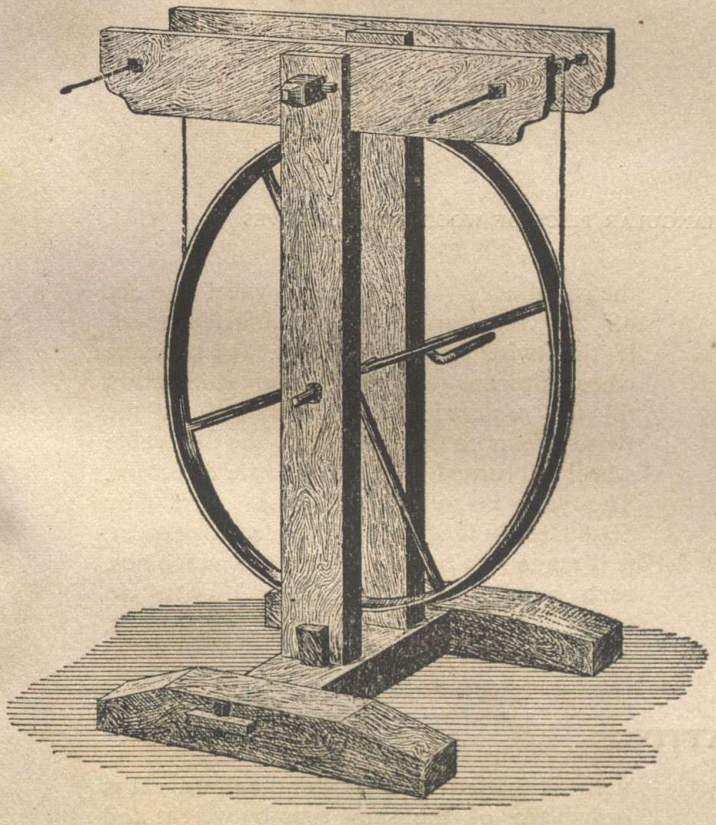


Pl. 11. YARN IS MADE INTO BUNDLES IN A BALING MACHINE

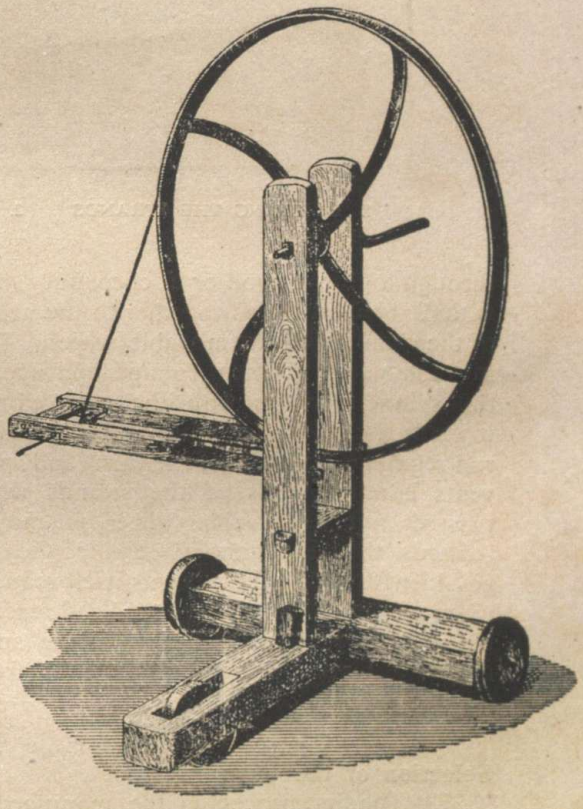
ways, one by hand-spinning and the other by spindle spinning.

35. In hand-spinning strings of about 6 to 9 inches are made from the silvers, two such strings are given a clockwise twist and allowed to wind against each other by the natural reaction of the clockwise twist already given. The two strings thus wound against each other form a yarn, the winding, however, being tightened under the palms. When the counter-twist reaches the end of the string, further strings which are kept ready are added one after another and the process repeated till the required length of yarn is reached. This is rolled in the form of a hank and a knot is made at the end. This process of making the yarn by hand-spinning began to be gradually replaced by spindle spinning or what is commonly known as the 'ratt spinning' from about the middle of the 19th century onwards.

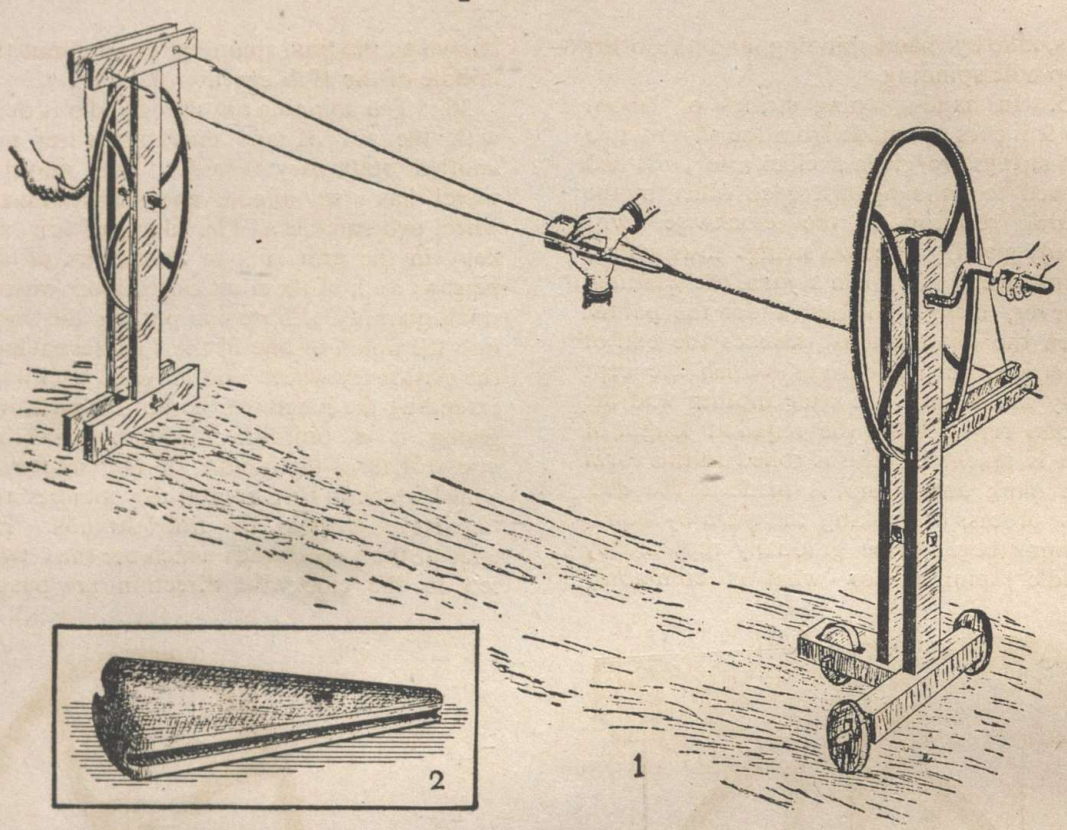
36. The spinning on the spindle is done with the aid of one movable wheel and another stationary wheel. The movable wheel has one spindle and the stationary wheel two spindles. The silvers of coir are kept in the arm pits or containers of two persons each of them making a loop with a small quantity of fibre and putting the loop into the notch of one of the spindles each on the stationary wheel and moving backward extending the length of the fibre as he moves giving it a uniform thickness. Another operator turns the handle of the stationary wheel which in turn rotates the spindles and imparts a twist to the fibre strands. The ends of the two strands which are thus twisted in the clockwise direction are passed



STATIONARY SPINNING WHEEL WITH TWO SPINDLES



WHEEL FOR DOUBLING THE STRANDS



1. DOUBLING THE STRANDS 2. TRIANGULAR PIECE OF WOOD WITH GROOVES

through a grooved rod or a cocoanut shell with a hole and tied together to the notch of the spindle of the movable wheel. The movable wheel is then rotated and one of the spinners moves with the grooved rod towards the stationary wheel. The grooved rod regulates the twist of the yarn and prevents entanglements of the strands when twisted. The movable wheel is moved towards the stationary wheel since the original length of the strands gets itself reduced when twisted. When the grooved rod reaches the stationary wheel the turning of the spinning wheel is stopped and all the ends from the spindles of the stationary wheel are cut off and the yarn tested for sufficient twist. If the twist is not sufficient, the movable wheel is turned towards its original direction till the required twist is obtained. If the twists are more than necessary the movable wheel is turned in the opposite direction. The yarn is rolled into hanks of usually 50–60 feet in length. If intended for export, it is made into bundles in baling machines, each bundle weighing about 3 cwts. In some areas one person spins two strands, one in each hand.

MATTINGS

Selection of the Yarn

37. The first process in the manufacture of mattings is the selection of yarn by weight and colour. For this purpose the yarn is sorted by weight and colour. It is only yarn of the same type by weight and colour that is used in one set of production. The selection of yarn being thus made, each

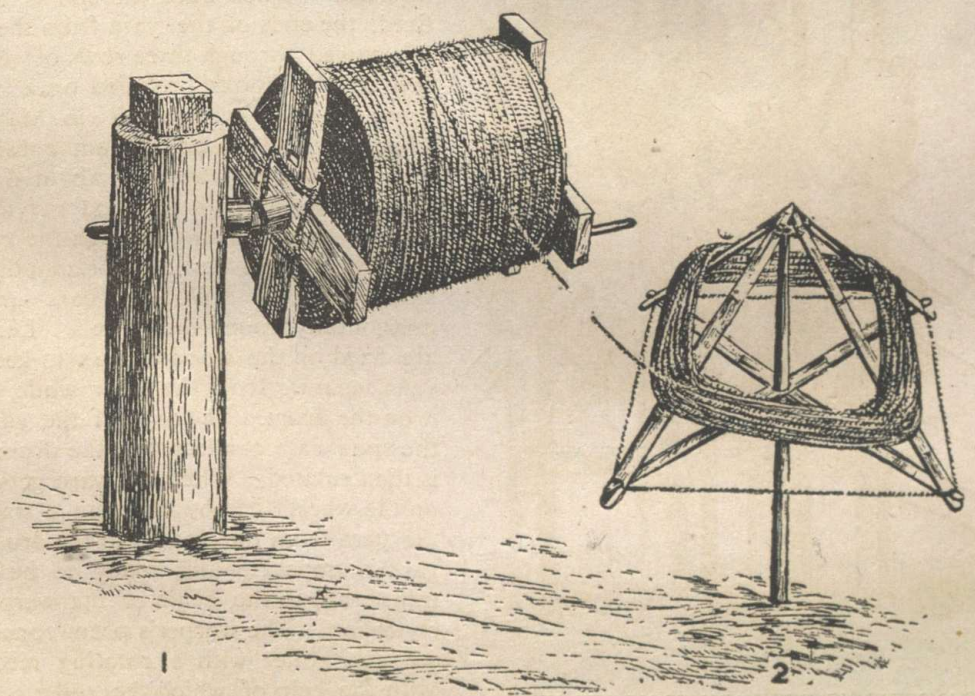
class of yarn is sent for dyeing separately.

Dyeing

38. Except in the case of plain ones, the mattings are woven with dyed yarn. The dyeing of yarn is, therefore, an important process in the manufacture of mattings. Both acid and basic dyes are used in dyeing. The dyes are obtained from the Imperial Chemical Industries. A few vegetable dyes were also used during the last war. But they are not generally used now. The dyes are dissolved in cold water and the solution mixed with hot water in large cauldrons. The yarn is soaked in this diluted solution and heated in that condition till 90°F. is reached. It is kept soaked in the solution till it absorbs the dye well. It is then taken out and dried. If on dyeing it is found that the yarn has not fully absorbed the colour it is dyed again till the required colour is obtained. After dyeing, the yarn goes for spooling.

Spooling

39. A spool consists of two wooden wheels of about 18″ diameter connected together by the ends of an iron rod at the centre of the wheels. A handle is provided at one end. The rod may be either hollow or solid. If it is hollow it is placed on a single post with an iron rod on which the hollow axle of the spool is pushed to rest. If the rod is solid two posts are planted and the spool is fixed on them with either end of the rod resting on each post. This spool is called *vandi* in Malayalam. Close to the spool a fly is placed. The fly consists of a conical shaped frame of bamboo sticks round which strings are wound giving it the shape of a table lamp-shade with the only difference that it is not exactly circular. It rests on an iron rod of about 18″ long planted vertically. A hank of yarn is put over this fly taking care that the central circle of the hank fits the sides of the fly. The knot of the hank is then untied and the outer end of the hank is connected to the spool. The spool is now rotated by

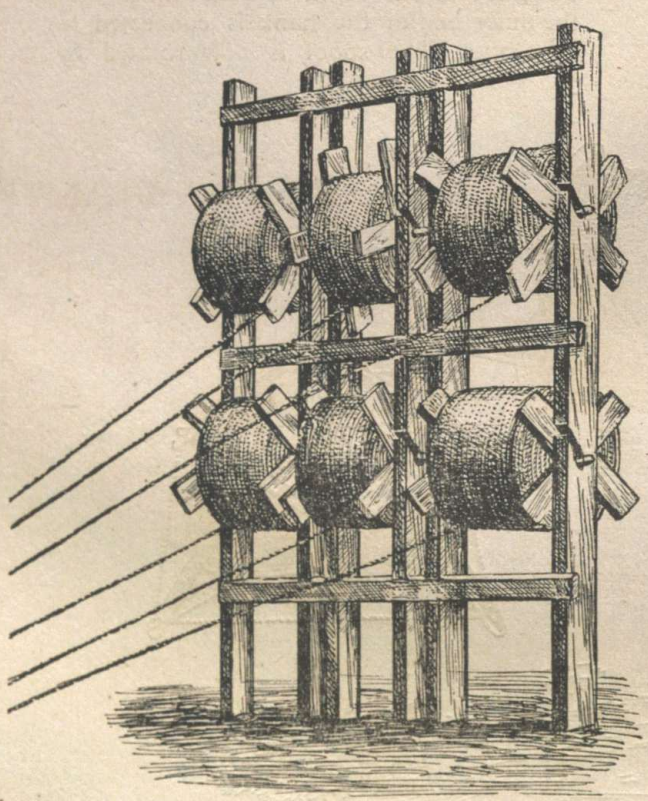


1. SPOOL 2. FLY

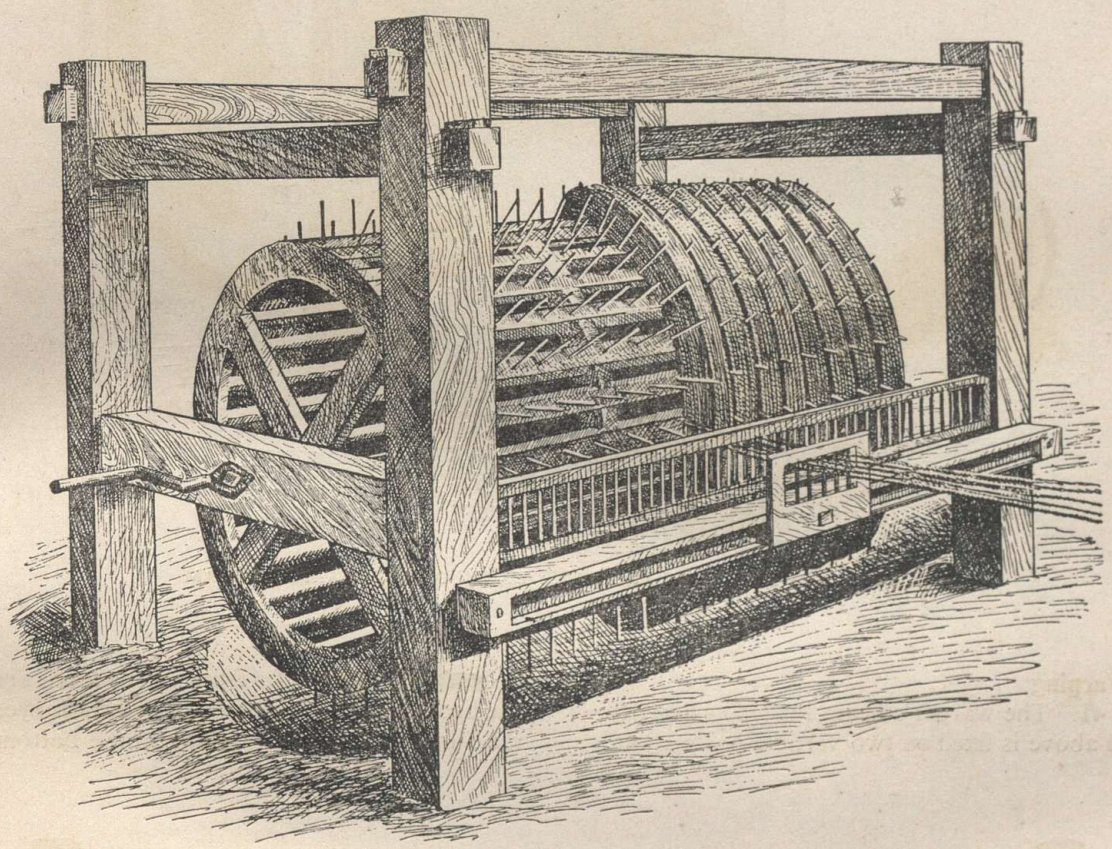
the handle when the yarn on the fly gets itself transferred and wound on the spool. As many hanks of yarn as are necessary to load the spool are thus put on the fly and wound on the spool. About 2,500 yards of yarn can be normally wound on a spool. When the loading of the spool is complete, it is removed from the posts and is ready for use.

Beaming

40. The warp or chain is the lengthwise array of the yarn which forms the base for the passing of the weft in the breadthwise order through the shed created in the warp. What is sought to be achieved in beaming is the arrangement of the yarn in a lengthwise order, each line running parallel to the other for the entire width of the warp. The mechanism devised for the purpose ensures various safeguards in this regard. The initial process in beaming consists of fixing the spools which have already been loaded as described above in proper position so that the yarn from each spool goes to fill up each line of the warp. For this, the spool is fixed between two wooden posts planted in parallel position on the ground. As many posts as are necessary to accommodate the spools are planted in a line or in more than one line. In the latter case each additional line should be parallel to the one before it. The posts thus planted are connected together by an iron rod to avoid shaking. The spools are then placed between two posts their ends being inserted in appropriate grooves made on the posts for the purpose. If the posts are tall enough more than one iron rod are tied on them, the vertical space between the two iron rods being sufficient to accommodate the height of one spool. Thus as many columns as could be provided by placing the iron rods according to the height of the posts can be made and in each of them a spool can be inserted. When once the spools are thus fixed, the ends of the yarn from the spools are passed through three rows of reeds and tied on the hooks provided on a warping drum known as *bembali* in Malayalam. This is a large wooden drum consisting of 4 or 5 wooden wheels of about 6 feet in diameter fixed on an iron rod varying from 5–9′ in length passing through the centre of the wheels and resting horizontally on a wooden frame. Wooden bars are fixed horizontally round the wheels. Long nails are fixed on the wooden bars to keep each yarn separate from the other while winding it on the drum. The ends of the yarn from the spools are connected to the drum, which is then rotated. When the yarn gets wound on the wheel thereby effecting a transfer of the yarn from the spools to the drum, each yarn is separate and ready to be further transferred to the beam of the warp in that condition. The warper's beam consists of a wooden roller with a rotating mechanism with the help of which the roller is rotated and the yarn from the drum is transferred

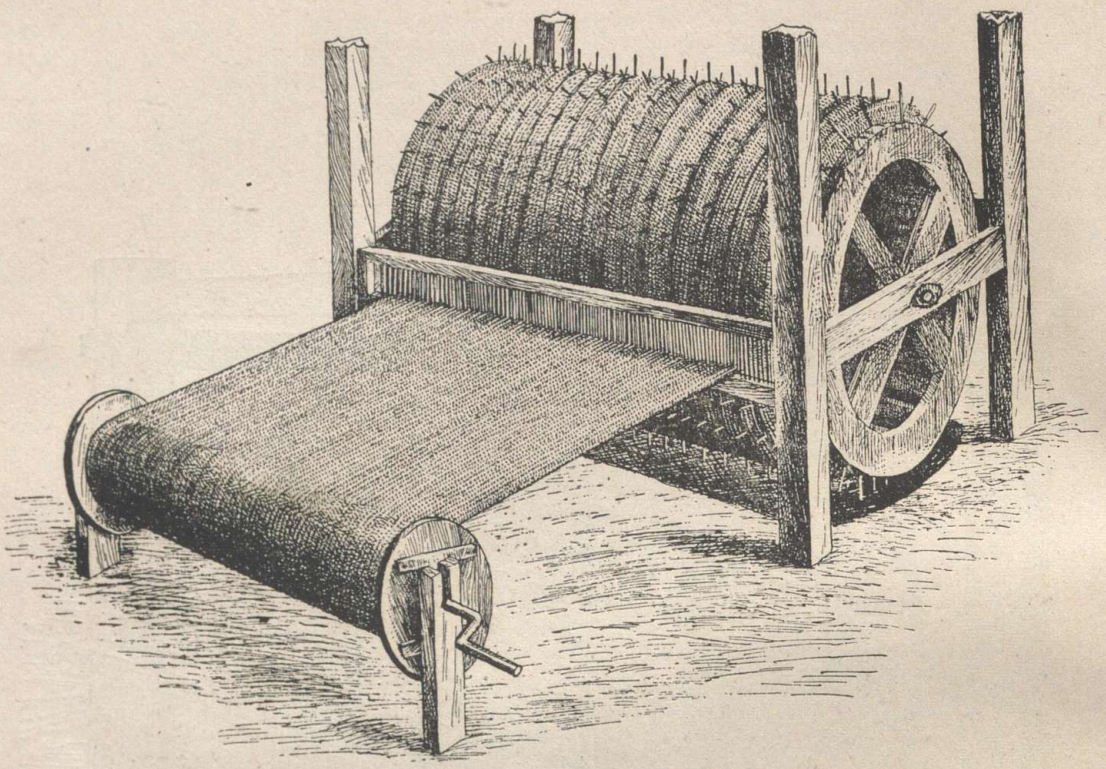


TRANSFERRING THE YARN FROM THE SPOOLS TO THE WARPING DRUM



WINDING THE YARN ON THE WARPING DRUM

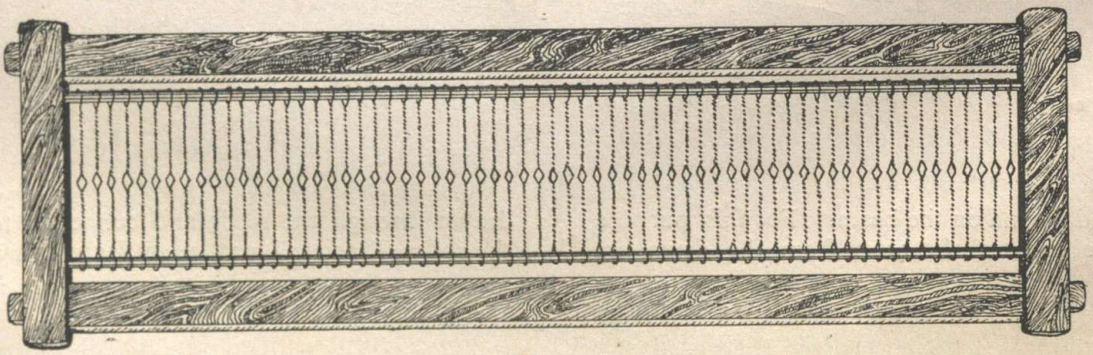
and wound on the beam. For this purpose the ends of the yarn from the drum are drawn through the reeds and connected to the roller. The yarn is now ready for warping.



TRANSFERRING THE YARN FROM THE DRUM TO THE WARPER'S BEAM

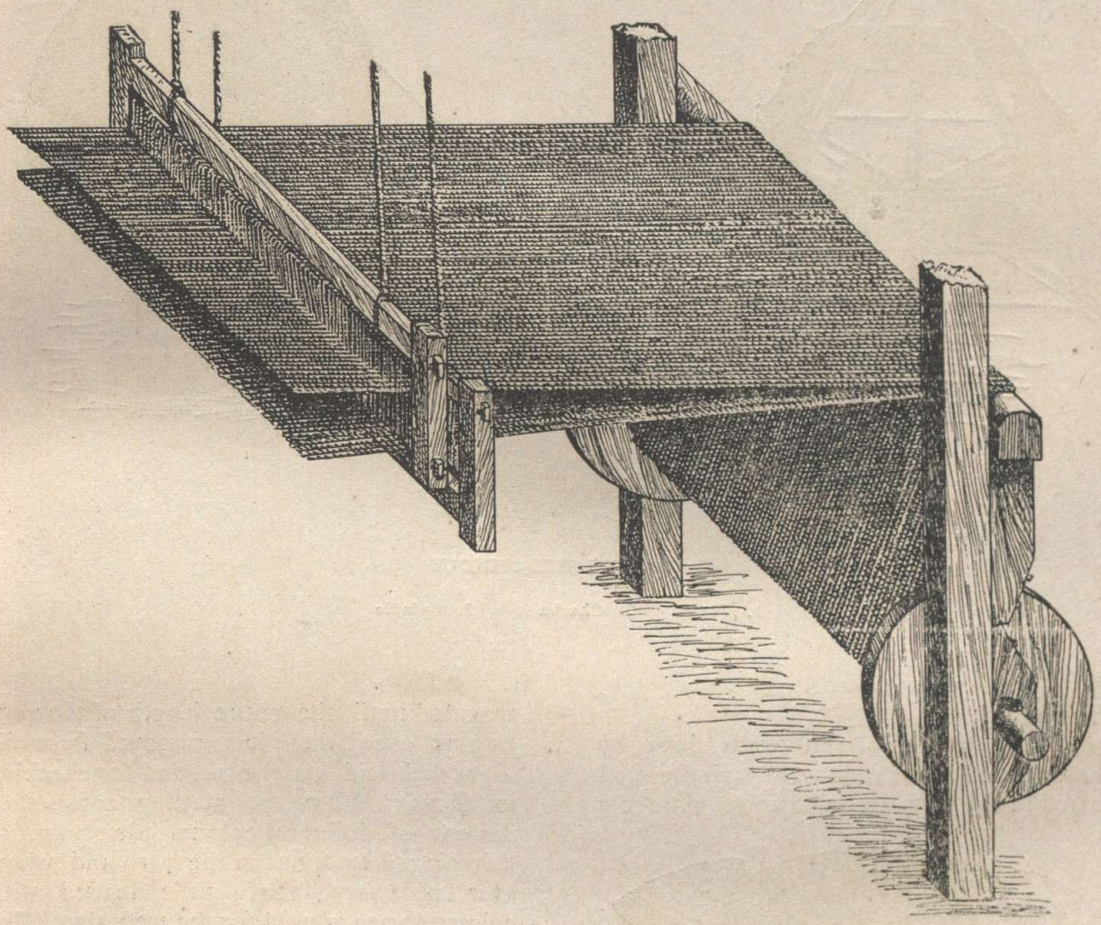
Warping

41. The warper's beam loaded as described above is fixed on two vertical posts at one end of the loom. In front of the loom are the heddles consisting of a row of heddle eyes i. e., iron wires with a hook at the bottom



HEDDLES

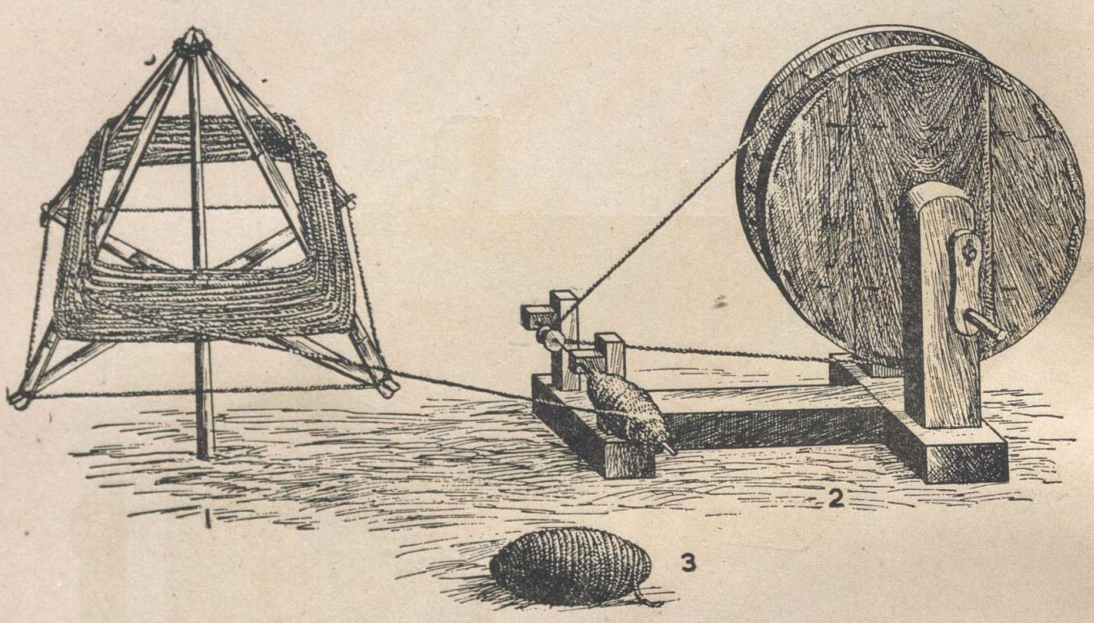
arranged vertically in a line throughout the entire width of the loom. The yarn from the chain (the loaded warper's beam) is passed through the heddle eyes and taken to the other end of the loom. The weft yarn can now be passed.



PASSING THE YARN FROM THE LOADED BEAM THROUGH THE HEDDLE EYES

Preparation of the Weft

42. The weft is prepared by loading the spindle and inserting it in the shuttle. The spindle is loaded by taking one end of the yarn from the fly, connecting it to the spindle and rotating a charka which is connected to the fly. When the charka is rotated the yarn from the fly gets itself wound on the spindle.

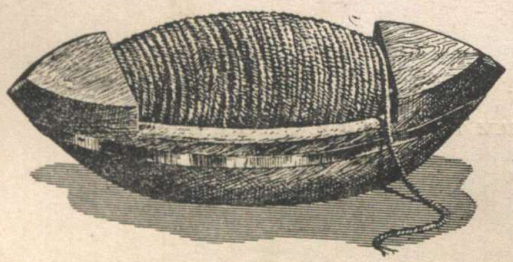


LOADING THE SPINDLE

1. Fly 2. Charka 3. Spindle

Weaving

43. The weaving of mattings is done by throwing the loaded shuttle through the shed created in the warp by operating the treadle



SHUTTLE

below with the feet. Each time the shuttle is thrown and the weft is passed across the warp the sley is beaten. The process is repeated until the entire length of the matting is over when it is removed from the loom and laid on the ground for checking its flaws. Where the matting consists of designs of different colours the yarn of suitable colour is put in the warp and wherever necessary the shuttle loaded with coloured yarn is used for the weft also. The checking is done by close personal supervision by a competent person and the defects found are rectified then and there.

Pulling

44. After the rectification of defects the matting is pulled from either end for straightening.

In the Rollers

45. After the pulling the matting is passed through iron rollers which press the



Pl. 12. WEAVING OF COIR MATTING IN PROGRESS

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matting. This completes the process of the manufacture of the matting. It is then tightly packed in gunny for shipment where export is proposed.

CARPETS

46. The process of making the carpets is very much the same as that of weaving the mattings. The carpets are however, wider than the mattings and shorter in length and their designs often more complicated. Up to and including the preparation of the warp the process of prodution is the same as in the case of mattings. Thereafter, the weft consists of yarns of different colours according to the design. The simplest method is to throw the shuttle containing the weft yarn across the shed in the warp, care being taken each time to select the shuttle containing the spindle with the appropriate colour. There are also weavers who weave intricate designs by passing the weft yarn across the warp with the fingers without throwing the shuttle. But both these cases involve a lot of time. With a view to save time in the operation, looms fitted with dobby mechanism are operated. Any design can be woven on this by the operation of the treadle and the dobby or jacquard arrangement based on cardboards with perforated designs. There are looms having up to 36 treadles to weave highly complicated designs. The processes subsequent to weaving are the same as in the case of mattings.

MATS

47. As in the case of mattings and carpets the chain (loaded warper's beam) is the base in the manufacture of mats also. But the yarn used for the warp is not dyed. Depending upon the face of the mat the materials used and the methods employed in the manufacture of mats vary from one type of mat to another. In the case of the fibre mats tufts of fibre of suitable length are taken, folded and inserted into the warp. When the tufts are thus inserted through one line across the width of the warp a weft yarn is passed and the sley beaten. The process is repeated until the required length of the mat is obtained. In the same warp a number of mats are woven leaving sufficient space between one mat and another with a view to facilitate the separation of mats by cutting and removing each of them when the entire warp is covered.

48. In another type of mats called the Carnatic mats or the rod mats, instead of inserting the tufts of fibre across the warp, a rod is inserted through the shed in the warp and yarn is wound round the rod throughout the width of the warp to form the weft. When this process of winding the yarn over the rod is over, the weft yarn is passed across the warp, the sley beaten and a knife is passed along a slit in the rod thereby cutting the face of the yarn wound over the rod and the rod is removed. This operation leaves a row of fibre tuft with the base of yarn across the entire width of the mat. The process is repeated till the required width of the mat is obtained as in the case of other mats. After each mat sufficient margin is left on the warp and the mats are separated when the warp is completely covered by the weft.

49. A third type of mat called the creel mat is one in which the weft consists of alternate rows of the tuft of fibre and the yarn wound round the rod and cut as described above.

Carding

50. The fibre used for the tufts is well carded in a machine called carding machine which contains a number of cylinders with iron needles on the surface. When the fibre is inserted through the cylinders it comes out well cleaned at the other end.

51. According to the designs required in the mats the fibre of yarn used in the weft is dyed and different varieties of such dyed yarn are chosen to give the appropriate shade according to the design.

Braiding

52. The mats when separated from the warp have to be bound on the sides. This is done either by hand or a machine. In the latter case a machine called braiding machine is used. The process consists of binding the edges of the mat with coir yarn plaited according to design. When the sides are bound the basic process of the manufacture is complete.

Combing

53. The mats are passed through a combing machine after their braiding to remove loose tufts sticking to them.

Shearing

54. The process of combing is followed by shearing in which the mats are passed through the shearing machine to make the surface even. This machine cuts off any portion which protrudes over the required thickness and makes the surface even.

Trimming

55. The edges of the mats are trimmed after shearing.

Clipping

56. This is done to clip the edges of the designs in the mats with a view to give the designs a neat and distinct appearance. This is invariably done by hand with the help of scissors specially designed for the purpose.

Packing

57. The manufacture of the mats thus being complete they are packed in suitable bundles for transport.

58. Both mats and mattings are produced in cottages. But in both these cases it is only up to a certain stage that the manufacture by hand can proceed. Thus, in the case of mattings the process of pressing is done by larger manufacturing concerns who have got rollers for the purpose. In small establishments which are above the cottage scale there are wooden rollers instead of iron rollers in larger factories. In respect of mats it is only up to binding that can be done on the scale of cottage industries. The rest of the finishing processes are invariably done in factories which purchase the cottage industrial products for further finishing and marketing.

Stencilling

59. Where the mattings, carpets or mats are not already woven with coloured yarn and it is desired that coloured designs should be sprayed on them stencils with suitable designs are placed on them and coloured solutions sprayed over the stencils with the aid of a spray gun after which the stencils are removed.



Pl. 13. ANOTHER VIEW OF THE WEAVING OF COIR MATTING

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CHAPTER III*

ECONOMICS OF THE COIR INDUSTRY

Plant and Equipments

60. Of the different sector in the industry the hand-spinning sector does not require any plant or equipment. In the spindle-spinning sector it has been estimated that the number of working *ratts* comes to 20,266 of which 19,892 are owned and 374 hired. In addition to this there are 4,360 idle *ratts*. The total number of working spindles comes to 57,100 of which 56,091 are owned and 1,009 hired. There are also 8,948 idle spindles. The majority of the *ratts* have two spindles each. But there are also *ratts* of more than two spindles in certain areas. 38 per cent of the *ratts* are in the Anjengo stratum[1] and 23 per cent in the Mangadan stratum. Aratory and Vaikom come next and Ashtamudi last. The number of willowing machines is estimated to be 5,927 in this sector. The proportion of power-operated willowing machines works out to 42.81 per cent of the total. The largest number of power-operated willowing machines is in the Mangadan stratum and of non-power machines in the Anjengo stratum. The Muppiri stratum has no willowing machines.

61. In the manufacturing sector (registered) there are 4,303 mat looms and 2,682 matting looms. Of the mat looms 3,646 are working and 657 idle and of the matting looms 1,404 are working and 1,278 idle. Out of the total working mat looms, 2,611 are plain, 1,000 creel and 35 Dutch mat frame looms. The number of idle looms in these three categories comes to 592 plain, 30 creel and 35 Dutch mat frame looms. Out of the working matting looms 1,368 are ordinary, 30 dobby and 6 jacquard. The number of idle looms is 1,133 ordinary, 124 dobby and 21 jacquard. The number of other equipments in this sector is given below :—

Equipment	*Working*	*Idle*
Beaming machines	111	19
Shearing machines	31	4
Sewing machines	48	38
Braiding machines	84	3
Spray plants	27	6
Screw presses	91	6
Rolling machines	35	..
Stretching machines	39	3
Steam plants for dyeing	15	9
Direct heating plants for dyeing	251	37
Others	90	15

62. In the manufacturing unregistered sector there are 5,025 mat looms of which 3,297 are working and 1,728 idle. The number of matting looms comes to 495 of which 159 are working and 336 idle. Of the working mat looms, 2,656 are plain, 441 creel and 200 Dutch mat frame looms. Of the idle mat looms 1,368 are plain, 252 creel and 108 Dutch mat frame looms. The other equipments are:—

Equipment	*Working*	*Idle*
Beaming machines	20	10
Shearing machines	5	..
Screw presses	20	..
Rolling machines	15	..
Stretching machines	5	..
Steam plants	5	..
Direct heating plants for dyeing	141	15
Others	70	..

63. In the rope-making sector there are altogether 219 rope-making machines of

* The data for this chapter have been mostly taken from the report on the Economic and Statistical Survey of Coir Industry 1960–61 conducted by the Coir Board.

(1) A stratum consists of the villages producing the same variety of yarn.

which 169 are working and 50 idle. Out of the total of 353 other equipments in this sector 332 are working and 21 idle. The main reason for the idling of equipments is the want of orders.

Formation of Capital

64. In the hand-spinning sector the capital is required mainly for the collection of husk. Out of the total estimated production of coir yarn in this sector only 4.6 per cent is produced from husks available with the hand-spinning households. The raw material for producing the remaining 95.4 per cent of the yarn has to be purchased. The survey conducted by the Coir Board has revealed that the disposal of coir yarn against advances in this sector is negligible. The necessary inference is that the households engaged in the hand-spinning sector have either their own capital or capital is found by raising loans which do not take the form of advances against products. In the spindle-spinning sector also the husks form the main item for which capital investment becomes necessary. The husks available with the households engaged in this sector account for only 2.2 per cent of the total estimated production of yarn which implies that 97.8 per cent of the husks have to be purchased. According to the survey conducted by the Coir Board the sale of yarn against advances gives the following percentages in the various strata.

Anjengo	44.29
Aratory	8.80
Ashtamudi	89.42
Vaikom	11.06
Parur	10.38
Mangadan	76.86
Others	5.35

Taking the average of the above, the sale against advances comes to 40 per cent. This gives an indication of the extent of capital borrowed by the households engaged in the conduct of the industry in spindle-spinning sector. From the observation made by the Minimum Wages Committee for the manufacture of coir given infra it is evident that about 75 per cent of the producers of coir yarn are only glorified types of workers, and socially they claim to be of a higher class "with capacity of raising loans and running into debts within certain limits so long as they do not wind up their business". Most of these, therefore, are running the business on borrowed capital. In the manufacturing sector some of the firms engaged in the production are incorporated companies which have their paid-up share capitals supplemented by loans. There are also a large number in this sector who run the industry with their own investment, often supplemented by loans. In the rope making sector loans taken by this sector amount to Rs. 5,440 out of a total capital of Rs. 159,538 invested by 47 producing units.

65. In all the sectors with the exception of hand-spinning the producers are taking themselves to organising on co-operative lines for the formation of capital. If the people concerned are organised on a co-operative basis a loan is given to the societies at the rate of Rs. 100 per member. The extent of loans thus given to co-operative societies varies from Rs. 10,000 to Rs. 50,000 per society. There are about 450 such societies. Out of a sum of Rs. 181.44 lakhs given by the Government of Kerala for the working of the Coir Development Scheme Rs. 1,531,615 have been invested by way of loans and Rs. 1,129,600 given as grant to the various co-operative societies.

Primitive Machanism and Processes

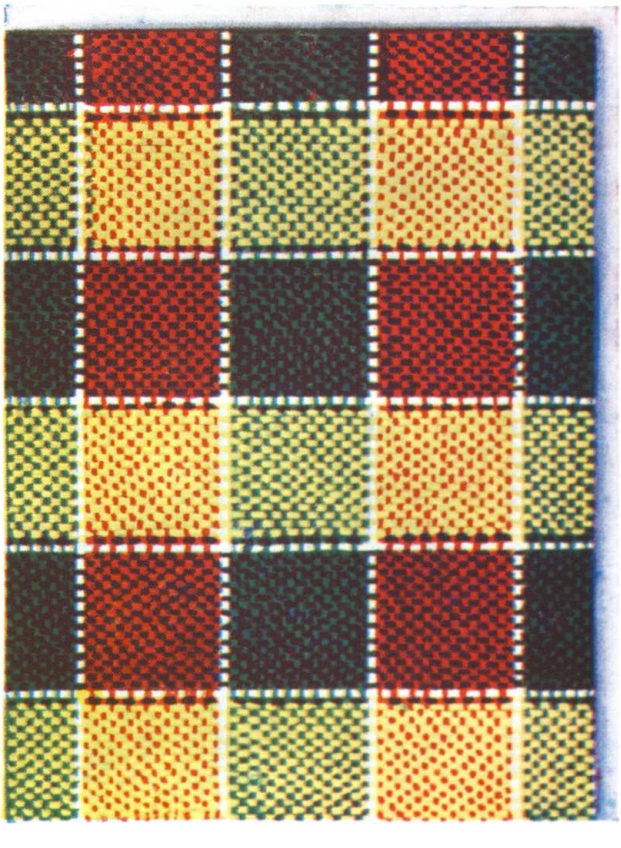
66. An important feature of the coir industry which has its repercussions on its economics is the comparative absence of mechanisation and the domination of certain primitive processes in production. From the splitting of husks up to the preparation of the yarn for spinning the entire process is worked out by manual labour except in the use of willowing machines. Although a small experiment at substituting the ginning of the retted husks by hand with mechanised process has been tried in some places, it has not yet attained sufficient popularity. In the spinning sector, however, considerable progress has been made in replacing hand-

Pl. 14. A FEW DESIGNS IN COIR MATTINGS









spinning by spindle-spinning, the extent of which is reflected in the number of *ratts* and spindles referred to in the previous portions. Yet the *ratts* are operated by manual labour and so far no power has been utilised for working the *ratts*. Hand-spinning prevails in some areas in all seasons and in others during the rainy season for want of rain-proof accomodation. In the manufacturing sector the position is not any the better. The looms are worked with manual labour. With few exceptions like the dobby and jacquard looms, the matting looms are of primitive pattern. Similarly all the plain looms in the mat manufacturing sector are also primitive. In the manufacture of mattings the use of spray plant, rolling machines, stretching machines and steam plant for dyeing has been to some extent adopted in some of the establishments. Similarly, in the manufacture of mats certain finishing processes like braiding, combing, shearing and trimming have been mechanised in a few establishments. Yet the number of establishments in which mechanisation has been adopted is not sufficiently large as could be seen from the data of equipments given supra. In respect of processes like retting and dyeing the primitive methods of natural retting and the use of dyes, which, though chemical, are not fast to light, stand as serious drawbacks in the industry. Although a pretty large number of employers have expressed themselves in favour of using power looms in the manufacturing sector no progress has been made in this direction.

67. Mechanisation is highly essential if the industry should progress. Government have already accepted as their policy to mechanise at least 1/3 of the matting sector of the industry. In the spinning sector mechanisation is not taken up as it might result in large scale unemployment among the women now engaged in spinning. Modern power looms are available in Austria from where they can be imported and introduced in the matting sector. This may ensure production of better quality of goods for which there is great demand in the foreign market as also in India and thus enhance our production. The main reason why industrialists are not coming forward to mechanise their production units is lack of capital. The cost of one workable mechanised unit is roughly estimated to be of the order of Rs. 10 lakhs. Added to this, there is also some amount of scepticism on the part of the industrialists about the possibilities of the success of mechanised production. The Coir Board has been accorded sanction to start one mechanised unit as a pilot plant.

The Reverse of the Picture

68. The comparative absence of mechanisation and the extensive employment of manual labour have made the relative absence of capitalism a distinctive feature of the spinning sector of the coir industry. The report of the Minimum Wages Committee for the manufacture of coir, appointed by the Government of Travancore-Cochin, observes,

" It is true that the producers of coir yarn call themselves ' Muthalalis' or capitalist employers. But about 75 per cent of them are only glorified types of workers with earnings from the industry in normal times less than that of skilled workers in factories. Their capital consists of two or three *ratts* costing not more than Rs. 25 each, a cleaning machine costing about Rs. 100 and a small thatched shed. It is usual for the members of their family including women and children to join with the hired workers and take part in the production of coir yarn. They differ from the workers in that they have a house and at least a small compound. Socially they claim to be a higher class and in any case they have the capacity of raising loans and running into debts within certain limits so long as they do not wind up their business"[1]. Again, the absence of mechanisation is responsible for a major part of the cost of production in the manufacture of

(1) Report of the Minimum Wages Committee for the Manufacture of Coir, page 22

coir yarn, and a substantial part in the manufacture of other items, coming under labour charges. As observed in the above Report, "an important peculiarity of this industry is that labour costs account for a very high proportion of the costs of production. At present for the inferior grades of Anjengo, Alappadan, Mangadan, Aratory and Vaikom, the labour costs amount to 50 per cent of the cost of production. For Ashtamudi the proportion is slightly less. For the superior grades or higher scores of the varieties other than Ashtamudi, the proportion is much greater and may go up to 80 per cent. For Parur Vannan or thick the labour cost is 80 per cent. For Parur Special the labour cost is even higher. The number of labourers required for the production of one candy of yarn from the raw husk stage shows considerable variations. It ranges from 106 persons for Ashtamudi and 132 for Mangadan Inferior to 180 for Aratory Superior, 183 for Anjengo Superior, 201 for Vaikom Inferior, 246 for Vaikom Special and 293 for Anjengo Special 19-20 score. These variations arise mainly because of the differences in the production capacity of workers belonging to different areas and differences in the quality of coir yarn"[1]. Although this report relates to the year 1952, the trend mentioned above still continues *mutatis mutandis* as could be seen from the details of the cost of production of the various items given in the Appendices.

Cost of Production

69. The cost of production of yarn per candy (300 kg.) is given below:—

Variety of yarn	*Cost of production* (in Rupees)
Anjengo (Superior)	397.05
„ (Ordinary)	375.90
Mangadan	336.37
„ (Special)	359.87
„ (Extra special)	370.00
Aratory (Special)	439.00
„ (Superior)	414.50
Aratory (Ordinary)	384.50
Alapat (Ordinary)	349.96
„ (Special)	359.96
„ (Star)	567.46
Ashtamudi (Imitation Alapat)	323.75
„ (Karuva)	317.12
Vaikom (Superior)	393.68
„ (Special)	373.68
„ (Ordinary)	313.68
Vaikom (Common)	292.47
Parur (Special)	307.33
Beypore	281.88
Quilandy	262.84

(For details of items constituting the price see Appendix C).

70. In the manufacturing sector the cost of production of carpets, mattings and mats has been collected from the leading manufacturers. These are given below:—

	Rs.	
Carpets per 24 sq. yards	122.78	
Mattings (two treadle type) per roll of 36″×50 yds.	118.56	
Mats		
Fibre mats with woven designs	92.26	Per dozen mats of 16″×25″ in size
Plain fibre mats	78.61	
Woven designs (Rod mats)	77.62	
Creel mats	55.79	

(For details of items constituting the price see Appendix D).

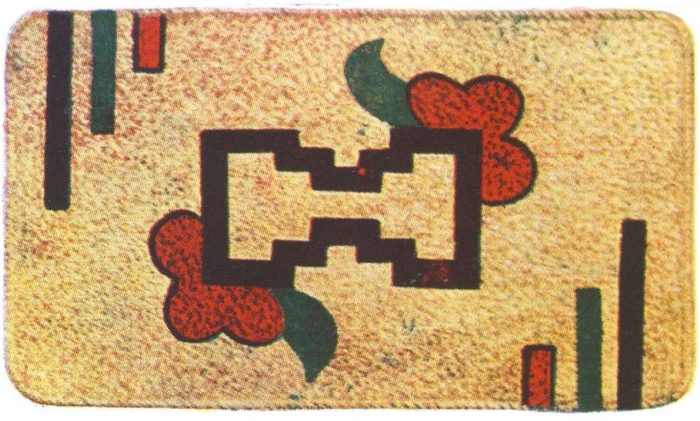
Production

71. The production of yarn in 1960 is estimated at 48,858.3 metric tonnes valued at Rs. 28,379,372 in the hand-spinning sector and 50,161.4 metric tonnes valued at Rs. 37,642,836 in the spindle-spinning sector. The annual production per household in the hand-spinning sector is estimated to be 0.56 metric tonnes valued at Rs. 330. In the spindle-spinning sector the average production of yarn per spindle came to 28.57 lbs. a day for all the strata together, the highest being in the Parur stratum with 49.31 lbs.

(1) Report of the Minimum Wages Committee for the Manufacture of Coir, page 20

Pl. 15. A FEW DESIGNS IN COIR MATS AND COIR RUGS

1



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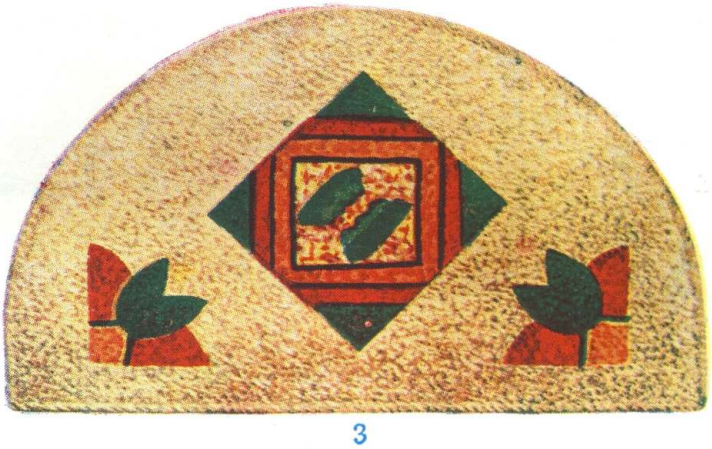

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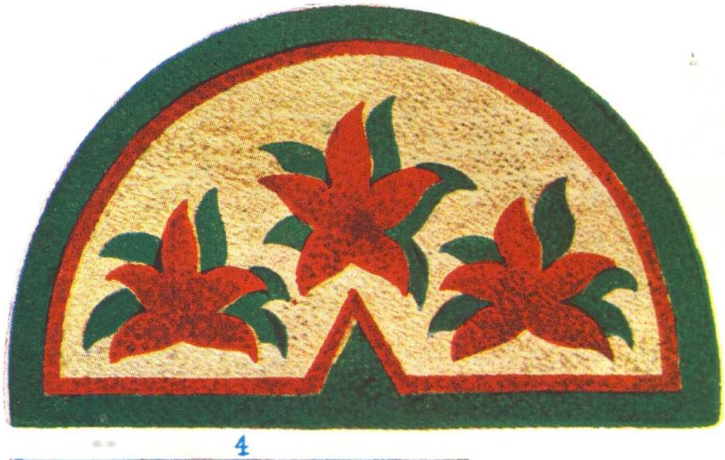

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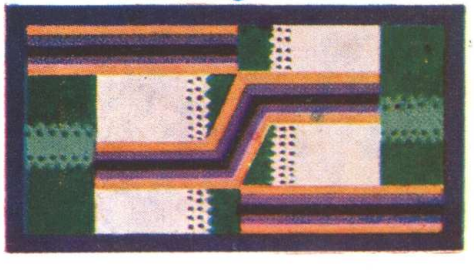

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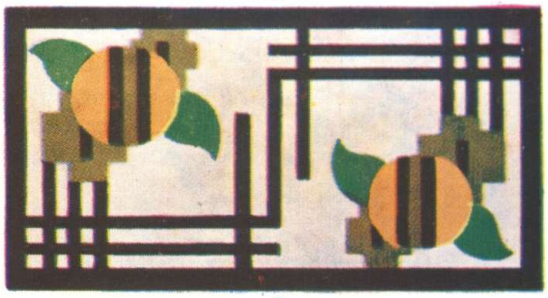

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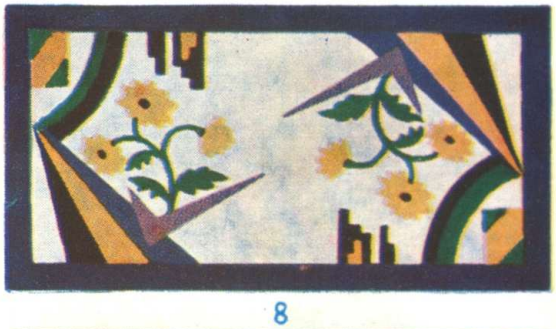

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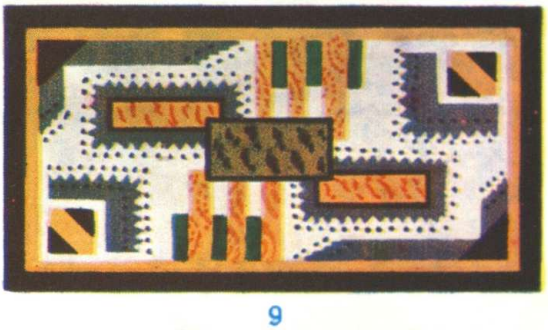

9



1, 2 & 3. COIR MATS 4 to 9. COIR RUGS

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While the Vannan stratum leads in the production of hand-spun yarn with 44.96 per cent, the Anjengo stratum leads in the production of spindle-spun yarn with 35.41 per cent of the total. The last in both the hand-spinning and spindle-spinning sectors is the Alapat stratum. In the manufacturing sector (registered) the production during 1958–59 of coir mats came to 13,343.2 metric tonnes valued at Rs. 18,043,545, of coir mattings to 5,234.7 metric tonnes valued at Rs. 7,454,358, of rugs, carpets etc. to 400.6 metric tonnes valued at Rs. 830,941 and other sorts of coir to 56.8 metric tonnes valued at Rs. 9,298. Between the Alleppey and Shertalai strata the former accounted for 82.69 per cent of the production during the above period. The production of semi-finished goods during the period came to 569.5 metric tonnes of coir mats valued at Rs. 368,750 and other coir goods to 704.3 metric tonnes valued at Rs. 1,216,218. In the manufacturing sector (unregistered) the production during the period came to 2,079.3 metric tonnes of mats valued at Rs. 2,069,392 and 985.7 metric tonnes of mattings valued at Rs. 1,489,716. The production of semi-finished goods came to 4,464.1 metric tonnes of mats valued at Rs. 4,581,708. The total value of mats and mattings together in the unregistered manufacturing Alleppey stratum accounted for 70.24 per cent and in the Shertalai stratum 29.76 per cent. In the rope-making sector the production amounted to 4,581 metric tonnes of ropes in the State. Kozhikode district leads in the total production with 66.1 per cent and Trichur, Alleppey, Ernakulam and Trivandrum districts come next in the order with 13.3 per cent, 8 per cent, 6.6 per cent and 6 per cent respectively.

Sales

72. The sales of the coir yarn in the hand-spinning sector during 1960 amounted to 48,656.4 metric tonnes costing Rs. 28,394,496 the highest percentage of sales being from the Vannan variety coming to 45.1 per cent of the total quantity and 46.9 per cent of the total value and the lowest being of Nedumchudi with 0.1 per cent of both in quantity and value. The only surplus left during the year in this sector is 201.9 metric tonnes. In the spindle-spinning sector the sales amounted to 48,944.8 metric tonnes of yarn costing Rs. 3,638,547, the highest sale being of Anjengo variety with 36.6 per cent of the total quantity and value. The balance left at the end of the year was only 426.7 metric tonnes. The data regarding the sales in the manufacturing sector (registered) are limited to the surveyed establishments. Yet, it could be said that a major share of the sales was effected outside India, the percentage being 95.06 in quantity and 94.39 in value. 62.2 per cent in quantity and 56.63 per cent in value of the sales made outside India were in respect of mats and only 19.61 per cent of the total quantity and 22.12 per cent of the total value of the sales made outside India related to mattings. Of the sales in India 61.61 per cent in quantity and 64.12 per cent in value related to the sale of coir mats and 37 per cent in quantity and 34.35 per cent in value of the sales related to mattings. This is a clear indication that mats are in greater demand both in India and outside. In the unregistered manufacturing sector the major portion of the sales was in India itself, the percentage sold outside India being only 23.9 per cent of the quantity and 38.8 per cent of the value. The main reason for this is that the major portion of the products of the unregistered establishments in Shertalai are purchased by the registered establishments at Alleppey and the percentage of exporters among the unregistered establishments was small. Regarding ropes a good percentage is disposed of locally either on cash or on credit. The rest are sold outside Kerala in places like Mysore, Bombay, Ahmadabad, Calcutta, Kanpur and Delhi.

Production Capacity Vs. Actual Production

73. In the manufacturing registered sector during 1958–59 only 70.62 per cent of the production capacity of the mats, 40.27 per cent of mattings, 14.25 per cent of

rugs and carpets and 13.30 per cent of the production capacity of the other manufacturers were actually utilised. Taking the various items of the products manufactured in Kerala only 54.19 per cent of the entire production capacity of coir products was actually utilised. In the manufacturing unregistered sector only 39.7 per cent of the production capacity of mats and 19.0 per cent of mattings were actually utilised during 1958–59. In the rope-making sector as against a capacity of 10,526 tonnes of annual production only 4,509 tonnes have been achieved which amounts to 42.80 per cent of the total capacity. In the Trivandrum district the production amounted to 67.2 per cent of the total capacity, in the Ernakulam district to 86.9 per cent, in the Trichur district to 88.2 per cent, in the Palghat district to 74.1 per cent and in the Kozhikode district to 34.6 per cent. The data regarding Cannanore district were not available as no production was going on at the time of the survey conducted by the Coir Board. The data regarding the capacity for production in the yarn producing sectors are not available. Yet it is clear from the fact that in the spindle-spinning sector there are a number of idle *ratts* that the total capacity production has not been fully tapped.

Number of Working Days

74. The number of working days in the industry varies from stratum to stratum and sector to sector. The average number of working days per month for all the strata together is estimated at 17 (204 days a year) in the hand-spinning sector, 16 (192 days a year) in the spindle-spinning sector, 20.75 (249 days a year) in the manufacturing sector (registered), 15.83 (190 days a year) in the manufacturing sector (unregistered) and 14.54 (174.5 days a year) in the rope-making sector. Lack of demand is the principal reason for the limited number of working days.

Job Satisfaction

75. The percentage of people who are dissatisfied with the industry in the various centres of the hand-spinning sector varies from 1.59 to 100. The reasons for dissatisfaction are lack of sufficient remuneration in the case of the largest percentage, lack of sufficient employment and other reasons including non-availability of raw materials at reasonable price, lack of capital and lack of proper organisation for marketing in the case of the rest. The largest percentage of dissatisfied workers is in the Alapat and Vannan strata. In the spindle-spinning sector the percentage of dissatisfied workers varies from 10.5 to 65.5 in the various strata. Lack of remuneration registers the largest number of dissatisfied workers. Ashtamudi and Mangadan strata have the larger percentages of 65.5 and 62.9 respectively. Anjengo has the minimum percentage of dissatisfied workers. The data are not available in respect of the other sectors of the industry.

Wages

76. The wages for the various items of work in the manufacture of coir yarn starting from the retting of husks were fixed under the Minimum Wages Act in the Travancore-Cochin area on 19th January 1956. These rates have not been extended to the remaining area of the State. The random survey conducted by the Coir Board has collected the data of wages actually obtaining in the various strata in the hand-spinning and spindle-spinning sectors of the industry. In both the sectors the rates of wages vary from place to place and earnings of workers are related to the working capacities and type of yarn produced. In the case of women the rates of daily wages range from 22 nP. to 50 nP. for hand-spinning and 31 nP. to 75 nP. for beating and cleaning. Children are seen engaged in hand-spinning alone and they are paid 20 nP. to 25 nP. a day. Only women are found engaged in spinning, beating and cleaning. In the spindle-spinning sector the daily wages of men for beating and cleaning vary from 62 nP. for Ashtamudi to Rs. 1.18 for Parur, for women from 52 nP. for Vaikom to 75 nP. for Mangadan and for children from 15 nP. for

others to 46 nP. for Mangadan. In the spinning process the daily wage rates of men range from 71 nP. for Anjengo to Rs.1.48 for Parur, of women from 63 nP. for others to Rs. 1.03 for Parur and of children from 26 nP. for Aratory to 60 nP. for others. The wages in the manufacturing sector have not been fixed according to the Minimum Wages Act. But the Standardisation Committee appointed by Government have gone into the question of wages in this sector in respect of both registered and unregistered establishments and recommended the rates of wages which are being followed by most of the establishments. No survey of the actual wages earned by the workers has been conducted so far as this sector is concerned but it is found that 71.7 per cent of the total wage bill in the case of the manufacturing establishments (registered) and 94.30 per cent of the total emoluments in the case of the manufacturing establishments (unregistered) surveyed by the Coir Board go to labour. In the rope-making sector covered by the survey the rates of wages for men range from Rs. 1.05 in the Trichur district to Rs. 3.51 in the Ernakulam district and of women from Rs. 1.33 in the Palghat district to Rs. 1.50 in the Ernakulam district. The minimum wages in the processing and baling operations have been fixed from 6th August 1962 for the whole State. Copies of the notifications fixing the minimum wages referred to above are given in Appendix B.

Fluctuations in the Cost of Raw Materials

77. One of the salient features common to all sectors in the coir industry is the frequent fluctuation in the cost of both raw materials and products. As observed earlier the primary raw material of the industry is the husk. According to the random sample survey conducted by the Coir Board, out of the total estimated production of coir yarn in the hand-spinning sector only 4.6 per cent is produced out of husks available from the cocoanut palms of the producer and 95.4 per cent of the husks have to be purchased. In the spindle-spinning sector the percentage of husks available with the producer is still less coming only to 2.2, the quantity remaining to be purchased being 97.8 per cent. Thus an overwhelmingly large percentage of husks has to be purchased by the producer. The price of these husks is controlled both by the landlords who sell the raw husks as well as by the dealers who purchase the husks and soak them for retting. The general market conditions relating to the coir industry also have their repercussions on the cost of raw as well as retted husks. The investigation conducted in this regard reveals that the land owners try to get as high a price as possible for the raw husks. This more or less is related to the prevailing market price of yarn. But there is a time limit up to which the land owner can keep the raw husks as when once the husks are dry the yield of fibre will be poor and the husk will naturally go down in value. The extent to which the land owner can dictate the price of the raw husks is, therefore, controlled to some extent by this limitation. Some of them, however, will ret the husks themselves if they find that good price is not forthcoming. The next stage is when the retter releases the retted husks. Generally it is only parties who have sufficient financial capacity who take to the business of retting husks. This is inevitable because retting itself takes a long time and the retter should have enough waiting capacity. Such parties can naturally, afford to hold up the sale of the retted husks until they fetch the price they demand. Very often the retter looks up to the prevailing market rate of the coir yarn. If the rates are high the price of the retted husk is also put up. The net result is that the spinner is deprived of the benefit of the rise in the market price of yarn as he has to pay a higher price for the retted husks. As the spinner cannot afford to wait for long without work he goes in for the retted husk irrespective of price considerations thus helping the retter in dictating the price of the retted husks. The survey conducted by the Coir Board reveals

that during the year 1959–60 the extent of difference between the minimum and maximum prices of retted husks purchased by the hand-spinning sector in the various strata varied from 70 nP. to Rs. 7.06 per 1,000. Between the raw husks and the retted husks the extent of difference in the maximum price during the above period varied from Rs. 5.66 to Rs. 16.76 per 1,000. In the spindle-spinning sector the extent of difference between the minimum and maximum prices of raw husks varied from Rs. 2.96 to Rs. 9.68 and between the maximum prices of raw and retted husks from Rs. 8.19 to Rs. 12.70 per 1,000. Similar variations could be found in the price of coir yarn as well as manufactured goods. The demand for yarn is governed by various factors which are beyond the control of the yarn producers. Part of the yarn produced in Kerala is sold in India where it is used for sundry purposes as yarn itself as well as for the manufacture of coir mats, mattings, carpets etc., a large percentage of which is exported to foreign countries. The rest of the yarn is exported to foreign countries as yarn itself. Various factors like the cheapness of the yarn and its products, its durability, the relative advantages in going in for coir yarn and coir products in preference to other substitutes etc., play an important part in the demand for coir goods in foreign countries. As the demand slides down the price of the products also falls and as the demand goes up the price also shows a rising trend. The result of these currents and cross currents in the price of coir products as well as their raw materials is a succession of booms and slumps in the industry to an extent that makes it almost impossible for it to function on a stable basis.

Marketing

78. The problem of marketing has to be examined from two aspects, one relating to the marketing up to the stage of export and the other exporting. Up to the stage of export the middle men always play their part except where the exporter himself is the producer. In the hand-spinning sector a major part of the yarn produced, say 85.66 per cent, is seen sold directly to private dealers. A sizable proportion of the ultimate profit, therefore, goes to these dealers. About 13.30 per cent of the total quantity is sold to other agencies and only 1.04 per cent is sold through co-operative societies. Almost the entire disposal is on cash basis except in the Parur stratum where only 58.48 per cent and in the Vannan stratum where a negligible quantity of 0.1 per cent are sold on credit. In the spindle-spinning sector about 70 per cent of the entire production is sold directly to private dealers. About 20 per cent of the sales are through co-operative societies and 10 per cent through other agencies. Approximately 55 per cent of the entire disposal is done on cash basis. Exceptions are seen in the case of Ashtamudi and Mangadan strata where only 6 per cent and 14 per cent respectively are disposed of on cash basis. The majority of disposals in these strata is done against advances. About 40 per cent of the disposals are done on cash advances and the remaining 5 per cent on credit. In the manufacturing (unregistered) sector 96.88 per cent of the sales are effected directly by manufacturers of which 96.56 per cent sales are on wholesale basis. With regard to the Shertalai stratum 40.96 per cent of the coir mats are disposed of directly by them. Unlike in the Alleppey stratum 57.89 per cent of the total disposal of coir mats is made through other agencies. Only a negligible volume of 1.15 per cent of the sales is effected through co-operative societies. 82.97 per cent of the total sales of coir mats in Alleppey and 76.00 per cent in Shertalai are on cash basis. As already mentioned earlier in the case of rope-making sector the sales are effected directly on cash basis in most of the cases. In the case of the manufacturing (registered) sector most of the producers themselves are exporters. Coir yarn and other coir goods from India are being exported to United Kingdom, United

States of America, Australia, U. S. S. R., Canada, Denmark, Iraq, West Germany, Sweden, Belgium, Irish Republic, Italy, Norway, Kuwait, Lebanon. Singapore, Netherlands, Venezuela, New Zealand, South Rhodesia, Hongkong, Kenya, West Pakistan, Malaya, East Germany, Trinidad & Tobago, Cyprus, Ghana, Nigeria, Bahrain Island, Malta & Gozo, Aden, Iceland, Barbados, Saudi Arabia, Jamaica, Peru, Mauritius, Qatar &Trucial Oman, Mozambique, Chile, France, Burma, Portugal, Japan, Austria, Switzerland, Turkey, Greece, Angola, Poland, Finland, Morocco, Yogoslavia, Tunis, Lybia, Tanganyika, Czechoslovakia, Spain, Hungary, and other foreign countries.

CHAPTER IV *

GENERAL

Sex Ratio of Workers.

79. It is estimated that in the hand-spinning sector 91.9 per cent of the workers are women, 2.4 per cent men and the rest children. In this sector generally the spinners also do the beating and cleaning work while in the spindle-spinning sector workers who are engaged in beating, cleaning and dyeing form a category separate from spinners. In the former 83.0 per cent are women and 10.5 per cent men, the rest being children. In the category of spinners 68.2 per cent are women and 13.5 per cent men. Children constitute 18.3 per cent. In the manufacturing sector (registered) the percentage of women workers is much smaller coming only to 16.5, the remaining being men and exceptionally children also. In the manufacturing sector (unregistered) 93.0 per cent are males, 2.6 per cent females, the rest being children. In the rope-making sector 83 per cent of the workers are males and 17 per cent females. It could thus be seen that there is an overwhelming predominance of women workers in the hand-spinning, spindle-spinning and manufacturing sectors (registered) of the industry.

Demographic Particulars

80. Of the persons in the households of the hand-spinning sector 15.52 per cent are below 5 years, 25.35 per cent 5–14 years, 11.04 per cent 14–21 years, 29.63 per cent 21–40 years, 14.23 per cent 40–60 years and 4.23 per cent 60 years and above in age. 27.50 per cent of the members of the households engaged in the spindle-spinning sector fall in the age group of 21–40 years and 25.5 per cent in the age group of 5–14 years. 15.2 per cent, 14.4 per cent, 13.0 per cent and 4.4 per cent of the members fall in the age groups of 40–60, less than 5, 14–21 and 60 and above respectively.

Literacy

81. 47.04 per cent of the members of the hand-spinning households are literate, 44.61 per cent have primary education, 6.73 per cent have secondary education, 1.46 per cent have S. S. L. C., 0.11 per cent Intermediate or Pre-University and 0.02 per cent technical qualifications and 0.03 per cent are graduates. Among the members of the households engaged in the spindle-spinning sector 37.8 per cent are literate, 45.4 per cent have primary education, 12 per cent have secondary education, 3.8 per cent have S. S. L. C., 0.5 per cent Intermediate and 0.2 per cent technical qualifications. 0.3 per cent are graduates.

Size and Composition of the Households

82. The average number of members of the households engaged in the hand-spinning sector is 6.23 of whom 1.69 are males, 2.02 females and 2.52 children. Of these 1.76 are earning members, 1.82 earning dependants and 2.65 non-earning dependants. In the spindle-spinning sector the average size of a household is 5–10 members in the case of 61.2 per cent of the households, less than 5 in the case of 26.5 per cent of the households and 10 members and above in the case of 12.3 per cent. Taking a household of an average number of 7 members, 2.10 are males, 2.13 females and 2.77 children. Of these 1.69 are earning members, 1.85 earning dependants and 3.46 non-earning dependants.

Income and Expenditure

83. The Minimum Wages Committee for the manufacture of coir appointed by the Government of Travancore–Cochin has

* The data for paragraphs 79 to 84 are taken from 'Report on the Economic and Statistical Survey of the Coir Industry 1960' conducted by the Coir Board.

observed in its report of 1952 that 62 per cent of the females of the coir yarn industry get a monthly income of less than Rs. 40; 76 per cent less than Rs. 45 a month and 89 per cent get an income of Rs. 50 a month. The Committee has observed that considering the very low earning capacity of the workers and the general lack of other sources of income this result is not surprising. The economic and statistical survey of the coir industry conducted by the Coir Board in 1960 already referred to supra shows that 18.31 per cent of the households engaged in the hand-spinning of yarn have the occupation as a primary one while 81.69 per cent have it as a secondary occupation. In the spindle-spinning sector 66.2 per cent of the households have spindle-spinning as their primary occupation and only 33.8 per cent pursue it as a secondary occupation. In the households which are entirely dependent on coir industry the women and children attend to the beating of husks and spinning the yarn while the male members are engaged in work connected with retting, weaving etc. In the households which partly depend upon coir industry the male members go for agricultural work on daily wages during the cultivating season. In the random sample survey conducted by the Coir Board in 1960, it was found that in the hand-spinning sector the overall average income of a household derived from all sources together including that from coir industry ranged between Rs. 30 and Rs. 100 per month and at the same time there were a few households getting as low as Rs. 7 per mensem. It has been observed by the Minimum Wages Committee as well as by the Coir Board that the comparatively higher income obtained by a few households is not necessarily an indication of greater prosperity and in most cases it was due to the larger size of the households or higher proportion of earners. Taking the income from the coir industry alone there are households in certain villages getting a monthly income of less than Rs. 2 while there are households getting about Rs. 50. A vast majority of the households are getting an income of only less than Rs. 10 per mensem from the coir industry. 16.7 per cent of the income of the households in this sector come from coir industry, 17.1 per cent from agriculture, 5.1 per cent from fishing and 61.1 per cent from other miscellaneous occupations. The income from the coir industry forms only one sixth of the total income. In the case of a majority of households the expenditure is greater than income. Indebtedness is not great, perhaps due to the poor capacity of the households to command credit. However, 75 per cent of the total households are indebted. In the spindle-spinning sector the income of households from all the sources together including coir industry varies from Rs. 62 to Rs. 123 per mensem. The average income of a spindle-spinning household comes to Rs. 85.36. The per capita income is lowest in the Ashtamudi stratum and highest in the Anjengo stratum, this being Rs. 8.73 and Rs. 16.94 a month respectively. The average per capita income for all the strata together is Rs. 12.19 per mensem or Rs. 146.28 per annum which is much less than the per capita national income or the per capita income for the Kerala State. 38.80 per cent of the income of the households is from coir industry, 21.13 per cent from agriculture, 1.09 per cent from fishing and 38.98 per cent from miscellaneous. In most of the households surveyed by the Coir Board, the monthly expenditure exceeds the monthly income. In the case of 27.37 per cent of the households the expenditure is less than the income, of 3.27 per cent of the households the expenditure and income balance and of the remaining 69.36 per cent of the households the expenditure is greater than the income. More than two-thirds of the surveyed households are in debts. In the rope-making sector the income varies from district to district. It has the minimum in the Cannanore district, Rs. 55, and the maximum in the Trichur district, Rs. 209. Taking all the districts together the average

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monthly income per household is Rs. 140. This is much better than the income of a spindle-spinning household.

Labour Welfare

84. In the manufacturing (registered) sector various items of labour welfare are given in the report of the random sample survey conducted by the Coir Board. In the Alleppey stratum the labourers are given 7 holidays with pay a year whereas in the Shertalai stratum only 5 holidays are given. The workers are also entitled to 14 days' leave with pay on an average a year in the Alleppey stratum whereas it is only 12 days in respect of Shertalai stratum. In almost all cases medical facilities are extended to workers in most of the factories in Alleppey stratum. Workers are entitled to medical aid under the Employees State Insurance Scheme. Canteens for workers are provided by 25 per cent of the total establishments surveyed in Alleppey stratum and 10 per cent of the total establishments provide creches. But in the Shertalai stratum these two items are absent. Rest shelters are provided in 45 per cent of the establishments in the Alleppey stratum and 20 per cent of the establishments in the Shertalai stratum. Gratuity was found paid in 15 per cent of the total establishments of the Alleppey stratum. On an average $7\frac{7}{8}$ per cent is the rate of production bonus given to the workers in 1958–59. The rate of bonus is determined by the Coir Industrial Relations Council. In the manufacturing (unregistered) sectors only 2 of the establishments selected for survey in Alleppey and 4 in Shertalai strata are reported to have paid production bonus at the rate of 6.23 per cent in Alleppey and 5.93 per cent in Shertalai. There are no special items of labour welfare in the other sectors of the industry except to the extent where the statutory obligations are imposed. Most of the spinning establishments are below the scale of registered factories. This being so the provisions prescribing lay-off wages and security of employment in the labour statutes can hardly be enforced in these establishments. Nevertheless, the trade unions in the industry take up the question of workers who are either thrown out of employment in the normal course or who are dismissed without proper reason. The temporary lay-offs constitute a normal feature in these establishments. It is seldom that the employees are given lay-off wages during such temporary stoppages of work. The employees are, however, entitled to seek relief through industrial courts in matters concerning security of employment.

The Role of Co-operative Societies in Coir Industry

85. The problem of the coir industry is the problem of the small producers, who are pressed between the husk-dealer and the exporter of yarn. The business in green and retted husks is in the hands of persons who are not connected with the production of yarn. The small producer has little capital and he is too poor to command any credit. He cannot dream of investing a comparatively large amount on husks, which will be idle at least for six months. He is therefore compelled to purchase retted husks from the dealers, at the price they demand. He is also obliged to part with his produce at a low price due to his meagre resources. As a result, in course of time he runs into financial difficulties. These facts formed the basis of the organisation of co-operative societies in coir industry.

86. Efforts to bring the coir workers and small producers within the co-operative fold were first initiated in the erst-while Travancore-Cochin State in 1950. The scheme which was subsequently included under the 1st Five Year Plan of India, mainly aimed at ensuring reasonable emoluments and regular work for the workers and small scale producers depending on the industry standardising the quality of coir products and eliminating middlemen. The Five Year Plan Schemes have given due importance to the formation of different types of coir co-operatives with a view to bringing at least a majority of coir workers and small

scale producers under the co-operative fold by a phased programme and to rehabilitate the coir industry as a whole. Liberal financial assistance has also been extended to these societies by the Central and State Governments.

87. There are 452 coir co-operative societies of different types registered till the close of the year 1962–63 as detailed below:–

(i)	Husk Retting Unions	12
(ii)	Thondu Co-operative Societies	31
(iii)	Coir Primary Co-operative Societies	374
(iv)	Central Coir Marketing Co-operative Societies	4
(v)	Coir Co-operative Unions	15
(vi)	Mats and Mattings Co-operative Societies	11
(vii)	Rope Manufacturing Co-operative Societies	3
(viii)	Bristle and Mattress Fibre Manufacturing Co-operative Societies	2

88. *(i) Husk Retting Unions* There are 12 Unions under this category. These are supplying societies. They are designed as regional federations of groups of coir yarn primary societies for the purchase and retting of husks required by the member primaries. These Unions purchase green husks and either transport them to the primaries for retting or ret and supply retted husks required by the member primaries at reasonable prices regularly on demand. These are a new type of societies organised during the 3rd Five Year Plan Period in the place of Thondu Societies. These Unions have to employ a Paid Secretary whose salary will be met by Government for a period of 3 years. The Unions undertake purchases and retting of husks by pooling the funds given to each of the member primaries.

89. *(ii) Thondu Societies* There are 31 Thondu Societies on the rolls. These Societies were organised during the 1st Five Year Plan for the collection of green husks from the producers and for the supply of husks to coir primaries for retting. These were formed by persons engaged in production and collection of raw husks. It is proposed to convert them into coir primaries or to wind up these societies.

90. *(iii) Coir Yarn Primary Co-operative Societies* There are 374 societies of this type as at the close of the financial year 1962–63. These are producing societies. The membership in these societies is restricted mainly to the workers and small producers engaged in the different processes of the coir industry. There may be sympathiser members not exceeding 7% of the total membership. Not less than $\frac{2}{3}$ of the membership of the Managing Committee should consist of workers and small producers. These societies are formed for production of yarn and for retting of husks also as retting is an integral part of the industry which can give some profit to workers. The marketing of the yarn produced is done through Central Coir Marketing Societies. The production of yarn is done either by direct production by the society by engaging members to spin the retted husks on wage system or by supplying the retted husks to members who are to spin them into yarn according to the specifications and grade required and return them to the societies for marketing. In the latter case mostly the retted husks are sold to the members who will return the yarn produced to the society and get the value of the yarn according to market rate prevailing at the time. The societies are given grant towards the salary of the Paid Secretaries for a period of 3 years. Government servants are proposed to be appointed in the societies as Paid Secretaries for a period of 3 years. Share capital loans at Rs. 9/– per share value of Rs. 10/– is also issued to worker members to complete the first share. A working capital loan to the extent of 10 times the paid up share capital up to a maximum of Rs. 50,000/– at a time is also issued to eligible societies.

91. *(iv) Central Coir Marketing Co-operative Societies* There are 4 societies in this category. These societies are marketing agencies formed by a group of coir yarn

primary societies for marketing the coir yarn produced by the member societies. It is the responsibility of the marketing societies to arrange for the collection of yarn from the member primaries wherever necessary, to sort and grade such yarn with reference to the requirements of the local market and the standard adopted in the export trade and sell the stock promptly to the best advantage of the primaries. Financial assistance is also given by the Government for the working of these societies and also for meeting advance payments of the yarn landed by the primaries for sale to the extent fixed by Government by way of loans according to requirements. The Central Marketing Society pays an advance not exceeding 75% of the value of the yarn landed to the primary society. On sale, the sale proceeds will be distributed to the member societies after realising the advance already paid with 6% interest thereon. A commission of Rs. 3/- per candy of yarn is charged by the Central Society on the primaries for the yarn landed for sale.

92. *(v) Coir Co-operative Unions* Though there are 15 Unions under this category on the rolls they are not functioning now. These were supervisory bodies constituted of the primary and *thondu* societies. Their constitution and functions were similar to those of the co-operative supervisory unions in the co-operative credit structure.

93. *(vi) Mats and Mattings Co-operative Societies* There are 11 societies in this category. These are factory societies. The 2nd Five Year Plan contemplated the development of the factory side of the industry by organising a few factory societies on co-operative basis for production of coir goods. These co-operatives are designed for the manufature and sale of finished coir products such as coir mats, mattings and other products. The membership of these societies is open to coir factory workers and limited to 50. A share capital loan of Rs. 44/- to a share value of Rs. 50/- is proposed to be given to the worker members of the society to complete the first share to enable them to become eligible members. In addition, a working capital loan at 25 times the paid up share capital is also given to the societies. The marketing of the goods produced is also done by the societies themselves by finding suitable markets, both internal and external.

94. *(vii) The Manufacturing Co-operative Societies* There are three societies of this type on the rolls. The scheme is intended for the organisation of factory co-operatives for the production of coir rope using modern techniques and up-to-date machinery. None of them have started working yet. The constitution and aid proposed to be given to these societies are similar to those of the Mats and Matting societies.

95. *(viii) Bristle and Mattress Fibre Manufacturing Co-operative Societies* There are 2 societies of this type. These societies are intended to produce bristle and mattress fibres from unretted husk. This is programmed as a Pilot Scheme during the III Plan period. Owing to lack of retting facilities coupled with the transporting difficulties, the husks available in the interior, and hinterland regions of the State are not put to industrial uses. These unretted husks can be utilised for the extraction of bristle and mattress fibres which are in good demand in the foreign markets. The constitution and financial aid proposed are similar to other factory societies in the manufacturing sector.

The Working of Coir Co-operatives

96. With a view to studying the working of the co-operative societies, ten societies from the Travancore area were selected at random and investigated. Out of the ten co-operative societies investigated, eight were Primary Societies dealing in husks and coir yarn, one central Marketing Society and one Mats and Mattings Society. Most of the societies are engaged in retting the husks and distributing them to the members at a much cheaper rate than the existing market rate. The cost of the retted husks is collected from them then and there in most of the societies. The yarn produced

by the members is taken by the society and it is sold either to private parties or through the Central Marketing Society, Alleppey. 75% of the cost of yarn is paid immediately to the member and the balance is paid only when it is marketed. An interest at the rate of 6% is charged on the advance in addition to other charges like weighing-charges, bundling charges, transporting charges etc. The Central Society arranges either the local sale or the export of the yarn to foreign countries.

97. About 93 to 97% of the members of the Primary Societies are either workers or small producers. The remaining members are sympathisers. The management of each Primary Society is vested with a managing committee of seven members elected by the shareholders every year. The Committee, in turn elects a President. The matters relating to the purchase and sale of the husks and yarn are dealt with by a sub-committee consisting of the President, Secretary and two other members.

98. Government loan forms the major part of the working capital. The loan should be repaid in ten equal instalments. The interest charged is only 2½%. In most of the Primary Societies the share value is Rs. 10/- per share. In one society, the share value was found to be only Rs. 5/-. Seven out of the eight primary societies arrange for the retting of the cocoanut husks and their distribution to the members. Three of them have their own *kayal* porombokes received from Government whereas four societies are hiring retting yards from private individuals. Rent for the retting yards varies from Rs. 90–200 per acre.

99. Out of the eight Primary Societies, one society deals only in husks. Three Primary societies arrange the marketing of yarn through the Central Marketing Society. Three societies either send the yarn to the Central Marketing Society or arrange local sale. One society was, however, found to be adopting only the method of local sale.

100. The retted husks are usually distributed to the members on cash payment excepting in one society. This society supplies retted husks to its members on loan, taking care to see that the value of the retted husks so distributed does not exceed the share amount of the member. The cost of the husks is deducted from the cost of the yarn when the member brings the yarn to the society. This society also pays the cost of the yarn after deducting the cost of the retted husks then and there.

101. Approximately 45% of the workers of the area are covered by the Primary Societies. Based on a rough estimate 25% of the husk business and 35% of the coir business are done by these societies.

102. According to the last audit report, five Primary Societies had incurred loss, whereas two Primary Societies had made profit. The figure could not be gathered from one society.

103. The Alleppey Central Marketing Society was organised in 1951. The area of operation of the society is the old Travancore area. All Primary Societies are members of the Central Society and the share value is Rs. 1,000 per share. The management of the society is vested with a Managing Board of eleven members. Each Primary Society elects a representative to the Central Society and these representatives elect eight members to the Managing Board. The remaining three members are nominated by Government. An executive committee, consisting of the President and four other members of the Managing Board, deals with the matters of the society with the approval of the Board. The Central Society purchases coir and coir products from the Primary Societies and arranges their sale. 75% of the cost is paid to the Primary Societies as advance. The society charges interest for the advance at the rate of 6% for the first three months and 3% for the remaining three months. No interest is levied after six months. The balance amount is paid to the societies as and when the goods are sold, after deducting the interest due from them and the following charges :—

(i) Transportation charges Rs. 0.40 nP. per quintal.

(ii) Godown rent Re. 1.00 per quintal.

104. The Central Society sells the goods to the local dealers or sends them to their agents in other parts of India or exports them to foreign agents. Germany, Holland and United Kingdom purchase the major share. The extent of business done by the society in 1962–'63 is as follows:—

	Quantity	*Value*
Coir sold	51,095 quintal	Rs. 6,928,824.00
Mats and Mattings sold	6,380 dozen mats 16 rolls mattings	Rs. 302,327.32

As per the audit report of 1960–'61 the society has a net profit of Rs. 6,424.65.

105. There is no uniformity of procedure in the Co-operative Societies regarding the purchase and sale of coir yarn. If the various societies follow different methods in the dealings, it will certainly affect the Co-operative movement. Most of the Primary Societies are now not in a position to meet the requirements of retted husks of the members. The members are now obliged to approach private dealers for a major part of their requirements. There is a feeling among the members of these societies that they can benefit much more if the retted husks are given by the societies on loan recoverable from the coir yarn produced by them.

106. The members have to pay interest to society for the advance they have received, till their goods are marketed through the Central Society. When the marketing is delayed, the workers are put to some hardship as they will get 25 per cent of the price of the yarn only after effecting the sale by the Central marketing society and till then have to pay the interest for the advance. The only solution for this problem is the payment of the entire price when the yarn is delivered to the primary society, indeed, after deducting the price of the husks given on loan with interest. Even if the price is fixed a little lower than the market rate, the workers would gladly accept it as they stand to gain thereby. The possibility of such course seems to deserve scrutiny. The Central Marketing Society should also adopt a similar procedure in turn if the Primary Societies should follow the same. Some of the Mats and Mattings Societies are seen to purchase yarn from private dealers when there is enough stock for sale by the Central Marketing Society. Such a course is detrimental to the interests of both the Central Marketing Society as well as the Primary Societies.

Employers and Employees Associations

107. Both the employers and the employees in the industry have organised themselves into associations. The following are some of the Associations of employers in the industry:—

(i) Travancore Coir Mats and Mattings Manufacturers' Association, Alleppey

(ii) Alleppey Chamber of Commerce, Alleppey

(iii) Travancore Chamber of Commerce, Alleppey

(iv) West Coast Employers' Federation, Cochin

(v) Associated Cottage Industries and Shippers' Union, Shertalai

(vi) West Coast Industrialists' Federation, Calicut

(vii) Malabar Chamber of Commerce, Calicut

(viii) Calicut Chamber of Commerce, Calicut

While most of the employers in the manufacturing (registered) sector are members of the employers' Association, only a small percentage of the manufacturing (unregistered) sector has joined such associations chiefly because of the absence of associations in their localities. The employees have registered 75 trade unions as on 31st March 1960.

Suggestions for the Future

108. (a) As already observed, the fluctuation in the cost of raw materials is an important problem facing the industry.

Various suggestions have been made from time to time by interested quarters for the solution of this problem. One of the suggestions is to introduce statutory control for the price of raw husks as well as retted husks. Considering the widespread nature of the industry and the areas in which dealings in the husks are found, the question of enforcing a statutory control of the price of husks, whether raw or retted, naturally bristles with difficulties. Apart from the variations in the quality of husks from place to place there are also seasonal variations in quality. The price will, therefore, have to be fixed for the husks of different areas as well as of different seasons. This makes it all the more difficult to secure a proper implementation of the price control order. It is also likely to have its repercussions on trade and industry. A fixation of different prices for different localities is likely to induce movement of husks and unhusked cocoanuts from less favourable areas to more favourable ones. This would bring in its turn the necessity for movement control. In the case of a price control over retted husks the probable result would be that the dealers in retted husks might deal only in the husks available at close quarters. Considering the various difficulties and the adverse repercussions of price control measures on trade and industry the suggestion for price control measures seems to be of doubtful advisability. Another suggestion made and accepted by Government is the organisation of coir co-operatives. An account of the co-operative societies in the State dealing in coir has been given in the previous paragraph. A healthy development of these societies is bound to produce satisfactory results and solve most of the problems connected with the industry.

(b) Quality control is one of the aspects in the coir industry which has been in the lime light for quite a long time. It is superfluous to discuss the baneful effects of fraudulent practices in trade and industry on the export trade of the country, and how adversely they will tell upon our dollar earning capacity. The Economic and Statistical Survey of the Coir Industry, 1960 conducted by the Coir Board has also dealt with this question and consulted the employers in the industry. It was found that about 78 per cent of the surveyed establishments in the manufacturing (registered) sector in the Alleppey stratum and 60 per cent in the Shertalai stratum were in favour of exercising quality checks before export. Only 25 per cent have taken it to be an impossible proposition. That quality control will ensure better market for the coir products of Kerala, both inside and outside India, is beyond doubt. The registration and licensing rules under Coir Industries Act have made provision that in the event of an importer in a foreign country requiring that the goods supplied should conform to any specified standard the Coir Board can undertake that work. Perhaps, most stringent provisions for ensuring quality control might prove useful.

(c) Improvement of manufacturing methods is yet another important aspect in the promotion of the coir industry. The coir industry is still run in the traditional way. The primitive methods employed in the production of coir and coir products can hardly ensure the quality and cheapness of goods to a degree which will enable them to stand competition. The spinning wheel is, no doubt, an improvement on hand-spinning process. Yet it is operated by hand and the mechanism is far from being up to date. New type of treadle spinning machines are considered to be capable of improving the productive capacity in spinning. Perhaps, a planned programme whereby complete replacement of the *ratts* is secured in the course of a specified period of years might prove successful and ensure better regularity, evenness of twist, a more finished appearance with less hairiness and a continuous length for the yarns. Similarly, the replacement of the existing looms by power looms will also contribute to better production and quality. No doubt, the question as to how far the

replacement of existing looms by power looms will affect the volume of employment deserves scrutiny.

(d) The substitution of chemical processes of retting husks for natural retting is bound to save time in retting to a considerable extent and thereby secure cheapness for retted husks. The researches in this direction have not completely succeeded in introducing chemical processes which could be employed beyond doubt and with economy, although good progress has been made in finding out how far chemical processes can effect retting. More research in this direction is bound to produce better results.

(e) Better utilisation of coir waste and coir pith may certainly add to the economic value of the coir industry. The possibilities of the production of insulation materials like boards, cork, etc., and commercial packaging materials with resiliency and cushioning properties out of cocoanut pith and coir wastage deserve research. The use of coir as a filling material for the production of fabricated cement articles has also been recommended as worthy of experimentation. Roofing tiles, writing materials, slates, hollow-wares and other containers could be successfully manufactured by this process. The use of coir waste in the preparation of thermosetting plastics is quite a new invention. A process for the successful manufacture of coirolite has been worked out as part of the research programme under the auspices of the Coir Board. Coirolite is a tough material possessing good strength and electrical resistance. The manufacture of pith models from the cocoanut pith taught in the Training Centre at Kadakkavoor, also provides plenty of scope for development.

(f) Expansion of existing markets and exploration of new markets and intensive propaganda are some of the suggestions which have been repeatedly made by those interested in the coir industry. The fundamental concept of the American market is that the goods are bought, not sold. A thorough investigation of the market is an essential part of any export promotional programme. Adequate publicity and propaganda should also go side by side with this.

APPENDIX A

COUNTRYWISE EXPORT OF COIR YARN FROM THE INDIAN PORTS

Year (April—March)

Sl. No.	Name of the country	1958—'59 Q	1958—'59 V	1959—'60 Q	1959—'60 V	1960—'61 Q	1960—'61 V
1.	Germany West	103,863	9,283	95,024	8,974	80,113	8,192
2.	Netherlands	79,826	8,232	98,069	10,564	85,466	10,174
3.	United Kingdom	59,096	5,248	57,343	5,186	49,183	4,942
4.	France	47,066	4,278	34,014	3,288	40,502	4,257
5.	United States of America	45,546	4,167	33,065	2,976	26,030	2,566
6.	Italy	43,688	4,186	53,424	5,309	48,082	5,313
7.	Burma	30,619	2,799	32,249	2,957	38,909	3,837
8.	Portugal	15,608	1,361	23,294	2,125	10,353	1,052
9.	Japan	14,047	1,767	15,155	1,961	17,556	2,366
10.	Australia	12,418	1,276	12,337	1,308	7,870	890
11.	Belgium	6,969	576	6,121	553	8,191	854
12.	Australia	6,517	712	4,731	527	3,501	428
13.	Denmark	5,840	476	7,010	671	7,719	867
14.	Iraq	5,806	411	7,391	565	3,518	308
15.	Norway	5,717	542	5,925	589	5,442	589
16.	Switzerland	5,243	572	8,219	905	6,624	812
17.	Canada	3,509	360	4,579	470	5,999	578
18.	Turkey	3,387	354	2,574	287	830	101
19.	Greece	3,285	338	4,835	512	3,944	482
20.	Kenya	2,573	222	2,315	213	2,121	213
21.	Angola	2,150	195	1,631	157	1,912	208
22.	Poland	1,977	189	4,742	465	2,039	197
23.	Sweden	1,932	184	2,720	258	1,333	143
24.	Kuwait	1,921	109	1,652	103	1,090	73
25.	Qatar & Trucial Oman	1,712	130	1,700	139	930	86
26.	Finland	1,553	156	3,028	322	2,944	356
27.	Malaya	1,549	142	1,877	175	1,391	133
28.	Germany East	1,517	137	2,734	288	1,957	199
29.	Morocco	1,376	130	793	86	1,396	166
30.	Bahrain Island	1,366	109	1,384	115	1,243	116
31.	Yugoslavia	1,248	127	2,094	222	4,235	481
32.	Saudi Arabia	1,100	98	1,307	106	465	40
33.	Tunis	1,076	116	978	107	1,509	174
34.	Irish Republic	803	52	949	72	1,061	81
35.	Lybia	780	84	843	89	603	81
36.	Pakistan West	700	45	2,376	198	2,465	225
37.	Tanganyika	641	48	928	64	457	41
38.	Mauritius	524	66	705	82	474	58
39.	Czechoslovakia	405	43	..	..	652	73
40.	Spain	253	25	3,729	373	8,029	871
41.	Hungary	..	..	2,774	281	1,200	147
42.	U. S. S. R.	..	..	..	..	2,046	236
43.	Other foreign countries	2,088	204	1,649	161	3,701	370
	Total	**527,294**	**49,549**	**548,267**	**53,808**	**495,085**	**53,376**

Note:—(i) Q=Quantity in quintals (ii) V=Value in Rs. '000s

(iii) Figures of export to other foreign countries during 1960-61 include small-valued transactions (transactions valued at less than Rs. 1,000 each) to all destinations. Countrywise distribution of these transactions is not available.

Source:— Director General of Commercial Intelligence and Statistics, Calcutta.

APPENDIX A—*Contd.*

COUNTRYWISE EXPORT OF COIR MATS AND MATTINGS FROM THE INDIAN PORTS

Sl. No.	Name of the country	Year (April—March) 1958—'59 Q	1958—'59 V	1959—'60 Q	1959—'60 V	1960—'61 Q	1960—'61 V
1.	United Kingdom	64,837	10,402	57,899	9,470	62,892	10,898
2.	United States of America	25,001	3,606	28,994	4,283	22,728	3,443
3.	Australia	11,067	1,617	13,675	1,932	12,408	1,864
4.	U. S. S. R.	8,805	1,504	8,987	1,743	1,571	301
5.	Canada	6,891	1,075	7,846	1,201	7,026	1,051
6.	Denmark	6,448	963	6,873	1,076	5,352	982
7.	Iraq	5,133	853	6,606	1,038	7,002	1,230
8.	Germany West	4,082	657	6,675	1,122	7,148	1,246
9.	Sweden	3,585	570	2,733	453	2,779	546
10.	Belgium	2,002	296	1,277	208	1,921	304
11.	Irish Republic	1,616	198	1,391	175	1,154	177
12.	Italy	1,340	214	4,053	591	4,641	730
13.	Norway	978	144	1,361	206	1,190	198
14.	Kuwait	900	158	781	146	755	168
15.	Lebanon	803	139	933	151	904	137
16.	Singapore	652	78	636	80	679	89
17.	Netherlands	475	66	573	86	1,069	159
18.	Venezuela	462	96	314	63	239	53
19.	New Zealand	378	56	796	113	1,547	233
20.	Rhodesia South	321	60	445	85	377	69
21.	Hongkong	346	45	380	48	329	46
22.	Kenya	316	46	261	43	82	18
23.	Pakistan West	300	49	247	41	60	9
24.	Malaya	258	33	453	54	277	35
25.	Germany East	242	58	146	33	87	18
26.	Trinidad and Tobago	233	34	530	77	268	39
27.	Cyprus	223	28	247	34	134	21
28.	Ghana	198	28	366	52	209	26
29.	Nigeria	174	25	312	52	148	25
30.	Bahrain Island	169	24	198	29	54	8
31.	Malta and Gozo	164	20	240	31	161	21
32.	Aden	144	23	134	20	94	15
33.	Iceland	140	21	143	17	30	4
34.	Barbados	139	20	164	27	57	10
35.	Saudi Arabia	137	25	343	46	94	22
36.	Jamaica	129	23	136	25	87	14
37.	Peru	123	21	222	38	349	56
38.	Mauritius	51	7	142	18	18	4
39.	Qatar & Trucial Oman	49	7	123	19	116	16
40.	Mozambique	28	5	108	16	19	3
41.	Chile	27	6	117	19	99	20
42.	Other foreign countries	1,480	244	1,279	230	9,474	1,438
	Total	**150,846**	**23,544**	**159,129**	**25,191**	**155,628**	**25,746**

Note:—(i) Q=Quantity in quintals (ii) V=Value in Rs. '000s

(iii) Figures of export to other foreign countries during 1960–'61 include small-valued transactions (transactions valued at less than Rs. 1,000 each) to all destinations. Countrywise distribution of these transactions is not available.

Source:— Director General of Commercial Intelligence and Statistics, Calcutta.

APPENDIX A

COUNTRYWISE EXPORT OF COIR CARPETS AND FLOOR RUGS FROM THE INDIAN PORTS

Year (April—March)

Sl. No.	Name of the country	1958—'59		1959—'60		1960—'61	
		Q	V	Q	V	Q	V
1.	United Kingdom	24,952	3,995	15,667	2,597	12,269	2,166
2.	U. S. S. R.	8,616	1,775	14,373	3,169	4,776	1,218
3.	United States of America	444	86	102	26	72	13
4.	Sweden	316	46	171	24	91	22
5.	Irish Republic	279	37	248	34	199	30
6.	Italy	133	24	117	25	97	16
7.	Canada	129	23	97	17	8	2
8.	Malta & Gozo	70	9	54	10	51	12
9.	Australia	69	13	83	16	6	1
10.	Germany East	45	15	22	9	..	..
11.	Denmark	45	9	128	21	25	6
12.	Trinidad	10	2	50	7	..	..
13.	Germany West	7	2	22	7	..	..
14.	Kuwait	3	N	33	8	3	1
15.	Iraq	..	..	81	19	..	..
16.	Malaya	..	..	..	..	17	2
17.	Singapore	..	..	..	..	60	6
18.	Other foreign countries	117	19	135	20	991	158
	Total	**35,235**	**6,055**	**31,383**	**6,009**	**18,665**	**3,653**

Note:— (i) Q=Quantity in quintals (ii) V=Value in Rs. '000s (iii) N=Negligible
(iv) Figures of export to other foreign countries during 1960—'61 include small-valued transactions (transactions valued at less than Rs. 1,000 each) to all destinations. Countrywise distribution of these transactions is not available.

Source:— Director General of Commercial Intelligence and Statistics, Calcutta.

APPENDIX B

NOTIFICATION

S. R. O. No. 3—In exercise of the powers conferred on them by clause (b) of sub-section (1) of section 3 of the Minimum Wages Act, 1948 (Central Act XI of 1948) and in supersession of Notification No. L6—9490/54/DD dated 19-11-1954, Government after considering the advice of the Advisory Committee appointed under section 6 of the said Act and the Minimum Wages Advisory Board constituted under section 7 of the Act hereby revise the rates of wages fixed as per Notification No. L6-9490/54/DD dated 19-11-1954, as specified in the Schedule hereto annexed which shall be payable to employees employed in the classes of employment mentioned thereunder.

This notification shall come into force on and from the 1st of February 1956.

SCHEDULE OF REVISED MINIMUM WAGES FOR THE MANUFACTURE OF COIR

1. Head Load Transport of Husks

For head load transport of husks from or to the retting pit: Re. 0.14.0 per thousand for a distance of one furlong or less. Where the distance is more, the worker will be entitled to claim higher rates. But this rate is applicable to coir workers only and not to workers engaged in transporting husks at the collecting or distributing centres.

2. Counting

(a) Raw husks — Re. 0-6-0 per 1000
(b) Retted husks — Re. 0-8-0 per 1000

3. Retting

(a) Putting husks into pits: Rs. 1-12-0 per thousand. But where additional labour is involved such as in digging new pits or renovating old ones special rates shall be paid.
(b) Taking the retted husks out of the pits: Rs. 1-12-0 per thousand.

4. Beating Husks

Rs. 1-2-0 per hundred fully retted husks (when the husks are not properly retted the workers will be entitled to claim higher wages).

5. Cleaning

(a) Cleaning fibre with the help of Pitchu Vandi or similar mechanical contrivances (This does not apply to power driven machinery).
  (i) For Anjengo yarn: Re. 0-8-0 per vandi or ratt,
  (ii) For Mangadan, Aratory, Vaikom, Ashtamudi thin and similar types of yarn: Re. 0-7-0 per hundred husks.
  (iii) For other coarse yarns which require only rough cleaning e. g., Parur Vannan M. K. Yarn, Ashtamudi thick, etc. Re. 0-4-0 per hundred husks.
(b) For cleaning fibre by hand without the help of any mechanical contrivance, the rates shall be Re. 0-2-0 more than the rates fixed for cleaning with the help of mechanical contrivances.

6. Spinning

The rate fixed for spinning coir yarns is related to the work turned out. The workload is fixed in terms of the runnage covered by the spinner. By "runnage" is meant the length of the spinning yard multiplied by the number of vallies made. For this purpose, the length of the spinning yard should be taken to be the distance from hook to hook. Where the actual length of the spinning yard for any variety of coir is different from the standard length on the basis of which the runnage is fixed the number of vallies which will constitute the workload may be arrived at by dividing the total runnage by the length of the spinning yard.

I. The rate for Spinning coir yarns shall be Rs. 2-8-0 for the workloads specified below of which Re. 1-0-0 shall be given to each of the two spinners and Re. 0-8-0 for rotating the wheel. Where the spinners do the rotating also the whole amount shall be divided between them.

The above mentioned rate of Rs. 2-8-0 shall apply to the following workloads for spinning different varieties of coir:—.

(i) Anjengo Yarn
  (a) 13-14 score.
  Runnage 3072. i.e. 96 vallies spun in a spinning yard of 32 yards)
  (b) 14-15 score.
  Runnage 2,880 yards (i. e., 90 vallies in a spinning yard of 32 yards)

(ii) Mangadan
  (a) 13-14 score.
  Runnage 3,360 yards (i. e., 140 vallies in a spinning yard of 24 yards)
  (b) 14-15 score.
  Runnage 3,240 yards (i.e., 135 vallies in a spinning yard of 24 yards)

(iii) Ashtamudi
  (a) Thick quality.

Runnage 3,800 yards (i.e., 95 vallies in a spinning yard of 40 yards)

(b) Thin quality (Imitation Alappadan)
Runnage 3,600 (i.e., 90 vallies in a spinning yard of 40 yards)

(iv) Aratory

(a) Ordinary 12–13 score.
Runnage 3,600 yards (i. e., 50 mudies of 6 vallies each spun in a spinning yard of 12 yards.)

(b) Superior 14–15 score.
Runnage 3,456 yards (48 mudies of 6 vallies each spun in a spinning yard of 12 yards)

(c) Mahadevikadu Special 15–16 score.
Runnage 3,240 yards (45 mudies of 6 vallies each spun in a spinning yard of 12 yards)

(v) Vaikom Yarn (Weaving)

(a) Medium (including Kumbalangi Yarn).
Runnage 3,588 yards (i.e., 138 mudies of 2 vallies each spun in a spinning yard of 13 yards)

(b) Fine.
Runnage 3,380 (i.e, 130 mudies of 2 vallies spun in a spinning yard of 13 yards)

(vi) M. K. Yarn

Runnage 3,325 yards (i.e., 175 mudies of more 2 vallies each spun in a spinning yard of 9½ yards)

(vii) Parur Yarn

(a) Thick quality (Parur Vannan)
Runnage 3,250 yards (i.e., 125 mudies of 2 vallies each spun in a spinning yard of 13 yards.)

(b) Thin quality (Parur Special)
Runnage 3,120 yards (120 mudies of two vallies each spun in a spinning yard of 13 yards.)

II. The rate for Spinning Rope Yarn shall be as follows:—

(i) Hand spun Muppiri—7½ pies for each mudi measuring 24 yards.

(ii) For Edavannam (medium rope, hand spun) 6½ pies for each mudi measuring 34 yards.

7. Bundling

Re. 0–2–6 per bundle for office quality bundle of one maund. Where the bundling has to be done more artistically and with greater care as in Rosewall and Charuval, special rates will have to be paid in accordance with the extra effort and time required.

N. B.—1. The term "husk" as used in the above schedule refers to the husk obtained from one cocoanut.

2. Special rates shall be paid for spinning superior types of yarn such as Vettoor Special, Aroor Special etc., for which the scorage is 16 and above.

3. For making varieties of coir not comprised in the above schedule such piece rates shall be paid which will enable an average worker working for 8 hours a day to earn Rs. 1–8–0 in the case of men workers and Re. 1–0–0 in the case of women.

Government Secretariat,
Development Department,
Labour Section,
Trivandrum.

By order of His Highness
the Raj Pramukh,
V. V. Joseph,
Secretary to Government.

APPENDIX B—*Contd.*

NOTIFICATION

No. 69010/H2/61/HLD.
Dated, Trivandrum, 6th August 1962.

In exercise of the powers conferred by clause (a) of sub-section (1) of section 3 of the Minimum Wages Act, 1948 (Central Act 11 of 1948), the Government of Kerala hereby fix the minimum rates of wages payable to the employees employed in the processing and baling operations in the coir industry in the State, the same having been previously published as required by clause (b) of sub-station (1) of section 5 of the said Act.

SCHEDULE

(Wage rates applicable to the State except Kozhikode District)

A. REHANKING OF COIR YARN

		Basic wage excluding D. A. per Cwt. Rs. nP.
1.	(i) **Superior Angengo**	
	Up to 475 ft.	0.95
	From 476 to 650 ft.	1.89
	From 651 ft. and above	2.65
	(ii) **Aratory**	
	Up to 425 ft.	1.33
	From 426 ft. to 490 ft.	1.89
	From 491 ft. and above	2.65
	(iii) **Vycome**	
	Machine—below 500 ft.	1.33
	,, 500 ft. and above	2.49
	Hand—below 500 ft.	0.88
	,, 500 ft. and above	1.89
	(iv) **Alapat**	
	Machine—below 500 ft.	1.33
	,, 500 ft. and above	2.21
	Hand—below 500 ft.	0.83
	,, 500 ft. and above	1.66
	(v) **Mangadan**	0.95
	(vi) **Ashtamudi**	0.70
	N. Paroor	1.66
	T. K. Roping	0.28
	Beach	0.88
	Aloe	1.11
	Alapat Aratory stitching yarn	3.32

2. Reconditioning damaged yarn—basic rehanking rate + 150

3. Pulling Punja from ordinary hanks—basic rehanking rate + 15%

4. Pulling Punja from American hanks—basic rehanking rate—35%

5. Double splicing (as per Hop Trade)—basic rehanking rate + 10%

Note:—1. The above wage rate will be paid for American hanks. These rates are to cover the operations from yarn delivered at the rehanking, post-rehanking, bundling and taking the bundles immediately outside the rehanking shed. These rates do not cover any conveying by the rehanker after having delivered the yarn immediately outside the rehanking shed.

2. The term rehanking includes cutting out defects in the yarn, splicing, spooling etc., as per the existing trade practices.

3. The existing trades specifications of the qualities of yarn will be recognised.

SCHEDULE—B

	Basic wage excluding D. A. Rs. nP.
1. *Opening and sorting*	
Carriers	0.72
Openers	0.82
Examiners	0.85
Sizers	0.90
Sorters	1.00

Note:—1. These rates are applicable if the workers are engaged on daily rate basis.

2. If any distance noted in the working procedure mentioned below exceeds a radius of 50 yards, then the following additionals will be added to the candy rate of the relative section:–

51 to 200 yards – plus 10%

3. If the openers have to remove yarn from stacks over six ft. high then an additional of 10% will be paid to the opening and drying candy rate for the yarn taken down above the specified height. Alternately the daily paid workers can be provided to do this work.

4. If the carriers have to take yarn to upstair godowns for sorting, firstly apply the correct radius rate at ground level, then add 100% to the carrying rate.

	Basic rate Re. nP.
Carriers 70 nP. plus 2 nP. plus 12½%	0.81
Openers 70 nP. „ 12 „ „ 12½%	0.92

		Basic rate Re. nP.
Sizers	70 nP. plus 20 nP. plus 12½ %	1.01
Sorters	70 nP. „ 30 „ „ 12½ %	1.12

Examiners:—Those who are converted into daily rate workers will be filled into the daily pay-scale at a basic pay not less 85 nP.

PIECE RATES PER CANDY OF 672 LBS.

Basic rates in nP. to which should be added the various additionals, where necessary and the revised scale of D. A.

	Basic wages Rs. nP.
Vycome	
Opening	0.41
Sizing	0.18
Carrying	0.10
Sorting–Hand twist	0.56
Sorting-Machine twist	0.50
Anjengo	
Opening	0.32
Sizing	0.11
Carrying	0.08
Sorting	0.37
Mangadan – N. Parur	
Opening	0.26
Sizing	0.11
Carrying	0.08
Sorting	0.37
Aratory	
Opening	0.28
Sizing	0.12
Carrying	0.08
Sorting	0.37
Alapat	
Opening	0.23
Sizing	0.12
Carrying	0.08
Sorting	0.32
Ashtamudi	
Opening	0.23
Sizing	0.09
Carrying	0.08
Sorting	0.32
Roping	
Sorting	0.22
Sizing	..
Beach	
Opening	0.62
Sizing	0.20
Carrying	0.10
Sorting	0.56

Note:—**1. Openers**

Landed yarn is taken out from the godowns to the open yard by the openers up to a radius of 50 yards from the godown.

Country bundles are untied, opened and spread in the sun for drying, the hanks are turned when necessary whilst drying. All defective yarn, damaged yarn, lashings, cutchra etc., is to be removed and returned to stacks into any godown within a radius of 50 yards.

Hanks of the same colour and thickness are to be tied into small bunches after drying.

The dried yarn is taken back from the place of drying to any godown within a radius of 50 yards and placed in order.

A monsoon allowance of 20% will be paid to Openers from 15th May to 15th August yearly to allow for additional time required for drying on account of weather and the likely higher moisture content of the air. This allowance of 20% includes taking out and taking back after spreading of Matting, Tarpaulins or Bamboo Mats or the taking out and covering of the yarn with Matting, Tarpaulins or Bamboo Mats, the additional taking back and forth of yarn or bundles to the godowns on account of rain.

This monsoon allowance is paid during the period mentioned on all the yarn handled whether it is actually raining or not. During the other times of the year, should there be any rainfall, then the Openers must take in yarn from the open or cover with Tarpaulins, so that it does not become damaged as required by the Management. No allowance will be paid for this work. The spreading of Tarpaulins for drying purposes during the non-monsoon period will be arranged by the Management.

2. Examiners

This work will be entrusted to daily-paid workers. Since these workers will be acting in a supervisory capacity, the number engaged will be at the discretion of the Management. Where examiners are at present engaged on piece work, they may be appointed to the daily paid section or transferred to a no less remunerative piece work.

3. Sizers

Sizers sort the yarn according to thickness into different heaps.

4. Carriers

Carriers carry the sized yarn to the sorters within a radius of 50 yards of the sizing place. The yarn should be carried either within the godown, or from godown to godown or to the open yard,

provided that the distance is no further than 50 yards radius of the sizing place.

Unmatchable or rejection yarn, other than bundled yarn is to be removed from the sorting place and put into heaps within a radius of 50 yards.

5. Sorters

The Sorters sort yarn according to colour, thickness, and twist into rows for preparing for bundling. They remove all defective or unmatchable yarn into separate heaps. They place the sorted hanks on to the lashing in sufficient quantities to make of an outturn of 1 Cwt. of rehanked yarn.

They supply yarn at the time of weighing over for rehanking to make up the necessary weight. Excess of unmatched hanks should be removed and taken back into the godowns.

6. Helpers

In some Establishments, helpers are employed in Sizing and Sorting Sections. In such cases, the group wages should be distributed on the basis of 65 % to the Sizer or the Sorter and 35% to the Helper.

7. Aloe Yarn

The rates for opening, sizing, sorting etc., of Aloe yarn are the same as Anjengo yarn.

8. The rates for opening, carrying, sizing and sorting rehanked yarn, both bleached and unbleached, shall be the same as applicable to ordinary Hanks, but in case any employer does not wish to carry out these items of work on piece rate themselves, he shall employ the respective workers and in such cases the wage rates shall be the same as given in the beginning of the Schedule.

Openers are paid on a wet yarn basis and the Sizers, Carriers and Sorters on a dry yarn basis.

For the purpose of assessing the wet yarn basis, the following normal table is used. This table represents the number of bundles per candy averagely produced.

Vycome	40 bdls. per candy.
Anjengo, Mangadan, Ashtamudy, Parur, Angengo	20 bdls. do.
Aratory	6 or 10 bdls. according to wt. per candy.
Alapat	6 bdls. per candy.
Roping	10 bdls. do

The above wage rates are exclusive of the customary payment such as monsoon allowance etc.

2. DAILY PAID WORKERS

Unskilled

	Basic wage excluding D.A. Rs. nP.
Manual work—Cleansers, Creche Attendants etc.	
Men	0.88
Women	0.70

SUPERVISORY AND SKILLED

Grade I

Rehanking and other Moopans, Moopathies, skilled carpenters, Masons, Blacksmiths.

	Basic wage Rs. nP.
From 1 to 5 years of service	
Men	1.20
Women	1.00
From 6 years to 10 years of service	
Men	1.30
Women	1.10
Form 11 years to 15 years of service	
Men	1.40
Women	1.20
From 16 to 20 years of service	
Men	1.50
Women	1.30
From 21 to 30 years of service	
Men	1.60
Women	1.40
From 31 years and above	
Men	1.70
Women	1.50

Plus D. A., as specified in the note below.

SUPERVISORY AND SEMI-SKILLED

Grade II

Assistant Moopans and Moopathies, Semi-skilled Carpenters, Semi-skilled Mason, Semi-skilled Blacksmiths, Examiners, Splicing Supervisors and Markers.

	Rs. nP.
From 1 year to 5 years of service	
Men	0.95
Women	0.85
From 6 years to 10 years of service	
Men	1.05
Women	0.95
From 11 years to 15 years of service	
Men	1.15
Women	1.05

	Rs. nP.
From 16 years to 20 years of service	
Men	1.25
Women	1.15
From 21 years to 30 years of service	
Men	1.35
Women	1.25
From 31 years and above service	
Men	1.45
Women	1.35

Note:—1. Service means the number of years actually employed in the grade e. g., if a Rehanker with 10 years of service was promoted to splicing supervisor, he would be engaged at 95 nP. This, however, does not affect his total service, i. e. from when he joined the company—for such calculations as retrenchment—compensation etc.

2. Markers. It may be that in certain Industrial Establishments where the piece rate system is in vogue, the Employers do not wish to comply with this recommendation and in such case the piece rate system shall continue. The piece rates shall be :—

(i) for stencilling marks (irrespective of the number of plates on one side of the package) Rs. 1.60 basic per 100 packages.

(ii) for stencilling marks (irrespective of the number of plates on two sides of the package) Rs. 2.67 basic per 100 packages.

The following wage rates are applicable to the workers transferred from Grade II to Grade I.

	Rs. nP.
From 1 year to 10 years of service	
Men	1.20
Women	1.00
From 11 years to 15 years of service	
Men	1.30
Women	1.10
From 16 years to 20 years of service	
Men	1.40
Women	1.20
From 21 years to 30 years of service	
Men	1.50
Women	1.30
From 31 years and above service	
Men	1.60
Women	1.40

SCHEDULE

(Wage rate applicable to the Kozhikode District)

A. REHANKING

	Basic rates per cwt. D. A. as specified in the note Rs. nP.
Unsoaked all types	0.92
Beypore all types	0.41
Quilandy „	0.46

RATES FOR TWISTING COIR YARN IN CALICUT FACTORIES

(Twisting inclusive of splicing and Pulling Punja)

Specifications

3 Ply 4 Twists per foot-American Hanks.

	Rs. nP.
FU Yarn	2.05
Ariyallur or Ariyallur/FU mixture	1.70
3 Ply 4 Twists per foot—Boston Hanks	
FU	2.35
3 Ply 2 Twists per foot—American Hanks	
FU	1.35
2 Ply 4 Twists per foot—American Hanks	
FU	2.85
5 Ply 4 Twists per foot—American Hanks	
FU	2.60

RATES FOR SORTING CALICUT COIR YARN

Daily Rate

1. Sizers & sorters 95 nP. Basic per day

Workload per day

Minimum excluding rejections

4 cwts. Unsoaked Yarn
9 „ Beypore Yarn
9 „ Quilandy Yarn

2. Bleached Yarn Sorting of L. H. Yarn—100 nP. Basic per day.

(a) Sorters turnover to be reviewed at the end of every calendar month. When more than the minimum is sorted no extra will be paid. Similarly no reduction in Wages will be made when less than the minimum is sorted provided the deficiency is made up by all during the next month. For the purpose of this clause output for each quarter will be treated as complete i. e., any excess output or deficiency will not be carried over beyond a quarter—a quarter to commence from 1st November, 1958.

(b) When work available for sorting is insufficient for all the sorters, the employers have the option to send the sorters for longhanking work or, divide the available work in such a way as to provide at least half day's work for all the sorters. When they do longhanking work, they will be paid as any other longhankers.

(c) Apprentices may be employed for sorting

at 70 nP. per day basic but no one who has had more than six months service will be termed as appendices.

A differentiation must be drawn between an apprentice and a skilled temporary worker. If an employer takes on a temporary sorter for a period not exceeding 6 months and this worker has had previous training in the industry and is skilled in sorting, then the standard rates are applicable and not the apprentice's rate which is meant for trainees only.

(d) Although the above working procedure has been in force for some considerable time in Calicut, the method of working is basically unscientific and therefore within one year from the introduction of the new standard wages, piece rates should be introduced for this work in all factories.

B. BALING

WAGE RATES FOR YARD WORK IN CALICUT COIR YARN FACTORIES

Item No.	*Description*	*Basic rates* Rs. nP.
1. (a)	Carrying yarn to open yard, opening bundles spreading and drying to standard, carrying and stacking dried yarn into approx. ½ cwt. Bundles, weighing, carrying to stock godown and stacking (per 100 bales)	38.25
(b)	Do. do. during Monsoon (15th May/ 15th August)	
	(i) Payment to be made for accepted as well as rejected yarns	42.00
	(ii) At any time during the year, should there be rain fall, yarn must be taken in from the open or suitably covered as required by the management so that the yarn is not damaged.	
	(iii) The extra for Monsoon allowance will be paid irrespective of whether it is raining or not. The extra is allowed for the additional time required for drying on account of weather and the likely higher moisture content of the yarn.	
	(iv) The rates are inclusive of spreading Tarpaulin or mattings for drying purposes, when necessary.	
2.	Weighing yarn as per task weight carrying to longhanking sheds and issuing to longhankers (per 100 B/S.)	6.50
3. (a)	Carrying yarn to bleaching shed, charging the chamber, carrying and weighing sulphur, taking fuel to kiln, lighting the kiln, taking out bleached yarn subsequently and carrying to godowns (per 100 bales).	
	Longhanks	20.25
	Ordinary hanks	22.25
(b)	Re-bleaching (same rates as above)	
4. (a)	Bundling colour matched bleached yarns in ½ cwt. bundles suitable baling (per 100 bales)	12.75
(b)	Carrying to press shed upstairs and stacking grade-war (per 100 bales).	6.00
(c)	Weighting in 3 cwt. lots and issuing for baling (per 100 bales) (Factories without baling presses have no processes (b) and (c)	2.75
5.	Colour-maching bundles and arranging colour-matched bundles in bale weight lots for passing including removal of unmatchable yarn and rebundling where necessary (per 100 bales	4.00
6.	Transferring loose yarn from one godown to another and stacking (per 100 bales) (No stipulation as regards height).	10.25
7.	Weighing loose yarn and stacking (per 100 bales)	4.50
8.	Redrying saltish to wet yarn in O/Hks or L/Hks including bundling, carrying and stacking in godown (per 100 bales)	14.00
9.	Issuing yarn to sorters for resorting rebundling and stacking after second	

APPENDIX B

Item No.	*Description*	*Basic rates* Rs. nP.
	bundling (per 100 B/S)	8.00
10.	Transferring bales from press house to godown or from godown to godown and stacking (per 100 bales) (No stipulation as regards weight)	5.25
11.	Weighing bales (per 100 bales)	2.50
12.	Measuring bales (per 100 bales)	2.25
13.	Breaking piles for marking (per 100 bales)	4.25
14.	Breaking piles and re-stacking (per 100 bales) (If measuring or weighing is involved after breaking piles extra to be paid vide Item 12 or 11)	5.25
15.	Re-stitching bale covers (per 100 bales)	2.00
16.	Opening bales, pulling out hanks, re-conditioning, bundling in ½ cwts. bundles carrying to press shed upstairs and stacking grade-war, weighing and issuing for baling (per 100 bales)	36.25
17.	(a) Dholling including bundling and labelling and stacking (per candy)	
	Beypore	2.50
	Quilandy	2.75
	(b) Weighing Dholls in bundles (Beypore or Quilandy) per candy	0.10
18.	(a) Preparing coils, stacking and typing ends (per cwt)	0.30
	(b) Weighing yarn and issuing for coils (per cwt.)	5.25
	(c) Splicing and making punja for coils (per cwt.)	(Basic rates for long hanking to be paid for O/Hks but 35% less for L/Hks)

Note:—(1) Carrying weighing machines from place to place will not be paid for

(2) All rates are fixed on dried-weight basis

(3) 1 Candy—700 lb. 1 Bale—3 cwt.

D. A. for coir yarn progressing and baling The D. A. of Workers is fixed as follows :—

128 nPs. is equated to 400 points and for every rise or fall of ten points the variation will be 4 nP.

Note:—(1) For the purpose of calculating the D. A. the cost of living index figure for Alleppey will be followed in the Shertallai Taluk and that for Ernakulam will be followed in the Cochin area.

(2) The D. A. for particular month will be calculated on the basis of the cost of living index figures available two months previously e. g. for calculating the D. A. for April, the figures relating to the month of February shall be taken.

(3) Where a wage period saddles two months, the D. A. applicable for that wage period will be on the basis of the index figures applicable for the later month. For example for the wage period from 24th February to 1st March, the D. A. will be calculated on the basis of the cost of living index number for January.

The cost of living index number referred to above mean the working class cost of living index figures published by the Director of Statistics in the Government Gazette.

By order of the Governor,
K. K. Ramankutty,
Secretary.

APPENDIX C*

Statement I

ANJENGO VARIETY

(Particulars showing cost of production of one candy of yarn)

Item	Rate	Superior		Ordinary		Remarks
		Quantity	Cost Rs.	Quantity	Cost Rs.	
Price of raw husks	Rs. 70.00 per 1000	70.00×3	210.00	70.00×3	210.00	
Counting and soaking	1.75 ,,	1.75×3	5.25	1.75×3	5.25	The number of husks required for the production of one candy of coir yarn may vary from 3,000 to 3,500 according to quality. No. of bundles for one candy will be 40 for superior variety and 32½ for ordinary variety.
Cocoanut leaves, coir, etc.	1.50 ,,	1.50×3	4.50	1.50×3	4.50	
Rent for retting yard	1.00 ,,	1.00×3	3.00	1.00×3	3.00	
Counting charges for retted husks	0.88 ,,	0.88×3	2.64	0.88×3	2.64	
Conveyance to production centre	2.50 ,,	2.50×3	7.50	2.50×3	7.50	
Beating of husks	13.12 ,,	13.12×3	39.36	13.12×3	39.36	
Cleaning of fibre	0.62 per bundle	0.62×40	24.80	0.62×32½	20.15	
Rent for ratt	2.00 per candy	2.00×1	2.00	2.00×1	2.00	
Spinning charges	2.20 per bundle	2.20×40	88.00	2.20×32½	71.50	
Drying and bundling	10.00 per candy	10.00×1	10.00	10.00×1	10.00	
	Total Expenditure		**397.05**		**375.90**	

Statement II

MANGADAN VARIETY

(Particulars showing the cost of production of one candy yarn)

This variety can be subdivided into three grades viz, (1) Ordinary Mangadan, (2) Special Mangadan and (3) Extra Special Mangadan.

1. Ordinary Mangadan

	Rs. nP.
Cost of 3,750 raw husks @ Rs. 55 per 1,000	206.25
Retting expenses	
Counting and soaking	9.00
Rent for retting yard	4.00
Cocoanut leaves, coir etc.	5.00
Removal expenses and counting	10.00
Beating charges	37.50
Cleaning of Fibre	10.00
Twisting charges	11.87
Spinning charges	42,75
Total cost	**336.37**

2. Special Mangadan

	Rs. nP.
Cost of 4,000 raw husks @ Rs. 55 per 1,000	220.00
Retting expenses	
Counting and soaking	9.50
Rent for retting yard	4.00
Cocoanut leaves, coir, etc.	5.00
Removal expenses	10.50
Beating	40.00

*Source: Special officer for coir, Trivandrum.

	Rs. nP.
Cleaning of fibre	10.50
Spinning charges	47.25
Twisting charges	13.12
Total cost	**359.87**

3. Extra Special Mangadan

Cost of 4,000 raw husks @ Rs. 55 per 1,000	220.00
Retting expenses	
Counting and soaking	9.50
Rent for retting yard	4.00
Cocoanut leaves and coir etc.	5.00
Removal of retted husks	10.50
Beating charges	40.00
Cleaning of fibre	12.00
Spinning charges	54.00
Twisting rattas	15.00
Total cost	**370.00**

Statement III

ASHTAMUDI VARIETY

(Cost of production of one candy of yarn)

This variety shall also be subdivided into two grades viz, Imitation Alapat and (2) Caruva.

Imitation Alapat

	Rs. nP.
Cost of 3,700 raw husks @ Rs. 55 per 1,000	203.50
Retting	
Soaking and counting	9.00
Rent for retting yard	3.75
Cocoanut leaves, coir etc.	5.00
Removal	10.00
Beating charges	37.00
Cleaning of fibre	9.00
Spinning charges	38.00
Twisting of rattas charges	8.50
Total cost	**323.75**

Caruva

Cost of 3,650 raw husks @ Rs. 55 per 1,000	200.75
Retting	
Soaking and counting	9.00
Rent for retting yard	3.75
Cocoanut leaves, coir, etc.	5.00
Removal of retted husk	10.00
Beating charges	36.50
Cleaning of fibre	9.00
Spinning charges	33.75
Twisting of rattas charges	9.37
Total cost	**317.12**

Statement IV

VAIKOM VARIETY

(Cost of production of one candy of coir yarn)

This variety of yarn can be subdivided into 4 grades viz, (1) Superior, (2) Special (3) Ordinary and (4) Vaikom Common.

1. Superior

	Rs. nP.
Value of 4,000 raw husks at Rs. 37 per 1,000	148.00
Counting and retting	9.20
Transporting charges	6.00
Rent for retting yard	5.00
Removal expenses @ Rs. 2.37 per 1,000	9.48
Transporting charges of retted husk	6.00
All other expenses such as supervision charges, cost of erection of name boards, etc.	6.00
Spinning charges and bundling	144.00
Total cost	**393.68**

2. Vaikom Special

Value of 4,000 raw husks @ Rs. 37 per 1,000	148.00
Counting and retting	9.20
Transporting charges	6.00
Rent for retting yard	5.00
Removal expenses @ Rs. 2.37 per 1,000	9.48
Transporting charges	6.00
All other expenses such as supervision charges, cost of erection of name board etc.	6.00
Beating charges	60.00
Spinning and bundling	124.00
Total cost	**373.68**

APPENDIX C—*Contd.*

3. Vaikom Ordinary

	Rs. nP.
Value of 4,000 raw husks @ Rs. 37 per 1,000	148.00
Counting and retting	9.20
Transporting charges	6.00
Rent for retting yard	5.00
Removal expenses and counting charges @ Rs. 2.37 per 1,000	9.48
Transporting charges	6.00
All other expenses such as supervision charges, erection of name board etc.	6.00
Beating charges	60.00
Spinning and bundling	64.00
Total cost	**313.68**

N. B. No. of husks required for the production of one candy of coir yarn of above grades is 4,000.

4. Vaikom Common

No. of husks required for the production of one candy coir yarn is 3,500.

	Rs. nP.
Total cost of 3,500 retted husks @ Rs. 47.42 per 1,000	165.97
Beating charges	52.50
Spinning and bundling	74.00
Total cost	**292.47**

Statement V

Beach Yarn

It is estimated that about 2,000 to 2,500 raw husks will produce one candy of Beach yarn. The production of Beach yarn is still being continued as a cottage industry and most of the people engaged in this work have their own raw husks and facilitate to get it retted. If at all they ret the husks usually no additional expenditure is incurred as they do the retting by themselves. Ordinarily it is stated that an adult woman by her full day work can convert 6¼ husks into yarn which will fetch her only a wage ranging from 30 nP. to 40 nP.

Statement VI

QUILANDY VARIETY

(Cost of production of one candy coir yarn)

	Rs. nP.
Cost of raw husks	120.00
Retting charges	9.00
Rent for retting yard	3.24
Removal expenses	9.00
Beating charges	44.80
Cleaning	15.00
Spinning charges	60.00
Bundling	1.80
Total cost	**262.84**

Statement VII

NERIYA CHOODY

Cost of husks	105.00
Retting charges	7.87
Rent for retting yard	2.84
Removal expenses	7.87
Beating charges	38.90
Cleaning	10.00
Spinning charges	140.00
Bundling	4.34
Total cost	**316.82**

Statement VIII

PARUR SPECIAL

(Cost of production of one candy of yarn)

No. of husks required for one candy of coir yarn is estimated as 3,300.

	Rs. nP.
Cost of raw husks @ Rs. 42.50 per 1,000	140.25
Transporting expenses	4.95
Counting and retting	17.75
Removal expenses and counting	8.25
Transporting	5.75
Beating and cleaning	49.50
Spinning and bundling	80.88
Total cost	**307.33**

Statement IX

BEYPORE

(Cost of production of one candy of yarn)

No. of husks required for the production of one candy of coir yarn is estimated as 3,750.

	Rs. nP.
Cost of raw husks @ Rs. 30 per 1,000	112.50
Transporting charges to retting centre	15.00
Soaking charges	11.25
Rent for the retting yard	5.63
Beating charges	37.50
Spinning charges	80.00
Bundling and Transporting	20.00
Total cost	**281.88**

Statement X

ALAPAT VARIETY

(Cost of production of one candy of coir yarn)

	Rs. nP.
Value of raw husks @ Rs. 55 per 1000	220.00
Soaking charges	6.48
Other expenses such as pit rent etc.	6.00
Removal expenses	6.48
Beating charges	45.00
Cleaning of fibre	5.00
Spinning charges	55.00
Drying and bundling	3.50
Transportation	0.50
Other incidental expenses	2.00
Total cost	**349.96**

The Alapat variety can be subdivided into 3 grades viz, Alapat ordinary, Alapat Special and Alapat Star (Superior). The details shown above are the details of the cost of production of Alapat ordinary variety. As regards the cost of production of one candy of special Alapat coir yarn an additional amount of Rs. 10 will be incurred as additional wages for the spinning of this variety.

So the cost of production of the *Special Alapat* variety is estimated as *Rs. 359.96.*

Alapat Star (Superior)

For the production of one candy of this variety of yarn an additional amount of Rs. 17.50 will be incurred as additional wages for spinning, than that of the ordinary variety. So the cost of production of superior variety of the Alapat Star will therefore come to *Rs. 367.46.*

Statement XI

ARATORY COIR YARN

(Cost of production of one candy of coir yarn)

This variety can also be subdivided into 3 grades viz, special, superior and ordinary. It is estimated that an average of 4,500 husks are necessary for the production of one candy of coir yarn of each grade.

Special Aratory Coir Yarn

Retting

	Rs. nP.
Cost of raw husks	213.75
Soaking	7.50
Cocoanut leaves, coir etc.	6.00
Removal	7.50
Pit rent	4.50
Transportation	10.25
Beating charges	67.50
Cleaning	22.50
Twisting rattas	22.50
Spinning charges	67.50
Drying charges	2.50
Bundling charges	3.00
Other incidental charges	2.00
Total cost	**439.00**

Superior Aratory Variety

Retting expenses

Cost of raw husks	213.75
Soaking charges	7.50
Cocoanut leaves, coir and other retting expenses etc.	6.00
Removal expenses	7.50
Pit rent	4.50
Transportation	10.25
Beating charges	67.50
Cleaning charges	18.00
Twisting rattas	18.00
Spinning charges	54.00
Drying charges	2.50
Bundling	3.00
Other incidental expenses	2.00
Total cost	**414.50**

APPENDIX C—*Concld.*

Ordinary Aratory Variety

	Rs. nP.
Cost of raw husks	213.75
Soaking charges	7.50
Cocoanut leaves, coir, etc.	6.00
Removal expenses	7.50
Pit rent	4.50
Transporation	10.25
Beating charges	67.50
Cleaning	12.00
Twisting of rattas	12.00
Spinning charges	36.00
Drying charges	2.50
Bundling charges	3.00
Other incidental charges	2.00
Total cost	**384.50**

APPENDIX D

COST OF PRODUCTION

Mats

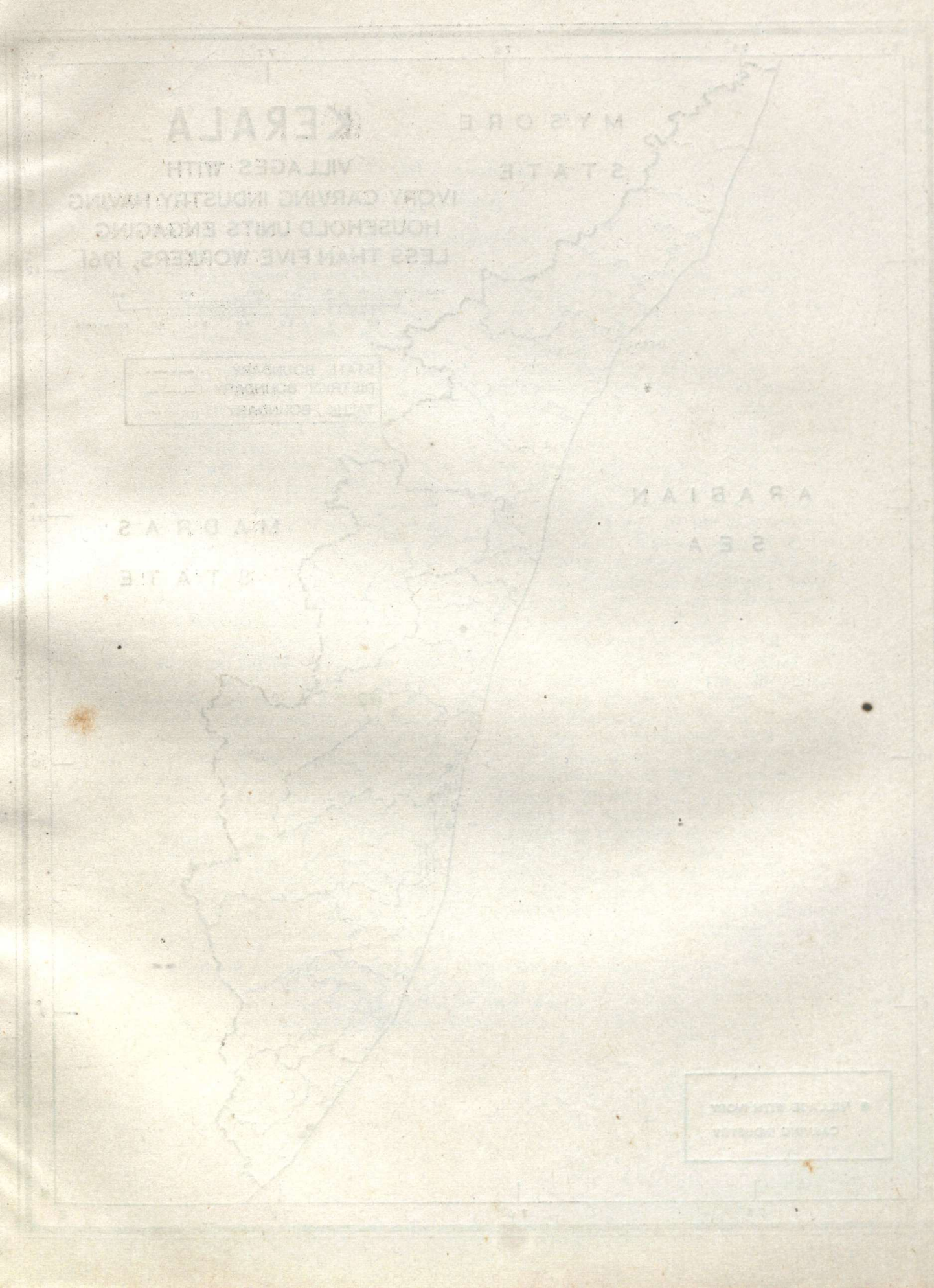
Per dozen Mats size 16″×27″	Fibre Mats with woven designs	Plain Fibre Mats	Woven designs Rod Mats	Creel Mats
	Rs. nP.	Rs. nP.	Rs. nP.	Rs. nP.
Raw materials	46.18	46.58	46.07	30.43
Auxiliaries and Fuel	11.42	6.65	8.65	4.38
Wages	34.66	25.38	22.90	20.98
	92.26	**78.61**	**77.62**	**55.79**

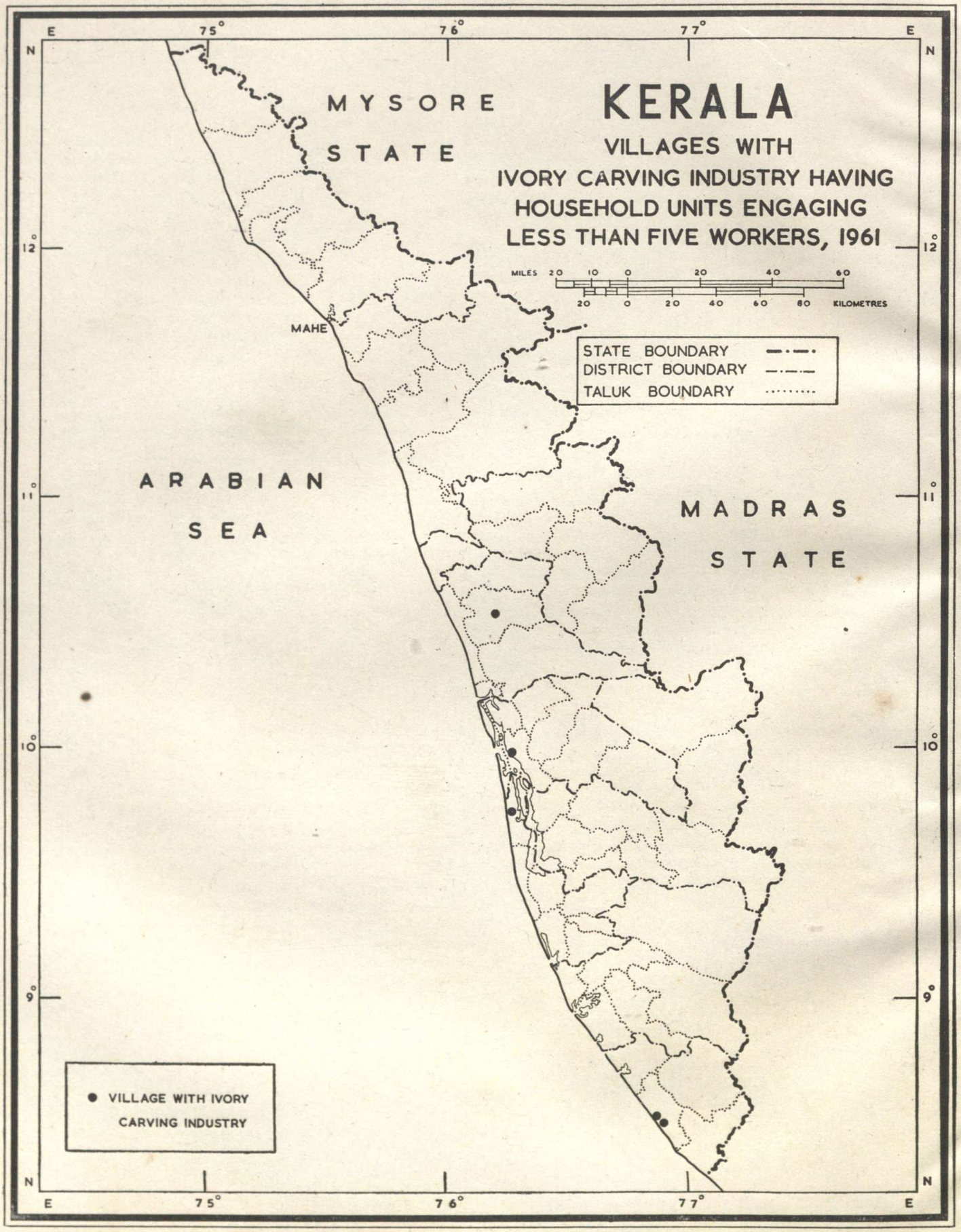
MATTING TWO TREADLE STRIPE PER ROLL 36″ BY 50 YARDS

		Rs. nP.
Yarn (Anjengo)	39 lb.	25.41
Aratory yarn	88 lb.	44.67
Aloe yarn	4 lb.	1.84
Beach yarn	35 lb.	12.98
Sorting yarn		1.00
Dyeing (Labour)		2.00
Dyes		6.00
Fuel or steam		2.00
Oil to reduce friction		0.25
Weaving		16.41
Supervision charges		1.00
Packing and shipping		5.00
Total		**118.56**

Carpet—24 sq. yards.

		Rs. nP.
Yarn Coloured (Alapat)	85 lb.	55.02
Aloe yarn	11 lb.	7.45
Sorting yarn		0.25
Dyeing (Labour)		0.75
Fuel or steam for boiling		1.25
Dyes		3.00
Spooling and beaming		0.69
Weaving		44.00
Grease (to reduce friction of labour) and other sundry		0.25
Stitching		4.75
Clipping		1.37
Supervision charges		1.00
Packing and Shipping charges		3.00
Total		**1122.78**




KERALA
VILLAGES WITH
IVORY CARVING INDUSTRY HAVING
HOUSEHOLD UNITS ENGAGING
LESS THAN FIVE WORKERS, 1961
MYSORE
STATE
MAHE
ARABIAN
SEA
MADRAS
STATE
MILES 20 10 0 20 40 60
20 0 20 40 60 80 KILOMETRES
STATE BOUNDARY
DISTRICT BOUNDARY
TALUK BOUNDARY
VILLAGE WITH IVORY
CARVING INDUSTRY
E 75° 76° 77° E
N
12°
11°
10°
9°

IVORY CARVING

CHAPTER I

INTRODUCTION

Ivory carving is one of the earliest crafts practised by mankind. The discoveries in the Badari region near Qau in Egypt contain human figurines in ivory which are thought to represent two human types which perhaps date from a little before 5000 B. C.[1] "The first ivory was taken from the mammoth and the hunting of that great proboscidean over the plains of Europe must have been the test then, as is that of the wild elephant today, of the courage and skill of the hunters."[2] Homer sang of the ivory bosses that adorned the shields and the harness of the chariots of the Greeks when they besieged the city of Troy. Ivory was also part of the plunder in Troy. King David sang of a palace of ivory. Solomon made a great throne of ivory and overlaid it with the best gold. "The throne had six steps and the top of the throne was round behind: and there were stays on either side on the place of the Seat, and two lions stood beside the stays. And twelve lions stood there on the one side and on the other upon the six steps: There was not the like made in any kingdom."[3] "From time to time, ivory had come to the Greeks from India as well as from Africa. It had never been a great object of export, since the possibility of domesticating the Indian elephant had given him too great a value to be hunted for his ivory alone as was the African. But some objects carved of Indian ivory must have been brought by traders from India and with gold and jewels played their part in creating that legend of fabulous wealth that has always shimmered like a golden dust-cloud over the Indian land and lured a thousand conquerors to death."[4] "The early books of China mention ivory in the twelfth century B. C. and the elephant seems to have been known in at least one province, though now long extinct. But in spite of the difficult mountain passes and the truculent hill tribes, ivory came to China from India. Indian sages like Bodhidharma, the disciple of Sakyamuni, made the journey and passed the end of their days teaching a new race the stories of the Boh-tree and the Deer-Park. Traders followed in the paths of peace that they had made, bringing carved Bhodisattvas and in later days figures of Ta-mo himself, that was Bodhidharma's name among his new people".[5]

2. References about elephant and ivory are numerous in the Hindu mythology and early literature. Vigneswara, the single tusker, is a god of the Hindus. The cave made by Ravana for his brother Kumbhakarna, for his heavy sleep is described in Valmiki Ramayana, as having ivory arch. In the Sabhaparva of Mahabharata, a list of articles presented to Yudhishtira at the Rajasuya by the kings is furnished. Among other things, it includes seats and bedsteads made of ivory and swords with ivory handles. Again in Vana Parva, Panchali, the wife of the Pandavas, compares the beautiful ivory throne set with gems, which used to be occupied by Yudhistira and the

(1) Peasants and potters by Harold Peake and Herbert John Fleure, pages 56 and 61
(2) Apes, Ivory and Jade by Kirk Meadowcroft, page 23
(3) Old Testament: Book I of Kings, chapter 10, verses 19 & 20
(4) Apes, Ivory and Jade by Kirk Meadowcroft, page 36
(5) Ibid page 56

darbha grass mat on which he was seated, when they were living in forests. In the Mrcchakatika of Sudraka, the gateway of Vasantasena is described as shining with its high ivory portal (Fourth Act). The bridal costumes of Uma, given in the Kumarasambhava of Kalidasa, include ivory earrings. (Kumarasambhava, Chapter VII). "The best of all materials for bedsteads according to the Brihat Samhita is ivory. It should be used solid for the legs, and in thin plates for inlaying on the frame-work which should be of some choice wood. In selecting ivory about two thicknesses at the root of the tusk, which is hollow should be rejected, if the animal from which it is taken came from the plain; but if it be a mountain grazer, somewhat less."[1]

3. "The use of ivory, which dates from the earliest times, must necessarily belong to the large group of crafts of non-Aryan origin in India. It has been used for an enormous range of purposes, from sacred images to dice, but never more successfully than in the form of carved or pierced plaques applied to architectural and other woodwork. Good examples of inlaid doors are found in Rajputana (Bikanir); at the Ridi Vihara, in Ceylon the combination of pierced carved ivory with the ebony of the door frame is especially admirable."[2] The articles discovered at the different strata at Mohanjo-daro include ivory articles. "Ivory as a medium for the artist workman is peculiar to India and our markets for centuries carried on a brisk trade in skilfully carved ivory goods. An inscription at Sanchi recording the dedication of a bas-relief by the 'Guild of Ivory workers' of the nearby city of Videsha, goes to show that the ivory craftsman had attained a high status in the social pattern of ancient India, which could only have been possible on account of their superb workmanship. Today the chief centres for the manufacture of ivory goods are Amritsar, Patiala, Delhi, Banaras, Surat, Ahmadabad, Travancore and Mysore. Besides dolls and images, caskets, doorways, panels, chairs, howdahs and thrones of ivory have for a long time been the speciality of Mysore and Travancore, whose artists work so minutely and delicately that they almost seem to paint beautiful jungle scenery. Vizagapattanam is the place known for veneered ivory work of India."[3]

4. "The early ivory carving in India was simple in form. The treasures of India were gold and precious stones; the Indian peoples that knew the elephant as a wise and elder brother cared little for the trophies of the elephant hunt. Such tusks as came from the elephants that had died a natural death they used to serve three ancient national passions—war, gaming and love—and made of them sword-grips, pieces for chess and pachisi and bracelets. Of the small pieces they made those inlays in sandal and other woods...."[4] Other substances have been found that resemble ivory in colour and texture. But these substances have not been able to replace ivory in any manner and it still continues to occupy a prominent place as a thing of luxury and beauty.

5. "One of the earliest ivory statuettes, a beautiful doll, datable to the first century A. D. has been discovered from the ancient Italian city of Pompeii, where it had been taken by the Roman traders from India."[5] Arrian says in his Indica 'the Indians have neither saddles nor bridles, like those which the Greeks and Celts make use of; but instead of bridles they bind a piece of raw bullock's hide round the lower part of the horse's jaws, to the inner part of which the common people fix spikes of brass or iron,

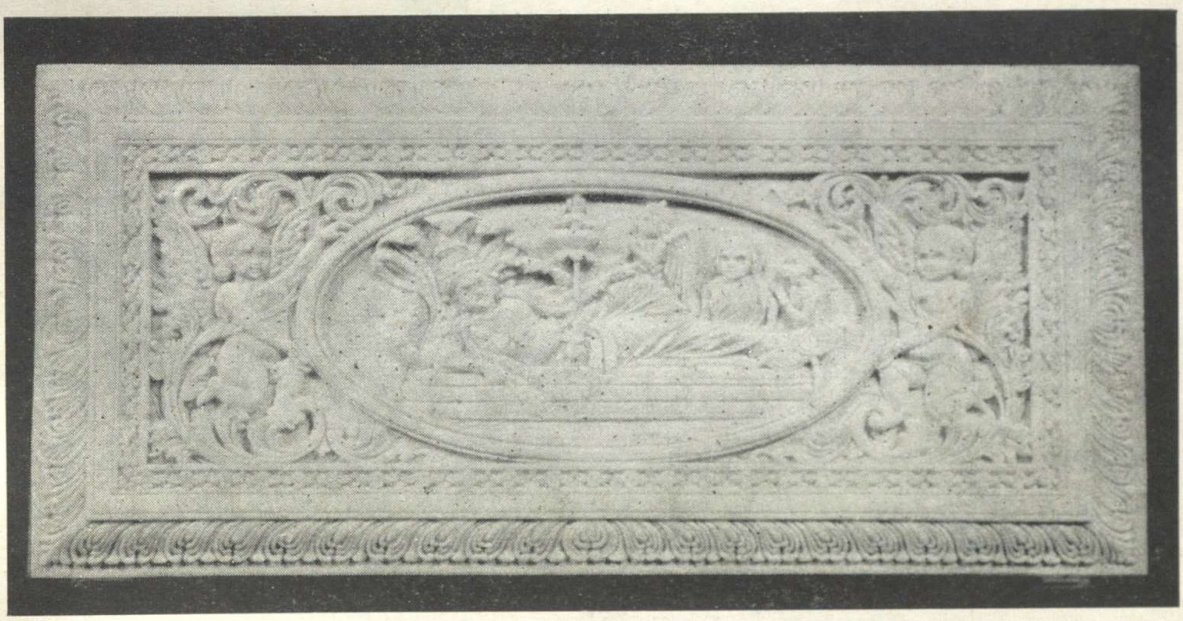
(1) Antiquities of Orissa by R. L. Mitra, Published in Indian Studies: Past and Present, Vol. II, No. 2 1960—61, page 324
(2) History of Indian and Indonesian Art by Anand Coomaraswamy, page 136
(3) The Arts and Crafts of India and Pakistan by Shanti Swarup, page 78
(4) Apes, Ivory and Jade by Kirk Medowcroft, page 50
(5) The Arts and Crafts of India and Pakistan by Shanti Swarup, page 77



Pl. 1. IVORY BOX WITH TEN AVATARA—BARODA MUSEUM

This box was produced in the 19th Century A. D. at Mannarghat, Palghat district, Kerala. It was collected from Prabhat Fine Arts & Ivory House on 12—9—1841. It is rectangular in shape and on the four sides figures of ten 'Avataras' have been depicted by carving. Some floral designs are also present. The designs show European influence. The box has got the lid carrying the relief of Vishnu.

Length — 7·5″ Breadth — 3·5″ Height — 2″



Pl. 2. THE LID OF THE IVORY BOX—BARODA MUSEUM

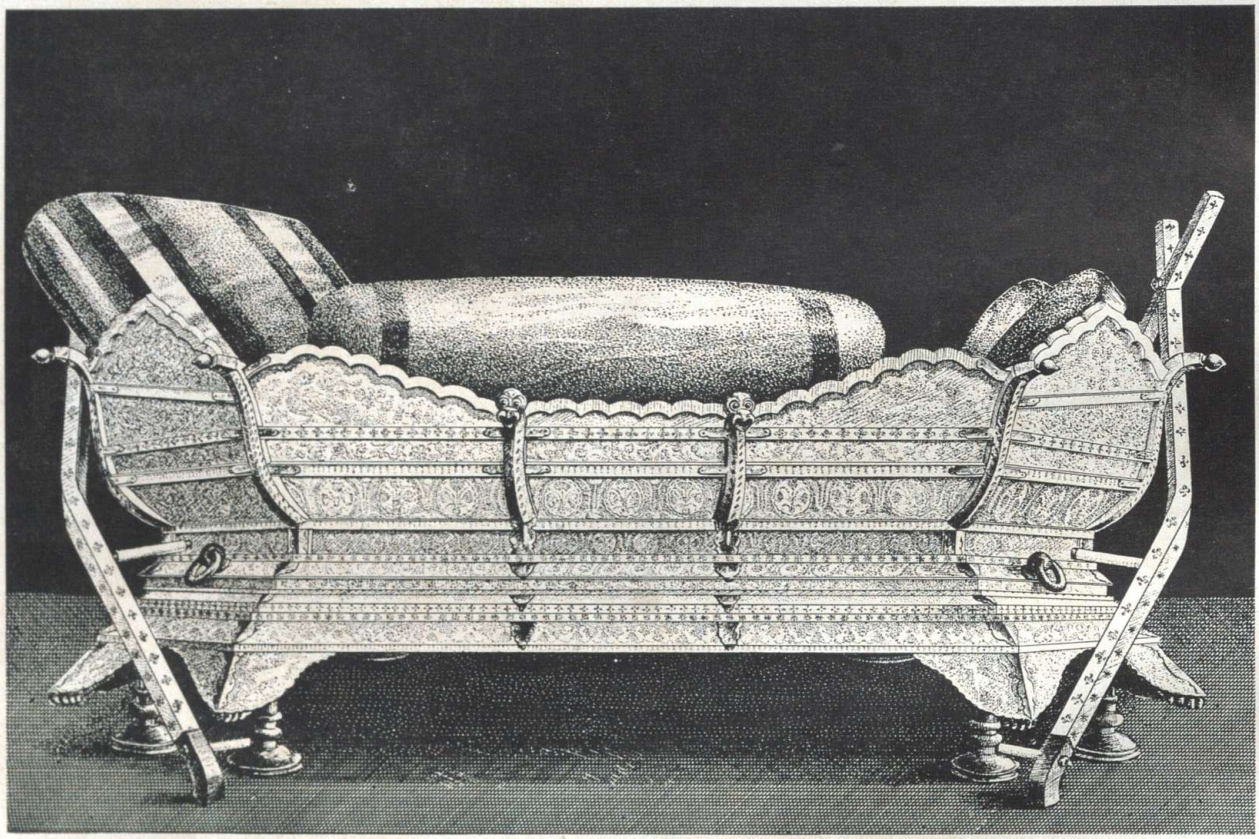


Pl. 3. IVORY FIGURE OF ANANTANARAYANA—BARODA MUSEUM
This figure was produced by Trivandrum School of Arts, Kerala in the 19th century A. D. It was collected from Bombay exhibition on 7-2-1905. Narayana is sitting on the great serpent Ananta. The colour is still fresh.
Total height — 6.5″ Height up to Narayana — 5.5″



Pl. 4. IVORY FIGURES OF LAKSHMANA, RAMA, SITA AND HANUMAN—BARODA MUSEUM

This ivory object was produced in South Kerala in the 19th century A. D. It was collected from Shri. V. S. Ranga Raju on 14-9-1896. Each element was carved separately and was installed on a black pedestal. Height (excluding the pedestal)
Lakshmana — 3·5″ Rama — 4″ Sita — 3·5″ Hanuman — 3·2″



Pl. 5. IVORY PALANQUIN IN MATTANCHERRY PALACE

not very sharp, but the richer ones have them of ivory (Indica, Chapter XIV).' Kerala had trade with western countries in ivory even before the Christian era. "It was most probably from Tamilakam[1] that during the reign of Solomon (about B. C. 1000) once in every three years, the ships of Tarshish came bringing gold and silver, ivory, apes and peacocks."[2] "It was Greek merchants from Egypt who brought wine, brass, lead, glass etc. for sale to Muchiri (Muziris) and Vaikkarai (Bakare) and who purchased from these ports pepper, betel, ivory, pearls and fine muslins. The Greeks sailed from Egypt in the month of July and arrived at Muchiri in about 40 days. They stayed on the Malabar coast for about three months and commenced their return voyage from Muchiri in December or January."[3]

6. When ivory carving was first introduced into Kerala is not known. "From the evidence that exists in the form of ivory works, such as palankeens which are known to have been more than two hundred years old, and of images of gods and representations of plants, animals, etc., unequalled for their design and exquisiteness by any of those of the surrounding districts or for the matter of that, by those of any other country in India, we are led to infer that carving in ivory must have been if not indigenous, at least as old as the Aryan colonisation of Malabar."[4] That Travancore has been famous for its ivory articles can be seen from the following extract from a letter addressed to His Highness the Maharaja of Travancore by Colonel H. P. Hawkes, President of the Madras Committee of the London Exhibition of 1886:— "We all feel that the best and most striking exhibits will come from Travancore. Your ivory carving is beyond doubt the best in all India, your jewelry is approached by none that I have ever seen and I have been collecting patterns myself for years. The steel work inlaid with gold is peculiarly interesting as a south Indian Art and judging from the photograph your Highness is good enough to send me your wood-carving must be very fine. In the Museum are some specimens of embossed and perforated brass caskets in the same style as the splendid gold one your Highness was good enough to send. These are very artistic and good."[5]

Some Ancient Carvings

7. Even though the ivory carving in Kerala is supposed to have behind it at least 3,000 years of history, the technique and specimens of the craft are now only a matter of legend. Among the objects that remain today to commemorate the artistic skill of the carvers, the frames of two palm-leaf manuscripts in the Trivandrum Palace (now kept in Manuscript Library, Trivandrum) are worthy of mention. The manuscripts are Bhagavatam written in very small Malayalam script. The external sides of the frames of one manuscript are beautifully carved with the sketches of Ananthasayana and Parsadas on one frame and Parsadas alone on the other frame. The sketches are seen painted. The inside portion of the frames is carved with floral designs and painted in green and red colours. The frames are 24" by 2" in size.

8. The external sides of the frames of the other manuscript are carved with the sketches of Ananthasayana, Bhumi, Lakshmi and of devotees like Narada etc. The inner sides of the frames are decorated with floral designs and painted in green and red. The frames are 24" by 2". There are no indications in the manuscripts about the period in which they were written. But in one of the manuscripts, it is stated that it was written by Kaplingat Potti as per the orders of the Attingal Rani. From the style of writing of the manuscript, the nature of the palm-leaf

(1) Kerala was part of Tamilakam at that time
(2) The Tamils eighteen hundred years ago by V. Kanaka Sabha Pillai, page 31
(3) Ibid page 37
(4) The Travancore State Manual by V. Nagam Aiya, Vol. III, pages 284—285
(5) Ibid page 251

and the colour of the ivory, it can be assumed that the carvings are at least 300 years old, if not older.

9. The ivory throne once kept in Rangavilasom Palace, Trivandrum is an object of artistic and historical interest. This throne is supposed to belong to the eighteenth century. "The ivory throne mentioned shows the high attainment of the artificers of two centuries ago in two of the modes of ivory works, etching and relievo. The first is seen on the inside of the back and arms of the throne. Thin slabs of polished ivory were covered with a coating of wax. On this the design was cut by a pointed instrument. The design was bitten into the ivory by the acid essence of lime-fruit. Black pigment was rubbed in; and when this hardened, the wax was removed. Owing to the difficulty, amounting almost to impossibility, of procuring slabs of ivory of uniform width, the design does not conform to the slabs but to the total width of the back, the central line of the design falling from the gold knob that marks the highest point of the back. This want of co-ordination of design and slab would, however, be less noticeable when the throne was new, than it is now, as the slabs would originally be so closely placed that the lines would be almost unseen, whereas two hundred years of shrinkage of the slabs has led to some opening of the spaces between them.

10. "In the carving on the outside of the throne, the ornament is in horizontal rows, the upper and lower in low relief, and the three middle rows in high relief. The upper design represents the arms of the State at the time of the making of the throne (they have since been simplified into two elephants and conch) flanked by two figures which seem to be of classical extraction. The bottom row of floral design retains the close placing of the slabs; the lines of separation are visible on close scrutiny, but do not interfere with the total effect.

11. "The three middle rows are a series of small separate slabs, the designs standing out in high relief on a trellis-like background in low relief. The figures of the top row of these three are alternately a rose-water sprinkler repeating the heraldic animals above, and a succession of women musicians, rather of one woman musician in four phases, balanced as to the centre in bodily position, but varied in the hand and arm postures. The musician plays on the tambura, a stringed instrument for maintaining the sruti (keynote). The two figures at each end of the row may or may not be joining in the singing; but they are playing an essential part in an Indian musical performance, whether the artist be woman or man, the inner one of each pair carries a bouquet of flowers; the outer figure of the left-hand pair has an arm stretched behind the shoulder of the other figure with a garland hanging from the hand; both garland and bouquet being for the performer; the corresponding figure at the right-hand end of the row carries a rose-water sprinkler. The designs of the middle row are conventionalized fruits and foliage. Those of the third row are alternations of a mythological animal and bird, with a double ending of fruits."[1]

12. A similar ivory throne with more elaborate decoration was presented to Queen Victoria in 1851 by the then Maharaja of Travancore. It is said that the throne was used by Her Majesty as her chair of State at Windsor Castle until the end of her life and it was afterwards kept in the Victoria and Albert Museum, South Kensington, with the exception of some of the adornments, which were retained at Windsor Castle.[2]

13. A few articles of the Kerala ivory works of the 19th century are kept in the Baroda Museum and Art Gallery, Baroda, Gujarat. In this collection, there is an ivory box carved with reliefs of Vishnu and of his Avatars. This was obtained from Mannarghat in Palghat District. This is supposed to be of the 19th century carving and some

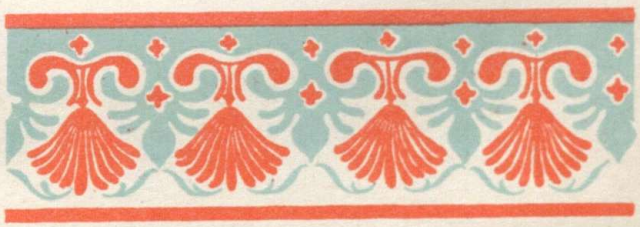
(1) Travancore Ivory Carving by J. H. Cousins in "The Arts and Crafts of Travancore"
(2) Ibid

Pl. 6 (a) SECTIONS OF THE IVORY PALANQUIN IN MATTANCHERRY PALACE









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Pl. 6 (b) SECTIONS OF THE IVORY PALANQUIN IN MATTANCHERRY PALACE







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European influence is visible in the work. Another item in this group is a carving of Anantanarayanaand yet four others of Lakshmana, Rama, Sita and Hanuman. Particulars of these carvings are given in plates Nos. 1 to 4.

14. In the Trivandrum Museum, there is a painting of Uma and Maheswara on ivory. The painting is done on a thin ivory plate of the size 6″ by 4″. In the centre Uma and Maheswara are seated on the bull, the Nandi. Over them is the traditional temple gate of the east coast. Subramania stands on the left side and Ganapathi on the right. Just below Subramania, there are two figures, one with an animal's head on human body and the other, a human body with tiger's legs. Below Ganapathi, there are two figures. One has three legs and the other is fish below the hip. Two devotees are standing on the left and right at the bottom. Another god with two devotees are painted just below the main figure of Uma and Maheswara. Such paintings are very rare now. The painting in the museum is about one hundred years old.

15. The ivory palanquin in which the Maharaja of Cochin used to be carried for the Athachamayam procession now kept in the Dutch palace at Mattancherry is a marvellous product of artistic perfection. The box of the palanquin in which the Maharaja used to be seated is covered on all sides with ivory plates carved with decorative designs. About 5′ 8″ in length, 3′ 1½″ in width and 1′ 8″ in depth this box is octagonal resembling a tortoise in shape at the bottom but rising in ascending tiers and blossoming forth into the shape of a flower. There are 18 rows of floral designs from bottom to top. The bottommost row of floral designs is coloured in red against white background, while the second row is in red and green against white background. Red against white background is repeated in the succeeding two rows while the fifth row is in green and red. Similar combinations of two or three colours are followed in the remaining rows up to the eighteenth row. There are 8 short legs for the box, each one carved in the shape of the leg of a tortoise. The figures of deers, tigers, mythological birds, etc., against floral background adorn these legs. The two ends of the holders of the palanquin are decorated, one with a metal cover with a *yali* carved on it and the other with plain metal cover, both of which are gold coated. The top of the litter is covered with a magnificent drapery of gold thread embroidery. It is difficult to determine the age of this beautiful palanquin. The whole palanquin looks as fresh as it has been made today. The colour and glaze of the ivory as well as the colour shades used in the carvings do not indicate any fading at all. The plates are joined with such an artistic finish that they lend the appearance of a single plate on each side of the box. In this respect this work is even superior to the ivory throne in the Rangavilasom palace, Trivandrum already referred to supra. A drawing of the palanquin is given in plate No. 5.

Location of Establishments and Volume of Employment

16. In Kerala household industries in ivory carving are found to exist in four towns and in one village spread over four taluks. The number of households engaging less than five workers in this industry comes to 51 of which 50 are in urban and one in rural areas. The volume of employment in these households consists of 82 persons of whom 81 are employed in urban areas and one in rural area. There are however households engaging more than five workers in this industry as well as some establishments which cannot be termed household industries. It is not proposed to cover such establishments in this monograph.

CHAPTER II

PROCESS OF PRODUCTION

The Raw Material

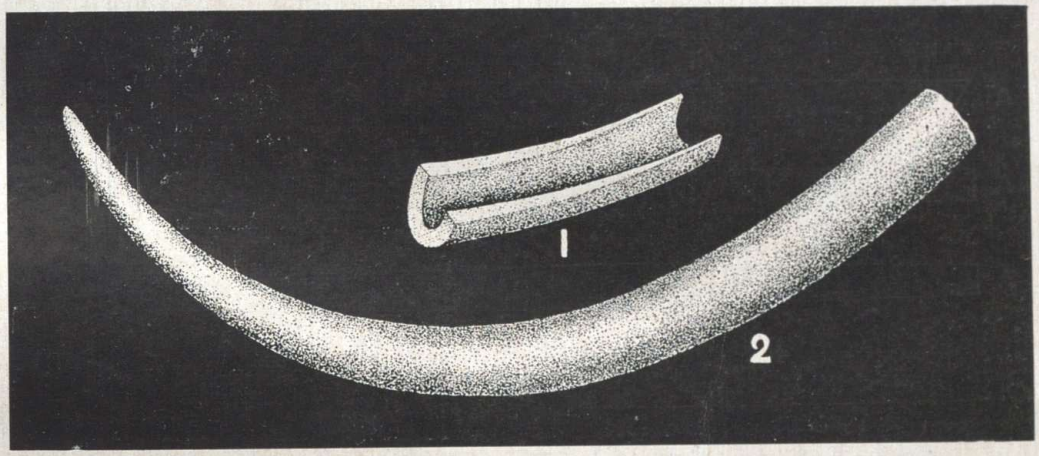
17. Ivory is the hard white substance composing tusks of elephant, hippopotamus, narwhal and walrus. In Kerala, the tusks of elephants which alone are available locally, are used for the carving. The tusk is an enormously long prominent tooth which always projects outside the mouth of elephants. The dead elephants are usually buried after cutting them into pieces. After some time, when the flesh is decayed, the tusks are collected. Another method of collecting the ivory has also been reported according to which petrol is poured into the mouth of the dead elephants and is set fire to, thereby burning the flesh around the tusks. At this stage, it is easy to remove the tusks. When collected from the elephant's mouth, the tusk is filled with marrow up to the middle portion. In order to remove the marrow, the tusks are buried under the earth for some time. They are then taken out and washed in water. An average tusk will have a length of 7 feet. It has three parts viz, the hollow part, the central part, and the point. The portion inside the mouth of the elephant which is filled with marrow, becomes hollow when the marrow is removed. The central part and the point are solid. The circumference of the tusk diminishes progressively from the root onwards and ends in a point. Just like the bark of a tree, the tusk is also covered with a light grey coloured bark, which is unsuitable for carving and is cut away by a chisel. Ivory from the State Forest Department is purchased by the merchants in auction. This being insufficient to meet the local requirements ivory is imported from Africa also.

18. The imported ivory used to be distributed by the All India Handicrafts Board to the workers engaged in ivory carving according to certain prescribed scales. In accordance with this system, the workers in Kerala also used to get the prescribed quota. But this system has now been stopped and hereafter import of ivory will be allowed only against exports. So long as the artisans have to depend upon private dealers for ivory the price of ivory will be regulated by the natural law of demand and supply. When the All India quota system under the Handicrafts Board was functioning the price of imported variety of ivory was fixed by the Handicrafts Board.

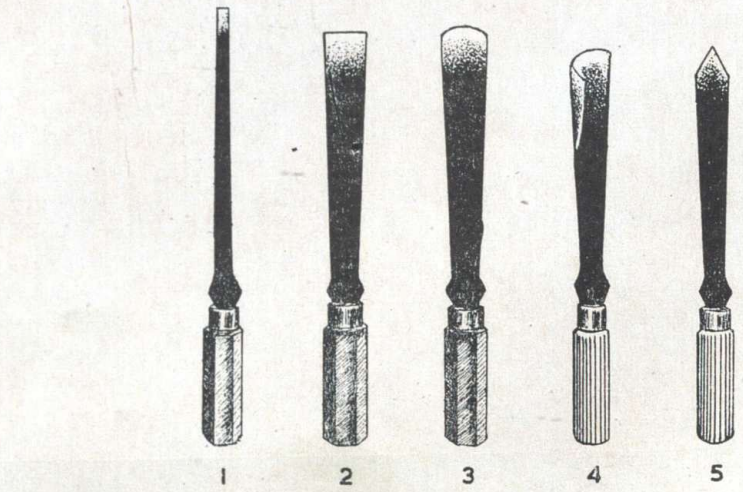
19. The African ivory is stated to be of a better quality than the Indian ivory. While the Indian ivory is brittle and tends to change into a yellow colour in course of time, the African ivory is close grained, hard and retains its colour. Among the Indian varieties, the ivory coming from Assam is the best, which can almost equal the African variety. The tusks of the domesticated elephants are inferior to those of the wild elephants. It is believed that a little of the softness and brittleness in the tusks of domesticated elephants is caused by the sweets and salt administered to them in their food.

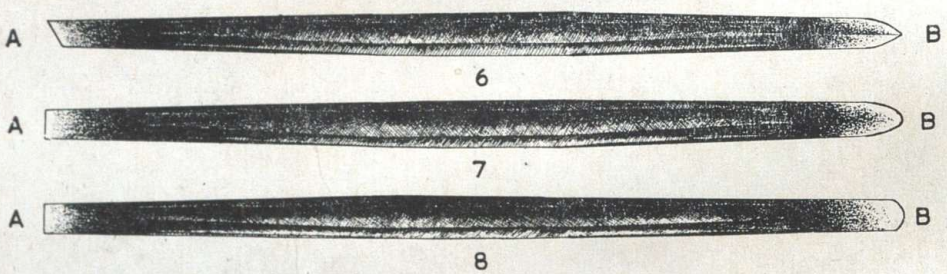
Making of Ivory Models

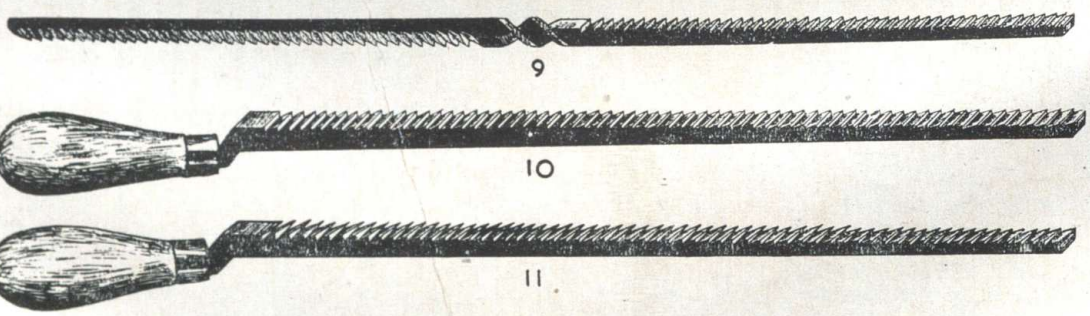
20. The artisans generally produce mythological figures, animals, birds, cigarette cases, snuff boxes etc and other curios. First of all the artisan draws in paper a sketch of the article proposed to be carved. A suitable size of the ivory is then cut from the tusk. For this purpose, the tusk is fixed in an instrument called *pitichu rakku* (vice) which has two jaws between which the tusk can be gripped by the operation of a screw so as to leave the artisan's hands free for working upon it. It is then cut by a handsaw by moving it backward and forward



Pl. 7. 1. CROSS SECTION OF A TUSK 2. A TUSK





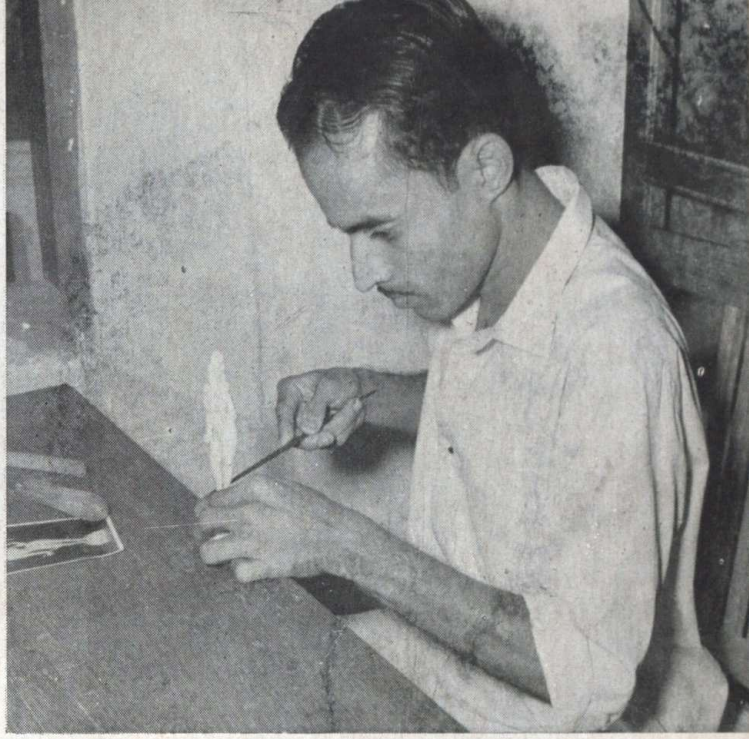


Pl. 8. TOOLS

1 & 2. Kanappuvaythala Uli
3. Vattavaythala Uli
4. Churuttuli
5. Munayuli
6 A. Konuvaythala Kathir
6 B. Cheevu Kathir
7 A. Kanappuvaythala
7 B. Oval Vattavaythala
8 A. Kanappuvaythala
8 B. Vattavaythala
9. Kambi aram
10. Patiyaram
11. Konaram



Pl. 9. THE IVORY PIECE IS FIXED IN A VICE AND A ROUGH SHAPE IS GIVEN TO THE OBJECT WITH THE HELP OF A SMALL CHISEL AND WOODEN MALLET

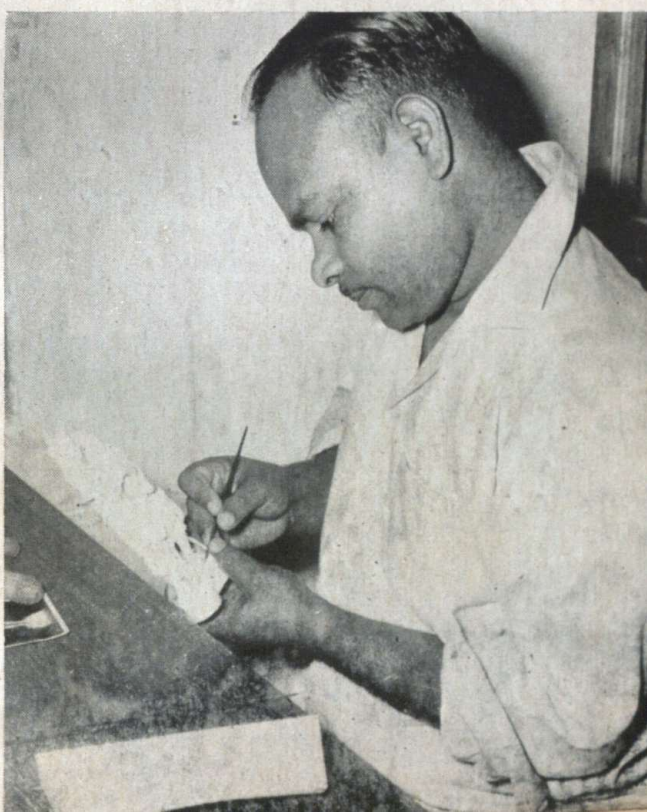


Pl. 10. THE MODEL IS PRESSED BY A FILE TO REMOVE THE UNEVEN SURFACES

Pl. 11. THE DETAILS ARE CARVED OUT BY USING KATHIR

Pl. 12. THE MODEL IS BEING POLISHED WITH THE CENTRAL RIB OF THE LEAF OF BREAD-FRUIT TREE





with one hand. Water is poured intermittently along the line of sawing for easy movement of the saw. The outline is drawn in pencil on the ivory piece by keeping the sketch drawn in paper as the model. The ivory is then fixed on a vice and with the help of a small chisel and a wooden mallet a rough shape is given to the object. This has to be done very carefully as otherwise there is possibility of breakage. Then it is pressed by a file to remove the uneven surfaces. In local language this file is called *patiyaram*. It is a tool of hard steel with rough notches on the edge like the teeth of a saw. The types of file are many and of varying sizes. Various small iron tools called *kathir* with narrow and pointed edges are used for carving out the details. The *kathir* is pressed on the surface and pushed to one side when a particle as small as dust is removed. The chisels also vary in size. As in the case of other arts, the perfection in the carving can be obtained only out of experience. When the figure is completed, it is polished with the central rib of the leaf of bread-fruit tree (Artocarpus incisa). The outer portion of the rib has a rough surface. It is dipped in water and the article is rubbed with the rib. The advantage in using the rib is that by the contact of its rough surface the article gets a shining finish. At the same time it will not leave any mark on the article. It is then washed in water. After rubbing out the water by a cloth, the article is brushed thoroughly. In former days, the polishing was done with the powder of the dried tongue of a fish called 'Kanava', the powder being applied on the article and rubbed smoothly with a wet piece of cloth.

Ivory Painting

21. In the Cochin School of Arts, Ernakulam, a beautiful form of painting is done on ivory. The ivory is cut lengthwise with 1 mm. thickness by a handsaw. A small piece, usually 3″ by 2″ in size with uniform colour is separated. The surface is made smooth by applying a soft sandpaper. The outline of the figure proposed to be painted is then drawn in pencil. The area to be painted is pierced by needle and water colour is applied on the surface with a pointed brush. The colour so applied would penetrate into the small holes. The portion is again pressed with the needle. The figure is then set in a frame of baffaloe horns. These paintings which form one of the favourites of foreign tourists are made only according to order.

Ivory Inlay Work

22. "Inlaying, an art bewitching in appeal, is a complementary craft to carving, and there is evidence that inlaying as an art was known to our people in the past. The use of shell as inlay was a craft commonly practised at Mohenjo-daro and Harappa. The use of marble inlay and mosaic work was very popular under the Mughals and led to excellence in the costly art of pietra dura, in which precious stones were inlaid in marble in the most astonishingly delicate flower patterns."[1] In inlay a groove is made on the wood and narrow strips of ivory inserted and then hammered down or an area is excavated and a thin plate of ivory in the required shape applied and the edges hammered down, holding it fast. The work is generally done on teapoys, tables, photo frames, paper weights, jewel boxes, flower vases and other ornamental articles usually of ebony, a kind of hard black wood and on rosewood. The design of the inlay work is first drawn on a paper. A carbon paper is placed over the wooden article and the sketch is placed on the carbon paper and the outlines are drawn with a pencil. By this process the sketch is traced on the article. Along the curves of the design, a groove of about 1/8″ in depth is made by a chisel. Ivory strips of 1/8″ in thickness cut in sufficient length are applied along the grooves and the edges hammered down. But ivory is seldom used for the

(1) The Arts and crafts of India and Pakistan, by Shanti Swarup, page 79

curves in the inlay work. Instead they use deer horn, which has the resemblance of ivory in colour. The deer horn which costs only Rs. 1.50 per lb., is also cheaper than ivory. The outer portion of the deer horn is sawed in sufficient length in required thickness and put in water for two to four hours before it is applied in the grooves. This process helps to bend the piece in the required manner.

23. The buds and flowers are, however, made of ivory. Suitable pieces of ivory are cut by handsaw and the outlines of the designs are traced on the flat surface of the piece. The flower or bud is then carved by using a file. Along the lengthy side of the piece corresponding grooves are made. When the long piece is cut into thin pieces a number of flowers or the buds of the same design are obtained. This process saves labour as well as ivory. The buds and flowers are pasted at the proper places and the outlines are marked on the wooden article by a chisel. They are then removed and the areas within the outlines are excavated to a depth of 1/8″ and Pliobond rubber glue or glue of neat's hides is applied inside the portions. The thin plates of flowers and buds are then placed at the proper places and hammered down. The entire surface of the article is then planed and sandpaper is applied. Wherever shades are required the portion is engraved with a *kathir*, and lac in suitable colour is applied along the grooves. The entire surface is then polished.



Pl. 13. A BRANCH OF THE BREAD-FRUIT TREE

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CHAPTER III

GENERAL

A Few Modern Products

24. Of the various modern products in ivory carving one of the outstanding pieces of craftsmanship is the famous scene from Sakuntalam in which Sakuntala, tortured by the pangs of her unexpressed love for Dushyanta, writes, on the advice of her inseparable companions Priyamvada and Anasuya, a message of love to be presented to him by Priyamvada under the pretext of the remainder of an offering of flowers to God. On the banks of the Malini, filled with the fragrance of lotuses and the spray of waves, under a bower of creepers enclosed by canes, Sakuntala is shown reclining on a stone slab having on it a covering of flowers, waited on by Priyamvada and Anasuya. Though reclining, her head is held erect with the support of her left palm. On a lotus leaf 'as soft as a parrot's breast' she prints the message of her heart which runs thus:—

> "I do not know thy heart; but oh ruthless one!
> Both night and day love has been vehemently inflaming my limbs, which have fixed my desires on thee."

By her side are seated Priyamvada and Anasuya. The former though sitting by the side of the head is shown concentrating her attention on something else as if to purposely avoid disturbance to the writing of the love-message. A pot of water is resting by her side. Anasuya sits behind with a basket of flowers. Their pet fawn is depicted gazing innocently at what Sakuntala is writing on the lotus leaf. The whole carving is given an oval base of ivory fixed on a wooden pedestal, each piece being screwed to the pedestal. Every item of this carving proclaims the undoubted perfection of the masterly way in which the carving has been done. Though in Sakuntalam, Sakuntala has been described as printing the love message on the lotus leaf with her nail, the artist is seen to have made it more natural by providing a tiny twig in her hand for writing the message.

25. Another masterly achievement of the modern craftsman in ivory carving is the typical model of a beggar in his tattered loin cloths slightly leaning for support on a stick (Item 2 of Pl. 14). The left hand holds a begging bowl while a folded cloth in which the fruits of begging are preserved till he reaches his home is shown hanging lightly from his left shoulder. With hardly any means to dress his hair he is constrained to grow his tuft and beard. Although poverty has sapped into his very vitals and his once blooming muscular frame has shrunk to render his bones more prominent, he still seems to possess a bit of his ancient vigour which alone helps him to stand the strain of his profession.

26. Siva and Parvathi depicted in item No. 3 of Pl. 14. though shown in the traditional pose are carved in such perfection of limb and body that they manifest a high degree of artistic excellence. In his left hand Siva holds a deer, while his right hand holds an axe. Slightly turning towards his left Siva is gazing at Parvathi in an appreciative mood. Parvathi's right hand is shown resting on her leg while the left hand is in *abhaya* pose. The pedestal which is of ivory carved with floral designs rests on a wooden bottom beautifully carved and polished.

27. Lakshmi standing on a lotus flower, holding bunches of lotus flowers in all her hands, is yet another product of modern carving in ivory (Item 4 in Pl. 14). The figure is both majestic and beautiful. The

kiritam (crown) worn by her is delicately carved with utmost care to details.

28. No less charming is the figure of a dancing girl standing in a graceful dancing pose (Item 5 in Pl. 14.) her frame slightly bent to the right, her right leg resting on the heel and her hands held out in action well in keeping with the movement of her frame. Exquisite and delicate, her costume is both modern and typical of an Indian dancer. The seeming transparency of the drapery would appear to be in an unending combat with what it purports to conceal. The anklets, bracelets and the shoulder rings though delicate are prominently shown. Her plaited hair hangs low a little beyond the knee. The suppleness of her frame, the grace of her pose, the charm of her face and the tenderness in her look are typical of that concept of beauty of which this carving is but a dream in ivory.

29. Sakuntala is shown in a different pose in another figure given in illustration 2 of Pl. 15. Her costume is typical of a hermit girl who finds beauty in nature and pleasure in adorning herself with the ornaments which the bounties of nature have presented so liberally which accounts for flowers and stems of lotus adorning her locks, her arms and her loins, jungle flowers forming her anklets and necklaces and the bark of trees her loin cloth, thus eminently suiting what Dushyanta says about her, " what may not serve charming forms as an ornament!" A pot of water is shown resting on her left hip. It is supported by her left arm while with her right hand she feeds her pet fawn.

30. The Sree Padmanabhaswamy temple, Trivandrum, is dedicated to Sree Padmanabha. The deity is shown resting on a serpent. The craftsmen in ivory carving of Trivandrum attach great importance to this Ananthasayana scene and have attained a high degree of proficiency in carving the scene of which the one shown in illustration 4 of Pl. 15 is a glorious example.

31. The statue of St. George sitting on a gigantic charger and killing the fabulous dragon with his spear is highly natural and represents a high degree of artistic excellence in ivory carving. A full description of this scene is given in the monograph on wood carving in this volume.

Cost of Production

32. The cost of ivory articles being mainly dependent on the degree of artistic perfection a major part of it goes as labour charges. The cost of the articles produced out of a given unit of raw material varies considerably according to the ability of the craftsman. It is, therefore, difficult to furnish information about the cost of production applicable to all cases. Yet, an attempt has been made below to furnish the details in regard to a figure of Lord Krishna having 10" height made recently in the Common Facility Centre, Trivandrum.

Quantity of ivory	1 kg. 403 gm.
Cost of ivory	Rs. 100.20
No. of days taken for producing the image	20 days
Wages earned	Rs. 125
Net weight after carving	565 gms.
Sale price	Rs. 292.76

The percentage of wastage of ivory is very high which comes nearly to 60%. On an average a skilled worker can earn Rs. 6 a day.

Ivory Painting

(3" × 2" size)	
Cost of ivory	Rs. 25.00
Cost of paint	Rs. 5.00
Sale price	Rs. 200.00
No. of days required for the craftsman	7
Wages earned per day	Rs. 24.28

Workshop Facilities and Marketing

33. The artisans engaged in ivory carving can be grouped under three categories. The most important of these categories consists of craftsmen who work in their own houses. By far, the largest number of the craftsmen fall in this group. The next category consists of artisans engaged on piece wages in workshops run by private persons and the third category of artisans working in the Common Facility Centre, Trivandrum. One of the serious difficulties











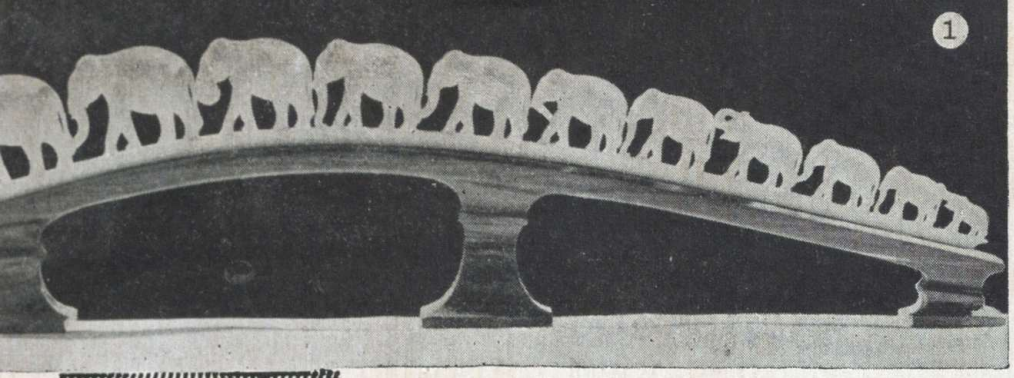
Pl. 14. 1. Sakuntala, tortured by the pangs of her unexpressed love for Dushyanta, writes a message of love to him--circumference 89 1/2 cm.—Research and Design Centre, Trivandrum

2. A common place beggar—S. M. S. M. Institute, Trivandrum

3. Siva and Parvathi, S. M. S. M. Institute, Trivandrum

4. Lakshmi, S. M. S. M. Institute, Trivandrum

5. A dancing girl in a graceful dancing pose of Bharathanatya—height 6 1/2 cm.—Research and Design Centre, Trivandrum







Pl. 15.

1. A herd of elephants crossing a bridge—S. M. S. M. Institute, Trivandrum

2. Sakuntala in the typical costumes of a hermit girl—height 20 cm.—Research and Design Centre Trivandrum

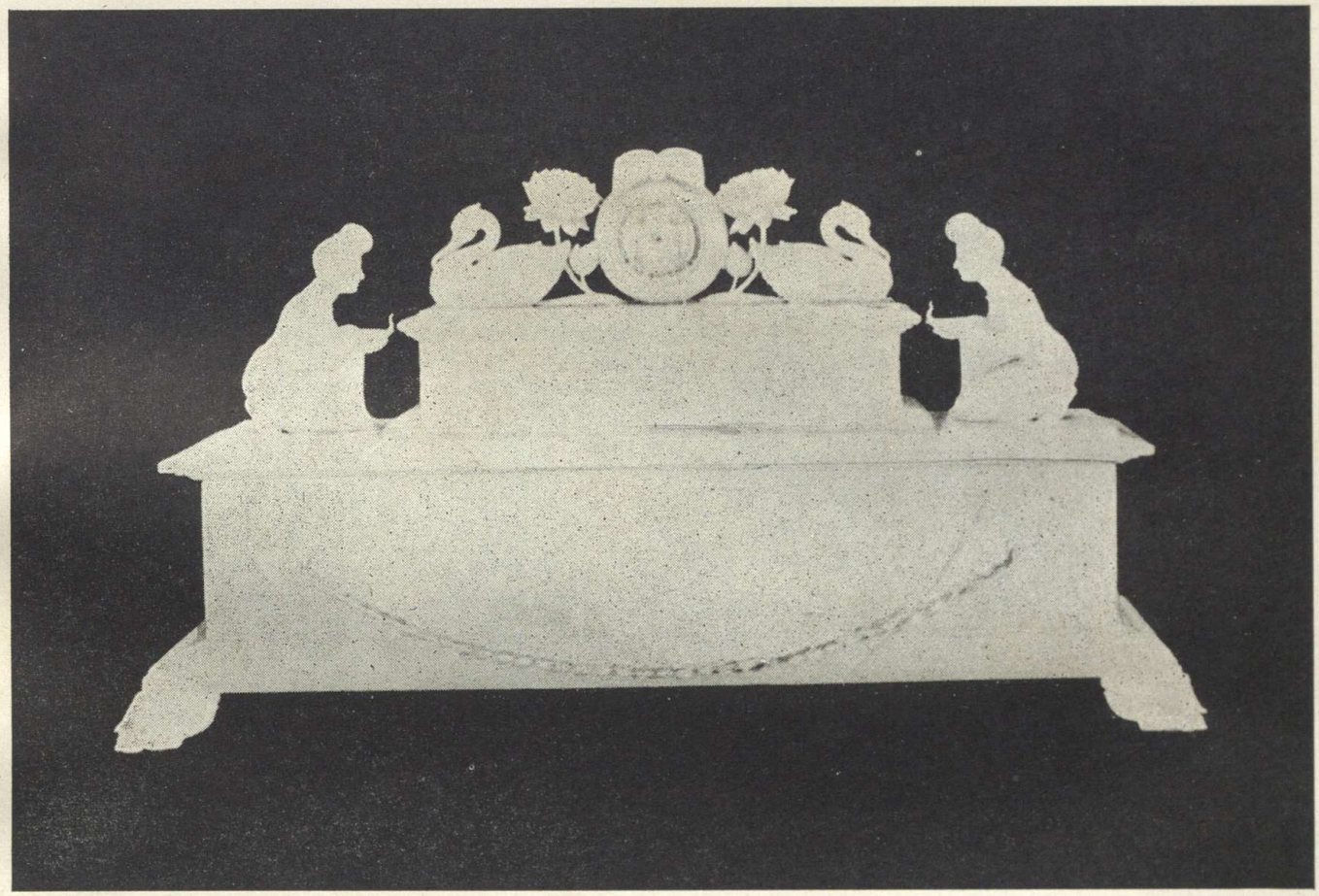
3. Nataraja—S. M. S. M. Institute, Trivandrum

4. Ananthasayana—S. M. S. M. Institute, Trivandrum

5. St. George and the dragon—S. M. S. M. Institute, Trivandrum







Pl. 16. A CASKET

This casket, in which the civic address of the Trivandrum Corporation was presented to the President of India, Dr. S. Radhakrishnan during his visit in September, 1963, was made in Trivandrum. Ivory weighing 3 kg. 505 gm. has been used in the production of this. 10 artisans took 10 days to complete the work of this casket.

for the artisans is the lack of finances to purchase ivory. This difficulty is often exploited by the middlemen who advance the raw materials and deduct the cost of the same from the price of the finished articles which they themselves purchase from the artisans. The system results in a double disadvantage to the artisans. In the first place the middlemen are in a position to dictate the price of the ivory supplied. Added to this, they are also at liberty to fix the price of the finished products. An efficient method of liberating the craftsmen from the clutches of the middlemen has been evolved by starting a Common Facility Centre at Trivandrum under the auspices of the Department of Industries of the Kerala Government. This Centre provides free workshop-facilities to the workers. They are also supplied with raw materials, the cost of which is realised when the products are sold. There is a staff consisting of a chief artist, an assistant artist, a craftsman and a storekeeper in this centre. For the preservation of traditional carving as also for evolving new designs a research and design centre has also been started in another wing of the Common Facility Centre. This research centre gives free advice on designing to any one who seeks the same. Ivory models according to traditional designs are also kept in this research centre for the benefit of the artisans. For the supply of ivory to the artisans, the Common Facility Centre gets sufficient quantity of ivory from the Forest Department at prescribed prices. When the articles are produced they are purchased by Sri Mulam Shashtyabdapoorthi Memorial Institute, Trivandrum which is managed by a committee appointed by Government. It is to be said that the Common Facility Centre and the Sri Mulam Shashtyabdapoorthi Memorial Institute are of real assistance to the artisans engaged in ivory carving. The marketing of the products is done both locally and by export. The local sales consist mostly of sales to tourists as also to local people. Sales are also made through the emporia in Delhi and various State Headquarters to which supplies are made by the Sri Mulam Shashtyabdapoorthi Memorial Institute. This Institute also makes supplies to foreign Countries against orders. The local dealers have their own sale depots from which also sales are made both locally and to foreign countries.

The Craftsmen

34. The craftsmen engaged in ivory carving are drawn from almost all communities. But formerly, the art was in the hands of the Viswakarmas or Asaris (carpenters). They form one of the sub-sections of Kammalans whose origin has been described in the monograph on 'Bell-Metal Industry' given supra.

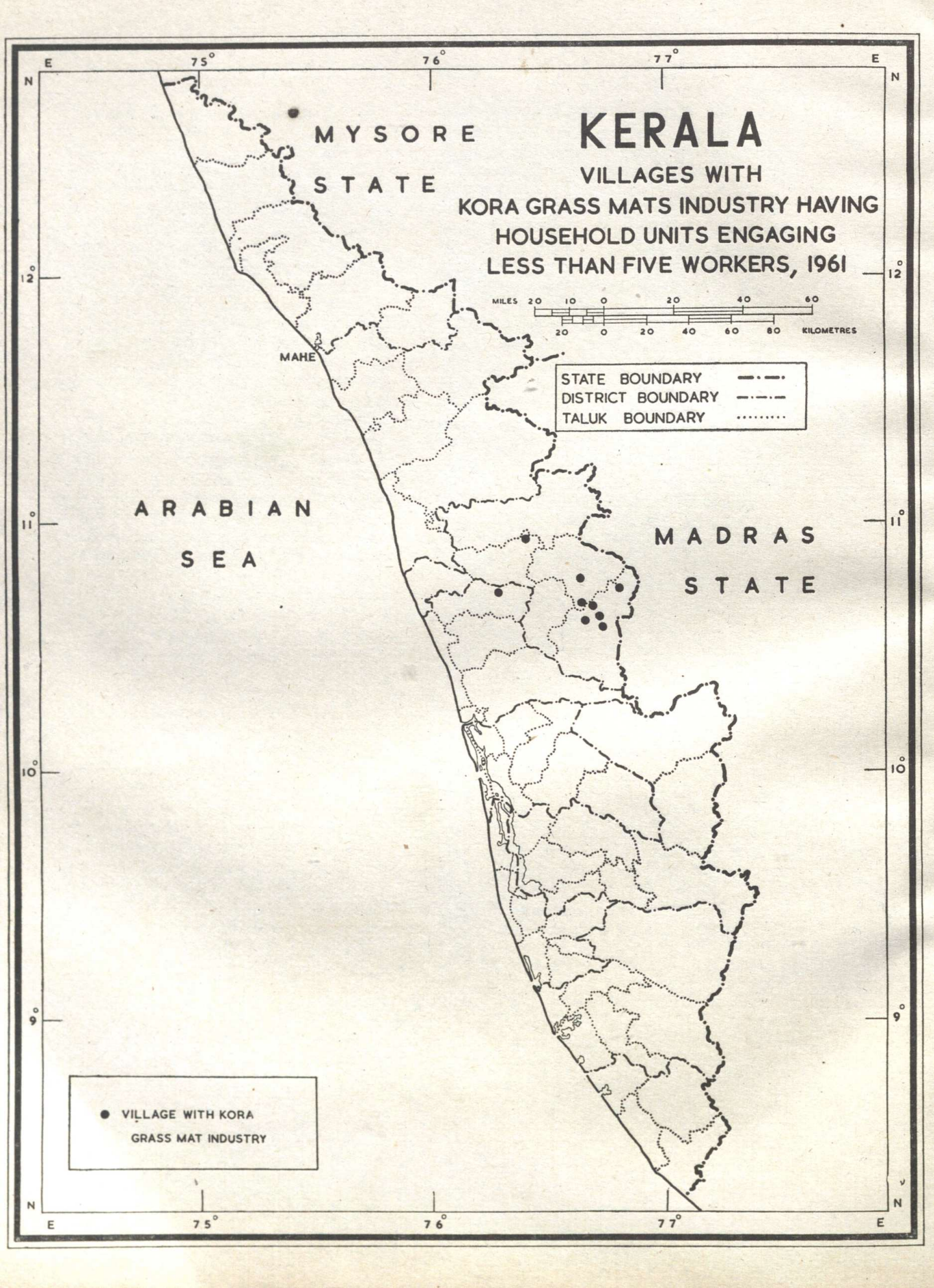
Conclusion

35. Like most of the arts ivory carving is one which requires liberal patronage for the preservation of its quality. A good piece of carving requires the work of a craftsman for a number of days. This naturally puts up the cost of the articles produced. As an article of luxury it is only the rich or at least the middle class population of a country who are interested in their purchase. This has resulted in a pretty low level of sale of the products of ivory carving, the cost being high. Businessmen at times try to get over this feature of marketing by ordering the production of cheap specimens of ivory products. The more this is done, the greater the harm to quality and the more ruinous to the reputation of ivory carving for which Travancore has been highly famous. It seems, therefore, that the industry should be enabled to stand on its own legs without sacrifice of quality. The middlemen are hardly interested in this aspect of the question. It would, therefore, appear that a correct solution to the problem lies in the organisation of the industry on co-operative lines. Co-operative societies which should thus be formed for the promotion of this industry should strive to ensure quality and sell the goods at reasonable rates. They should also undertake to supply raw materials to the workers at

reasonable rates and, as far as possible, on credit till the articles are sold by them.

36. An attempt in the long run to so shape the industry as to suit both the rich and the common man has necessarily to be made. Such an attempt might perhaps be possible in the following directions. To suit the purse of the common man products of small size, nevertheless of high quality, should be aimed at. This would result in considerable saving in the cost of raw material and hence will facilitate cheapness and quality at the same time. It is also possible to produce ivory articles of small sizes like busts and give them pedestals of good quality wood. Inlay work of ivory on wooden base will also help reducing the cost of raw materials. When cheapness is thus ensured by articles of small size but of excellent quality for the commoner, it would be possible also to develop articles of larger size and fine workmanship for the rich. Such articles while being of attractive size and ideal quality should naturally be priced high. They should find their markets outside India as far as possible thereby contributing to the dollar earning capacity of the country.

37. It is highly essential that the quality of ivory carving is not allowed to deteriorate in course of time. This calls for adequate training facilities. At present training in this industry is imparted only in the School of Arts, Trivandrum, where provision is restricted to four students. The workshops and Common Facility Centre, Trivandrum, associate apprentices in this work along with experienced artisans. It need hardly be emphasised that the opening of an adequate number of training centres will greatly facilitate the improvement in the quality of ivory carving. At present there is only one Common Facility Centre in the State. This is located at Trivandrum. The establishment of similar centres in other parts of the State will also go a long way to help promotion of the industry.


KERALA
VILLAGES WITH
KORA GRASS MATS INDUSTRY HAVING
HOUSEHOLD UNITS ENGAGING
LESS THAN FIVE WORKERS, 1961
MYSORE
STATE
MAHE
ARABIAN
SEA
MADRAS
STATE
MILES 20 10 0 20 40 60
20 0 20 40 60 80 KILOMETRES
STATE BOUNDARY
DISTRICT BOUNDARY
TALUK BOUNDARY
VILLAGE WITH KORA
GRASS MAT INDUSTRY
75°
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77°
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KORA GRASS MATS

CHAPTER I

INTRODUCTION

The art of mat weaving from grass has been in existence in India from very early times and it still lives with the people inspite of the powerful impact of the machine age. "Braiding and interlacing are two of the oldest handicrafts known to man. The different stages of their development can be followed easily. They lead from the simple joining of palm leaves, bast strings and grass blades to the final development of the loom and the multi-textured materials the loom produces."[1] At a time when the use of tools was very limited man preferred to produce grass mat by joining grass into regular patterns which process did not require the aid of tools.

2. The existence of grass mats in the Vedic period is apparent from the reference about *kasipu* in Adharva Veda (A. V. VI. 138, 5) which implies a mat (cushion) made from grass. The chief priest is stated to sit upon a golden *kasipu* of stronger material than grass and of superior craftsmanship. Taittiriya-Samhita (Taitt. Sam. VII, 5, 8, 5) and Satapatha Brahmana (Sat. Bra. XI, 5, 3, 4, 7) refer to *kurcha* which is a small square grass mat. References are also available in Satapatha Brahmana (Sat. Bra. XIII, 4, 3, 1) about the golden stool with feet having a *kurcha*-like pad over it or a wooden seat carved or painted so as to resemble a *kurcha*. In the Kathaka Samhita, *balbaja* (a kind of grass called Eleusine indica) is stated to be used for the sacrificial litter *(barhis)*. Baskets or other products made from this grass are referred to in a *danastuti* (praise of gifts) in the Rig Veda. Mahabhagavatha while describing the scene of Hiranyakasipu's death says that Narasimha (the man-lion incarnation of Vishnu) tore open the breast of Hiranyakasipu, the most powerful demon king, just as a *kata-krit* (a plaiter of straw mats) splits the *eraka* grass[2]. In the Vana Parva of Mahabharata, Panchali, the wife of Pandavas, laments on seeing the *darbha* grass mat occupied by Yudhishtira in the forest when she was reminded of the beautiful throne in the palace. In the same Parva, the sage Risyasringa is described as having offered a *darbha* grass mat as seat to a Brahmin. In Silappathikara, a Tamil classic attributed to somewhere about the 2nd century A. D., Kannaki is described as offering a small mat prettily made of white dry grass to her husband Kovalan to seat himself for his meals.

Kora grass mats in Kerala

3. The early Malayalam literature has references to the use of Kora grass mats in Kerala. In the ballads relating to Otenan, the hero of North Malabar of the 16th century, there are references about offering *poomanthri*, a beautiful variety of coloured grass mat as seats to distinguished visitors. In former days during the *kettukalyanam (tali* tying ceremony) for Nair girls the *Karayimmel Asan* (the headman of the village) used to be seated in a conspicuous

(1) The origin of things by Julius E. Lips, page 124

(2) Maha Bhagavatham Pradhama Scantham, Chapter III, verse 18. Commentators of Mahabhagavatham in Malayalam like P. Gopalan Nair have translated the word *kata-krit* as ' maker of kora grass mat'. How far this is correct cannot be said with certainty, as *eraka* grass has been translated by Dr. Hermann Gundert as ' a grass of the seashore used for arrows said to be grown out of iron dust'.. There is little evidence to identify this grass with kora grass. However, the existence of grass mats is clearly borne out by this passage.

part of a *pandal* on a cot on which a grass mat, a black blanket and a white cloth were spread, one on the other[1]. In the former Cochin State sitting on grass mats was one of the privileges which had to be obtained from the ruler of the State[2]. In an ancient song called 'Mangalyageetha' describing the preparation for a Christian marriage reference is made to *veeralipai* as follows:—

"The *pandal* of ten ramparts
Adorned with silk and lights
Its floor decked with silky mats
Ready to receive the incoming guests".

The silky mats mean the fine coloured kora grass mat. Before the advent of modern wooden furniture like chairs and benches it was a traditional custom in Kerala to offer mats and wooden boards as seats to visitors. In selecting the type of seats to be offered the respectability of visitors was invariably taken into account. Thus, the least respected man was not offered any seat. The next in order was offered an ordinary screw-pine matlet called *thadukku* and a more respectable one was offered a wooden board called *palaka*. A visitor above this rank was supposed to command the greatest respect and was, therefore, offered either a kora grass mat called *pulpaya* or a superior screw-pine mat called *methapaya* or *kachipaya*. The latter was generally offered to near relatives only. Long kora grass mats of narrow width used to be offered for seating distinguished guests at dinners. It is not surprising that in an age when modern furniture was not in vogue the kora grass mat commanded so much importance. Its neatness is its merit. This is achieved by a natural polish which obtains in the green kora grass and is retained with greater affinity and strength when dyed and dried. The multitude of designs which the makers of kora grass mats have succeeded in producing in the mats have also greatly contributed to the value of such mats. These mats have, therefore, become the valued possession of every well-to-do household in Kerala.

Kora Grass Products

4. By far the most important of the kora grass mats are the sleeping-mats. These mats are usually 6′×3′ in measurement. There are also mats of different measurements and both plain and coloured ones. The coloured mats are either simple, or decorated with elaborate designs. In most cases the designs are woven. Apart from the neatness of these mats they have also some cooling properties. During warm seasons these mats are preferred for sleeping because of this property.

Prayer Mats

5. These mats are usually used for prayer. The size of these mats is 17″×30″. There is not much significance in the names of sleeping-mats and prayer mats. At times sleeping-mats are used for sitting purposes as well as for prayers and what are called prayer mats are also used for sitting on occasions other than for praying.

Table Mats

6. The table mats are produced to be spread on dining tables. They are of various sizes and invariably of fine texture and attractive designs. The size varies from 11″×6″ to 11″×18″, 6″×6″ and 7″×9″. This variety of mats is produced more for export.

Panthi Mat

7. The *panthi* mat is the mat offered as seat for dinners in Indian style. By virtue of its length a number of persons can be seated on a single mat. The width is narrow with a view to achieve economy of space in the arrangement of seats for dinners. The width is usually 17″ and the minimum length 12′ though there are also longer mats.

Bag Mats

8. Kora grass mats can be shaped into handbags. Small mats are made for this purpose and are either sold as mats or as

(1) The Cochin Tribes and Castes by L. K. Ananthakrishna Iyer, Volume II, page 25
(2) Ibid page 23



Pl. 1. A SLEEPING-MAT OF KORA GRASS

handbags by stitching them.

Location of Establishments and Volume of Employment

9. In Kerala, household industries in Kora grass mat weaving are found to exist in two towns[1] and seven villages spread over four taluks. The number of households engaging less than five workers in this industry comes to 242 of which 59 are in urban and 183 in rural areas. The volume of employment in these households consists of 477 persons of whom 102 are employed in urban areas and 375 in rural areas. There are, however, households engaging more than five workers in this industry as well as some establishments which cannot be termed household industries. These are not covered in this monograph.

(1) The intensive study of kora grass mat weaving was undertaken at Chittur. General study has however been made about the mats woven in other centres as well.

CHAPTER II

RAW MATERIALS AND PROCESS OF PRODUCTION

10. Kora grass, yarn, brazil-wood (Caesalpinia sappan) known as *sappangam* and alum are the raw materials used in the craft. Kora grass grows in marshy places on the slopes of hills and by the banks of rivers and channels. Chittur taluk is the centre in which the largest quantity of kora grass mats are produced. Major part of the grass in this taluk is obtained from Malampuzha. Kora grass belongs to the family of Cyperaceae. One of the species of the family known as Cyperus papyrus was the source of the Papyrus or writing paper of the Egyptians, the stems being cut into thin strips and pressed together while wet. The kora grass flourishes most from August to November. This is the best season for cutting and collecting the grass for the industry. As the collection of kora grass is done mostly by kora grass mat weavers themselves, they do not find it possible to devote a long time for the collection of the grass. The women folk alone will do the work and secure daily wages. This necessarily leads to shortage in the collection of local kora grass. This shortage is made up by the purchase of grass brought from Karur in the Madras State where it is cultivated profitably. When once planted the grass can be collected for three years without replanting. Sappan-wood is also not cultivated. It is collected from the forests and the workers purchase them from the dealers in Ayurvedic medicines who stock it in large quantities. The brazil-wood grows in abundance in the forests of Kerala. It is from this wood that the dye required for the manufacture of kora grass mats is prepared. While describing the Calicut City, Vasco da Gama has mentioned that all kinds of spices are to be found in the city of Calicut such as cinnamon, pepper, ginger, frankincense, lac and brazil-wood which abounds in the forests.[1] Marco Polo, the famous Italian traveller who visited Quilon in 1293 has mentioned that a great deal of brazil-wood was available there. It can, therefore, be presumed that this local dye was in use in Kerala at least in the 13th century. This wood is a middle-sized thorny tree with alternate leaves and yellow flowers. The wood is so rich in dye that a small quantity is enough for dyeing several yards of cotton fabric. It is fast on silk but not on cotton. The wood is also used for the preparation of the red powder known as *abir* and also the reddish water, both used in the Holi festival. The bark and the pods of this tree also yield a similar dye.

Process of Production of Kora Grass Mats

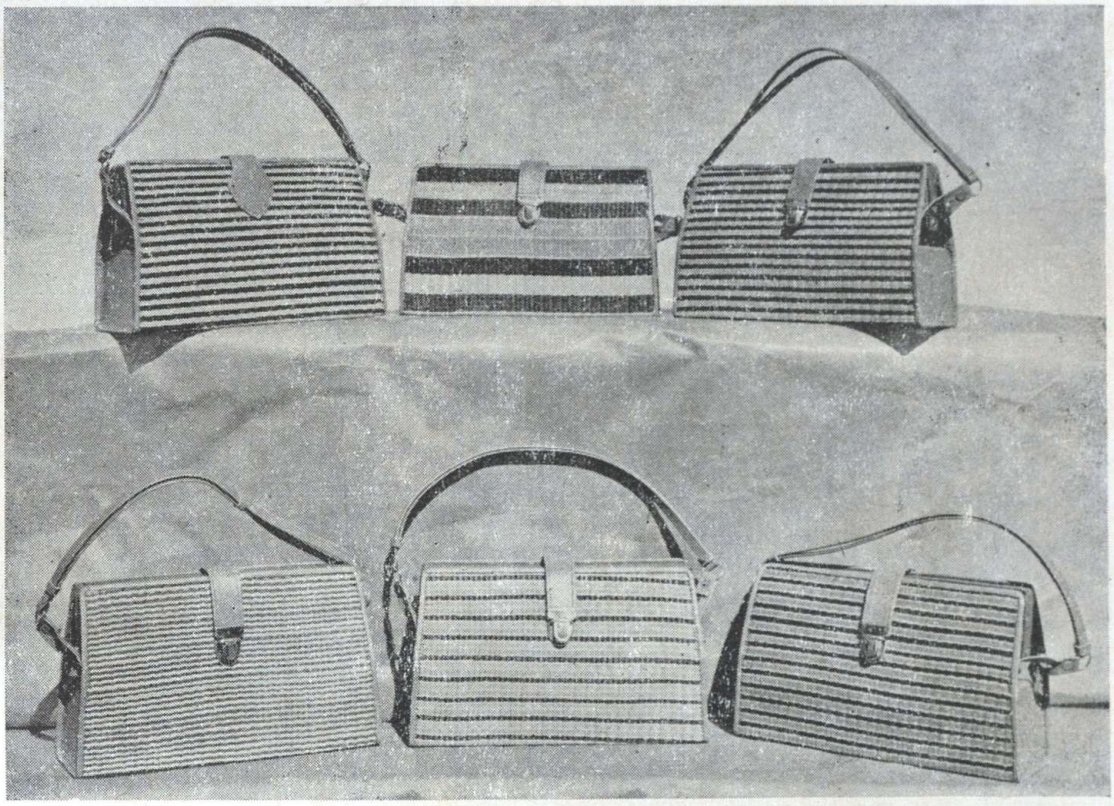
Preparation of Grass

11. The raw grass is triangular in shape and is normally 3'—5' long. It is cut and collected soon after the rainy season. It is cut into longitudinal strips by a sharp edged knife which is either independently handled or fixed on a wooden block and the pith inside is removed after which it is again split into thinner pieces according to the required fineness and dried in the sun for about three days.

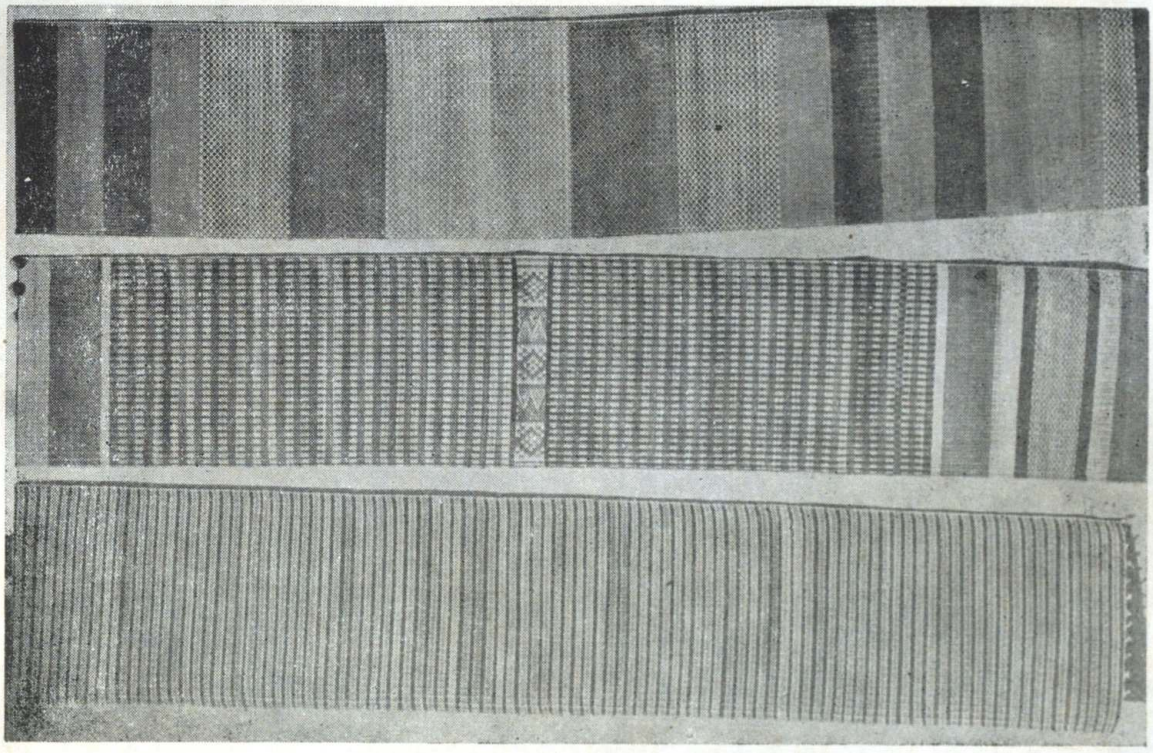
Dyeing

12. The grass is dyed by the craftsmen themselves before it is used for weaving. Both indigenous vegetable dyes and chemical dyes are used in this process. The indigenous dye is taken from the brazil-wood. This wood is cut into small pieces and put in a copper or earthen vessel of water. The length of each piece depends upon the size

(1) A journal of the first voyage of Vasco da Gama by E. G. Raven Stein



Pl. 2. HANDBAGS MADE OUT OF KORA GRASS MAT



Pl. 3. TABLE MATS



Pl. 4. CUTTING THE GRASS INTO VERTICAL HALVES BY SHARP EDGED KNIFE



KORA GRASS

of the vessel. The dried grass is then immersed in the water and boiled for a couple of hours. A small quantity of alum or a few leaves of an indigenous tree called *Kasavu* (Memecylon edule) found in the hills up to an elevation of 3,000 ft. are also put in the water to lend more attraction to the colour. The proportion of grass, brazil wood and alum is 24 : 8 : 1. The water should be sufficient to cover the grass when immersed. The grass is then taken out and dried. The process is repeated thrice in the same solution to get sufficient depth of colour. The dyed grass is then buried under mud or clay for 24 hours when the grass gets black colour. It is then taken out, washed and partly dried and again immersed in a solution of one ounce of ash in every gallon of water for about 2 hours. This gives it fast colour. Usually the colours used are red and black. In the case of red colour the grass is not buried under mud or clay after processing in the brazil wood dye solution. Other colours are also resorted to in modern times by the use of chemical dyes. The necessary chemical dyes are mixed in water and the grass boiled in the solution and then dried to get the desired colour. For colouring one kg. of grass, 5 gm. of chemical dyes are required. The cost of the chemical dyes varies from Rs. 10.75 to Rs. 62.50 per kg. according to colour. When the chemical dye is used, boiling is required only once, whereas in the case of natural dye, it has to be boiled three times. Natural dye is cheaper and so it is more popular with the craftsmen.

Preparation of the Warp

13. The warp for weaving the kora grass mats is made out of either cotton yarn or elephant aloe fibre yarn. The latter is infinitely superior and stronger than the cotton yarn. The elephant aloe flourishes wild and resembles the pineapple plant. The leaves are about 5′ long and about 6″ wide. They are soaked in water by burying them in the bed of a running stream and left there until they are retted. They are then taken out and beaten with a wooden mallet in the same manner as the husk of a cocoanut. The fibre so obtained is white in colour and possesses extraordinary strength. Twine is

spun with this on a *thakli* or spinning wheel *(charka)*.



ELEPHANT ALOE PLANT

Weaving

14. Mat looms resemble ordinary throw shuttle looms. The important components of the loom are reed *(achu)*, bamboo rollers to fix the warp *(thandu)*, pegs to fix the bamboo rollers *(kutti)*, heddle *(pinikkol)* to take alternative ends, loose bamboo roller *(urul)* and pressing stick *(chavittu)* to form shed, shuttle *(otam)* and tripod *(mukkatak-kol)* from which the heddle and foot rest are hung. Of these the reed, the pegs and the pressing stick are made by carpenters and the rest by the craftsmen themselves. Two bamboo rollers are fixed parallelly on pegs. The distance between the rollers varies according to the length of the mats. Yarn is drawn through the dents of the reed in the form of continuous thread and is taken through the heddle. The ends of the yarn are tied on the bamboo rollers. This forms the warp. The shuttle of the mat loom is very simple. It is only a thin stick made of wood (usually of areca-nut or cocoanut tree) with a hole at one end. The prepared grass which would be kept loose on the left hand side of the weaver, is taken one by one and is passed through the hole of the shuttle. It is inserted through the warp by throwing the shuttle with one hand and catching it by the other hand as in the case of a throw shuttle used in handloom. The reed is then beaten and the pressing stick is pressed by leg to alternate the yarn and another piece of grass is inserted. As the weaving progresses, the tripod is pushed forward and the process is continued. For design weaving the warp threads have to be pulled up with fingers according to the design. The weaver sits on a plank placed under the woven portion of the mat, his feet resting on the tripod. After the weaving is over, the picks are brought close to each other by hands and the mats are dried in the sun for a short time. Smooth surface of the mat is obtained by rubbing with a polishing stone. Edges are then stitched with twisted cord. Both males and females are engaged in the various



Pl. 5. CUTTING THE GRASS INTO VERTICAL HALVES BY SHARP-EDGED KNIFE HELD IN HER HAND



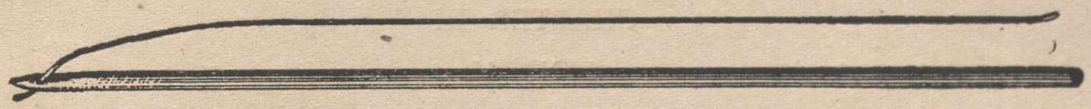
Pl. 6. IMMERSING THE GRASS IN WATER TO BE BOILED WITH BRAZIL WOOD PIECES FOR DYEING



PI. 7. WEAVING OF A SLEEPING MAT IN PROGRESS

1. Bamboo roller (thandu)
2. Pressing stick (chavittu)
3. Loose bamboo roller (urul)
4. Heddle (pinikkol)
5. Tripod (mukkatakkol)
6. Reed (achu)
7. Shuttle (otam)

processes relating to mat weaving. But generally women attend to the preparation of grass, while men are engaged in the preparation of the warp and weaving.



SHUTTLE

Process of Production of Grass Bags

15. Grass bags are made by leather workers who cover the ladies' handbags made of leather by grass mats and stitch the sides.

Designs

16. In olden times the designs in the mats were quite simple. In most cases there used to be one or two stripes at either end having a colour different from the main colour of the mat. In the centre also there used to be a few designs dominated mostly by lozenge hatchings. The dominating colour used to be red, black or white. There was hardly any colour other than red, black and white including the stripes in any of the mats. But modern designing is somewhat different. Because of the use of chemical dyes a larger variety of shades are presented now than before. Green, yellow and orange are commonly used. These lend greater attraction to the modern kora grass mats though, no doubt, those who like simplicity prefer the older variety of mats. Lettering is an important improvement effected on ancient designing by modern craftsmen. The letters are designed according to order and neatly executed in most cases. The columns in which the letters are given are made prominent by attractive borders. The usual colour given for letters is black against white background. More intricate designs like a palm tree or a boat are given in the centre of some mats besides simple or more decorative stripes in the border. At times all the four edges are given attractive borders with a decorative design in the centre. Attempts are being made with success to make the designs on kora grass mats resemble the delicate shades and difficult designs of the cotton carpets of old. An important limitation in executing the designs on kora grass mats is that due to the difficulty in reducing the kora grass strips to very fine counts the designs have to be mostly geometrical. This has led to a predominance of Chevrons Herring bone, St. Andrew's Cross and similar designs. The handicap, however, is got over by working out geometrical designs on minute scales.

CHAPTER III

GENERAL

Economics of the Industry

17. The cost of raw materials according to the present market rates is as follows:—

Green grass Re. 0.75 to Rs. 1.50 per lb.
Brazil wood Re. 0.37 per lb.
Alum Re. 0.50 ,,
Chemical dye Rs. 20.00 ,,
Yarn Re. 0.10 per *thuttu* (20's)

Ordinarily one worker will be able to make one plain sleeping-mat of the size of 3′ × 6′ in 130 counts in one day. The cost of production of this mat will come to Rs. 2.43 as indicated below.

Grass	2½ lb.	Rs. 1.88
Yarn	3 *thuttu*	Re. 0.30
Dye		Re. 0.25
	Total	Rs. 2.43

The usual sale price of this mat is Rs. 4.50. The wages of a worker will be Rs. 2 per day. The dealer who purchases the mat from the producer and markets it makes a profit of 7 nP. A worker will generally get Rs. 2/- to 5/- per day according to his skill and ability. There will be work throughout the year, but the work slackens during monsoon due to the difficulties in getting the grass and drying it. The sale price of other mats are as follows:—

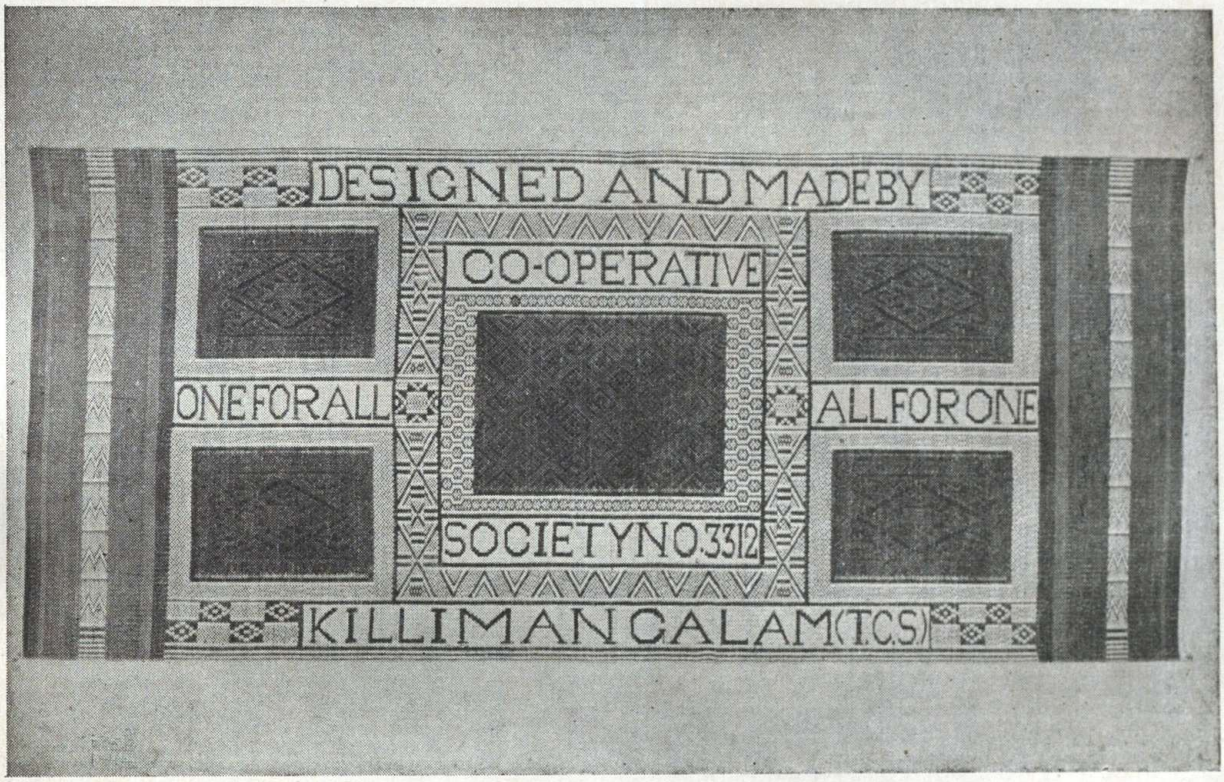
One plain sleeping-mat 3′ × 6′
200 counts Rs. 9.50
One table mat 11″ × 18″
200 counts Re. 1.00
One colour mat 3′ × 6′
200 counts Rs. 12.25

It will take 3 days fo r a worker to produce 8 table mats.

The role of Co-operation in the Industry

18. In the Palghat District where the industry is concentrated there are altogether 15 co-operative societies of kora grass mat weavers. The societies in the former Cochin area take advances of money from the Cochin Central Co-operative Handicrafts Society, Trichur, besides the help they receive from government by way of loans. In their turn, they advance loans to their members in the shape of raw materials and purchase their products at a price fixed by the Board of Directors having regard to the prevailing rates. According to the rules of the society, the loans advanced to a member should be below the share amount. No security is taken for the loan thus advanced. The advance which they make is deducted from the cost of the products which they purchase. No interest is taken. These co-operative societies prescribe the patterns of production to their members and these prescriptions are based on the requirements of the Cochin Central Co-operative Handicrafts Society, Trichur. A study of one of the leading societies at Chittur shows that about 80% of the workers of the locality have at least one member each of their households as members of the society. The society advances loans to its members, purchases their products and recovers the loans. In their turn, they sell the products to the Cochin Central Co-operative Handicrafts Society, Trichur, at 6¼% profit on the cost price plus transport charges to Trichur. If the society is able to sell the products locally, they collect 25% profit. In the year 1962–'63, the price of the products sold out from the society came to Rs. 25,637.68. In 1961–'62, the society has made a net profit of Rs. 257.62. The total number of members of the society is 122. The society was registered in the year 1935. The share value is Rs. 5/–. The authorised share capital is Rs. 5,000/– and the paid up share capital Rs. 1,653.29.

19. There is a Women's Co-operative Society at Kollengode which was established



PI. 8. COLOURED AND DESIGNED SUPERFINE SITTING MAT WITH LETTERS WOVEN



in 1960. This has 108 members, a paid-up share capital of Rs. 730 and a working capital of Rs. 1,000/-. The share value is Rs. 10/- per share. The society has a paid manager, a paid sewing teacher for tailoring and an honorary mat weaving instructress besides a paid handloom teacher, paid by its president from her private purse. The society has its own workshed in which kora grass mats of different sizes and counts are produced. The workers who are the members of the society are paid a daily wage varying from Re. 0.75 to Rs. 1.50. Training is given in tailoring, garment making and handloom weaving besides training in kora grass mat making. All the members work in this workshed of the society. The production and sales by the society from 1960 to 1964 are as follows:—

Year	Production Rs.	Sales Rs.
1960–'61	2,817.00	2,605.45
1961–'62	2,281.52	2,524.61
1962–'63	2,061.93	2,454.12
1963–'64 (up to March, 9 months)	2,530.22	2,764.87

20. It would appear that several weavers of kora grass mats approach middlemen who advance money to them and purchase their products at lower rates than the prevailing market rates and take loan from them. One of the reasons for this habit is that the co-operative societies advance only raw materials and no cash normally. As a result of the weavers taking loan from the middlemen they are forced to sell the products for which there is ready demand in the market to the middlemen. It is only mats of superior quality for which there is less demand in the local market that are sold to the co-operative societies. Some of the societies are struggling for their existence both for want of funds and due to the habit of the weavers of taking loan from middlemen and selling cheap products to them.

Marketing

21. Most of the marketing of the products of almost all the co-operative societies in the former Cochin area is being done through the Cochin Central Co-operative Handicrafts Society, Trichur as already observed. This society sends the finished products purchased from the primary societies as well as private parties to the Central Cottage Industries Emporium, Janpat, New Delhi, the Cottage and Small Scale Industries Sales Depot, Sir Ferozshah Metha Road, Bombay, the Bengal Home Industries Association, Chowringhee Road, Calcutta, the Mysore Government Arts and Crafts Emporium, Bangalore, the Victoria Technical Institute, Madras, the Mumbai Upanagar Gramodyoga Sanghom, Bombay, the Hyderabad Khadi Samiti and several other cottage industries depots of the states in India. Exports are also made occasionally to Canada, Germany, United Kingdom and New Zealand by the above society at Trichur. The products of the co-operative societies in the Travancore area are purchased by Srimulam Shashtyabdapoorthi Memorial Institute, Trivandrum and marketed through the cottage industries emporia and sales depots of India mentioned above. The Central Cottage Industries Emporium, New Delhi, the Small Scale Industries Sales Depot, Bombay, the Victoria Technical Institute, Madras and the Mumbai Upanagar Gramodyoga Sanghom, Bombay are exporting kora grass mats to U. S. A., United Kingdom, Italy and Germany. With a view to provide a Central co-operative marketing society for the whole State the Government have recently passed orders recognising the Cochin Central Co-operative Handicrafts Society, Trichur as an Apex Society for the whole State. Hereafter, therefore, this society will be in a position to deal with the primary societies throughout the State and parchase their products for marketing instead of from the former Cochin area alone. As mentioned supra the primary societies are also making local sales of their purchases direct.

22. The export of kora grass products and the centralised marketing through the Apex Society at Trichur naturally call for

the necessity for a standardization of the products in kora grass industry. This standardization can be done on the basis of counts, the count being determined by the number of threads used in the warp for a breadth of 3 feet. This is done on the principle that the larger the number of warping threads, the finer will be the grass strips used as weft. The usual counts are 90, 100, 130, 140, 160, 180, 200, 300 and 500. As the number of the count gets higher the quality of the mat will be better. The number of grass strips to be made out of one grass for the different counts of mats are given below.

90	counts	2	strips
100	,,	2	,,
130	,,	4	,,
140	,,	4	,,
160	,,	6	,,
180	,,	8	,,
200	,,	10	,,
300	,,	20	,,
500	,,	30	,,

The above standards have already come into vogue in the market. It should, therefore, be presumed, that there will not be much difficulty in enforcing a standardisation of quality in respect of kora grass products.

The Workers in the Industry

23. In Kerala, the hereditary weavers of kora grass mats belong to Kurava community. According to Edgar Thurston, Kuravas were praedial slaves who were liable in olden days to be bought and sold along with the land they occupied. "They were originally divided into four branches, called Kunta Kuravan, Pum Kuravan, Kakka Kuravan, and Pandi Kuravan. Almost all the Kuravas of this country belong to the first of these sections. The Pum Kuravas are believed to have become a different caste, called Velan. Similarly, the Kakka Kuravans have crystallised into a distinct caste named Kakkalan. Pandi Kuravas speak Tamil, and are chiefly found in Nanchinad, being there known as Nanchi Kuravas. The Kunta Kuravas attribute the origin of their name to the appearance of their first ancestor from a sacrificial altar *(homakunta)*. They are known in some places, such as Nedumangad, by the name of Muli Kuravas, probably they emit a drawling noise when called. It has been suggested that the Kuravas are one of the early tribes of southern India, and one with the Kurumbas of the Tamil country, and closely allied to the Vedans. Such of them as still preserve their old practices, and do not mingle with the low country people, are known as Malan Kuravas. They form one of the sixteen hill-tribes mentioned in the Keralolpathi. About three centuries ago, Nanchinad in Travancore was governed by a line of Kurava Kings, called Nanchi Kuravans."[1] Of the different sub-sects of Kuravas mentioned above, it is Kakkalas who are engaged in kora grass mat weaving. Though they form the hereditary class of kora grass weavers, the industry is not confined to them alone now. Workers from several other communities like Ezhuvas, Muslims, Christians, Nairs etc., have taken themselves to this industry with considerable success.

Conclusion

24. Though the kora grass industry is sufficiently prosperous in the areas to which it is limited it is doubtful whether the industry has exhausted all the scope for development. As already observed, the centres in which the industry thrives are limited because of the absence of raw material in other places. It is a matter for consideration whether the kora grass cannot be cultivated in areas where they are not now otherwise available. If the cost of cultivation will not be too high it is an experiment worth trying especially by utilising areas which are unfit for cultivation of food crops. The working capital for the industry is extremely limited and whatever capital that is now provided consists of loans granted by the Cochin Central Co-operative Handicrafts Society, Trichur. The societies advance

(1) Castes and Tribes of Southern India by Edgar Thurston, Vol. IV, page 123

small amounts to weavers and recover the amounts by way of finished products. Perhaps an improvement in the status of primary co-operative societies by appointing paid secretaries might help the industry. Sufficient research should also be made to improve the quality of the finished products and the workmen should be properly trained so that they may make use of the improved methods to develop their traditional talents.

ART IN KERALA WOOD CARVING

CHAPTER I

INTRODUCTION

"The universal use of wood dominated the material possessions of the oldest man just as is the case today in many regions. Since there were available no adequate tools to shape the wood as nature furnished it into pieces of finer carpentry the working of the more pliable bark assumed great importance especially when it came to building larger objects like wind-breaks and canoes. Shells, animal teeth, bones and crude stones helped to fashion the desired pieces. It is astounding to see what primitive man could and still does achieve in his wood work without the benefit of metal blades and nails."[1]

2. The dawn-age of India in building art which is described as the Indus Civilisation consequent on the discovery of the records of its culture around the banks of Indus was fairly mature by about 3000 B. C.[2] The remains of some ancient cities discovered in Mohanjo-daro in Sind (known as the 'Palace of the Dead') and at Harappa in southern Punjab are supposed to belong to this Indus civilisation. In both cities the upper stories were composed largely of wood, the roofs being flat and built of stout beams covered with planking finished with a top dressing of beaten earth. "There is a possibility that on these edifices some kind of mural decoration might have been applied such as carved wood or colour. But if so this has completely disappeared."[3] This is sufficient indication that as early as the third millennium B. C., or earlier still, wood had well established itself as an important material in building construction in India. The Indus Civilisation declined some time early in the second millennium B. C. as judged from the excavations which reveal that its cities were then falling into a state of decay[4] leaving the remains of more than a thousand towns and villages full of men.[5] It is presumed that some great cataclysm cut across the current of events which marked the end of the Indus Civilisation and the beginning of an entirely new era which took a much more rudimentary form of humble village huts constructed of reeds and leaves and hidden in the depths of forests. The Vedic culture of India provides some material for the study of the first efforts at building construction in this new age which had no more the fine houses of the Indus Civilisation but only temporary erections devised to meet the needs of the forest dwellers. Circular and oval constructions with roofs of wooden planks or tiles were the rudimentary form of buildings in this age. Towards the first millennium B. C. when the social system of the Vedic community expanded some towns arose at certain important centres where the traditional features were reproduced. These towns which were the capitals of states were strongly fortified and of necessity surrounded by wooden palisades and within the enclosures the buildings were also almost entirely of wood. Fierce rivalry between various groups was responsible for this change which eventually marked also a new

(1) The origin of Things by Julius E. Lips, page 116
(2) Indian Architecture (Buddhist and Hindu) by Percy Brown, page 1
(3) Ibid page 2
(4) Ibid.
(5) Ibid. Also Aristobolus, Frag. 29—Strabo XV. C. 693

era in timber construction in the Vedic civilisation of India. Indeed, every country had to pass through a timber age. In the case of India it was a long one due to the great extent of the vast forests which she cradled. So closely connected with their existence were these forests that the early people developed a dexterity in wooden construction of a very high order. "In ancient India, the carpenter held an important place in the social life of the village and was called the *Sutradhar* or the holder of the line. He made chariots for the warriors and was also by profession a driver of chariots both in peace and in war. Carpenters are mentioned in the Rig Veda, and in the time of Manu they were sufficiently numerous to be recognised into a separate caste. That wood carving was not an insignificant art is proved by the fact that the Brihat Samhita and the Silpa Shastra give full directions as to the season and manner of felling a tree, seasoning of the wood and the making of the different articles required."[1] According to *Dhammapala*, the great Buddhist commentator, cities largely of wooden construction were planned by an architect of the name Maha Govinda of the 5th century B. C. Megasthenes, the Greek Ambassador who resided in the court of Chandra Gupta Maurya about 300 B.C. says in his description of the Mauryan capital of Pataliputra (near modern Patna), that within the walls was the royal palace, evidently a much more spacious and elaborate edifice than that erected by any previous ruler in the country, and the main portion of this imperial residence consisted of a series of hypostyle halls containing pillars of wood each of which was clasped around with vines embossed in gold and ornamented with designs of birds and foliage in gold and silver thus excelling in magnificence the famous royal pleasances of Susa and Ecbatana. The timber used by the early Indian carpenters and builders was teak carefully trimmed into required shape with an adze. The most interesting is the construction of the vaulted roof anticipating the principle on which the arch-based timber roof of the Gothic builders of Europe evolved many centuries later, the only difference being that in the Indian method the structural membering of the vault was supplemented by a series of curved wooden ribs or groins placed in close order, the whole system resolving the problem of arching a space in the most satisfactory and at the same time artistic manner. "The Rig Veda refers to married women occupying their commodius *talpas*, the new (and prospective) brides on the fashionable *vahyas*, other single women of the household on the broad *proshthas* and a maiden on a *sayana*, which, as well as *paryanka* are stated to be the ordinary bedsteads or couches. The *talpa* is the nuptial bed whereupon alone a legitimate son *(talpya)* could be born. (Sat. Bra. XIII, 1, 6, 2) Its sanctity is further increased as it was reserved for the preceptor (c. f. Guru-Talpa, Chhand Upanishad V, 10, 9). *Vahya*, that which can be easily carried, is a lighter structure used specially in marriage ceremony of getting the bride and bridegroom lain on bed side by side (A. V., XIV, 2, 30) which ceremony may also be performed upon a humbler settee (asandi). Upon it a weary bride mounts (A. V., IV, 20, 3) and women generally sleep (R. V., VII, 55, 8; A. V., IV, 5, 3). Thus, it must be more than a mere litter or canopied sedan-chair. It must have been a regular bed spacious enough for two, bearing all forms and of carved wood-work, furnished with a gold embroidered coverlet (Rukma-prastarana)."[2]

3. Matsya Purana gives in detail, the measurements of the pillars for the buildings and the nature of carvings of them thus :— "Multiply the altitude of the house by 7 (seven) which divided by 80 (eighty) will give the breadth of the pillars. If the pillars be square they are known as *ruchaka* and if they be octagonal they are called *vajra*. A sixteen sided pillar is known as *dvi-vajra*

(1) The Arts and Crafts of India and Pakistan by Shanti Swarup page 77
(2) Hindu Architecture in India and Abroad by P. K. Acharya, page 59

and the one with 32 sides is known as *pralinaka* and the one that is circular in the centre is called *vritta*. These five pillars are called *mahastambas* (huge pillars) and are auspicious for all the buildings. Paintings and beautiful carvings should be made in all these pillars. Lotuses, creepers, leaves, earthen pots and jars are to be nicely carved. Divide all the pillars into nine parts and the lowest one for carving should be made the base of the pillar. Above it in one part should be made *ghata* and in the other one *lotus*. Then in the other part beautiful carvings should be made and the rest of the parts should be left in a clean polished square. The weighing balance *(suta)* is also to be carved equal to dimension of the pillar; 2/3 or 3/4 of that can also be done; and then it is called *upatula*."[1] Matsya Purana also gives information about the wood that can be used for building purposes. "The wood of bo-tree and of other milky trees should not be used for a building nor should the wood of trees inhabited by a large number of birds or one burnt up by fire, be used. Nor the tree cut and torn by wind is auspicious. The wood of the trees broken by elephants, struck by lightning, semi-dried up or dried up of itself or those growing near a *chaitya* or sacrificial place, temple, confluence of two rivers, burial ground, well and tank should in no case be used for house building by one desirous of great influence and wealth. These trees are to be specially avoided. Neep, Neem, Bibhitak, Slesmatmak, Mango and Kantaki trees should be avoided. Asana, Asoka, Mahua (Madhuka), Sarja, Sala are the auspicious timber trees. It is very auspicious to use sandal and panasa wood for a building. Deodar and Haridra are auspicious when used in the building in one, two or three pieces. But if more pieces are used, it is dangerous. Sinsapa, Sriparni or Tinduki are auspicious in house building when only one of these is used; but the mixture is inauspicious. Similarly, Syandana, Pansa, Sarala, Arjuna and Padmaka trees alone are auspicious, but when mixed are inauspicious. A tree cut and brought down to the ground is named *Godha*. If the colour of the tree at the time of cutting down a timber tree is that of a Bengal madder, the tree is termed *Bhika*; if the wood is of the blue colour, it is named *Sarpa*; if it is red, it is termed *Sarata*; if it is of the colour of the pearls it is termed *Sukadi*; if it is of tawny colour it is termed *Musika;* if the wood is of the shape of a sword, it is known as *Jalachheda;* one should avoid the use of such timber for building purposes."[2] In the sixtyfour arts specified, in connection with the accomplishments to be acquired by men and women, in the Kama Sutra of Vatsyayana, which has been attributed by Shri S. N. Dasgupta to the second century B. C., Takshana, i. e., the art of wood carving in making seats, beds, doors etc., is included. Owing to the Indian craftsman's traditional genius for imitation, every detail of this early form of timber construction has been most faithfully reproduced in the numerous and the very complete examples of rock architecture which followed so that although the wooden originals have perished their exact facsimiles remain preserved in the living rock. In no other country has the carpenters' and joiners' craft as practised in India over two thousand years ago been so fully and accurately recorded. The monuments of the architectural genius left in rock-cut and brick-built temples of the Pallava, Chola, the Pandya, the Vijayanagar and the Madura periods, have not only derived the inspiration from the great master-minds in wood carving who had left their footprints on the sands of time for posterity to imitate them but also in their turn, inspired others to try the art in wood and other materials again. The designs of the brackets of the wooden pillars of some of the ancient palaces which are intact even today closely resembling the inverted stooping lotus buds of the carvings

(1) Matsya Purana Part II, page 297: Translated by a Taluqdar of Oudh
(2) Ibid page 301.

of the rock-cut or granite pillars of the Vijayanagar and Madura periods are eloquent examples of the latter.

4. The art of wood carving has a very ancient tradition in Kerala. A number of temples, churches, palaces and private houses and museums are rich repositories of the works of the highly talented artisans in wood carving of ancient Kerala. The abundance of timber of various kinds in the extensive forests of Kerala has facilitated to a large extent the usage of wood as a principal material for the construction of buildings from early times. The popular timber generally employed in the construction of these is teak which lends itself to every movement of the carver's tool. Besides the ornamentations of fluted columns, wooden lintels, brackets and capitals, the Kerala craftsmen carved the glorious gods of the age-old Hindu mythological history, biblical scenes, animals, birds, trees and flowers with a vigorous realism and in a massive and noble style. Reference to these productions in Kerala is made in the succeeding chapter.

CHAPTER II

ANCIENT WOOD CARVINGS IN KERALA

Wood Carvings in Hindu Temples

5. The outstanding quality of architecture in India has been its spiritual content as 'refined perfection' was with the Greeks or 'scientific construction' was with the Romans, or 'passionate energy' was with the French, or scholarship with the Italian renaissance. In no small measure is this quality of Indian architecture reflected in the wood carvings in Kerala. It is this spiritual element that has led to the successful depiction in the temples and churches of Kerala of not only the mystic and many-weaponed deities of the Hindu pantheon and the holy characters in the Christian religion but also of the numerous scenes representing the natural and supernatural events portrayed in religious literature. Indeed, the florid exuberance of the decoration provided by other carvings like the elegant scrolls of foliage clustering around pillars, floral motifs, and trailing verdure, so frequently adorning the temples and churches affords a colourful background to this spiritual atmosphere.

Mahadeva Temple, Katinamkulam

6. Of the very early wood carvings found in the Hindu temples of Kerala are those of the *Namaskara Mandapa* (prostration hall) of the Mahadeva Temple at Katinamkulam near Trivandrum. An inscription in *Vattezhuthu* script in the shrine shows that the temple was consecrated in 389 M. E. (1214 A. D.). The ceiling of the temple is divided into nine compartments and nine images of deities are carved in them, one in each compartment (Plates 1 and 2). In the centre, Brahma is shown seated on a swan. The beams of the *Mandapa* (hall) are also decorated with fine carvings.

Narasimha Temple, Chathankulangara

7. Similarly, the wood carvings on the outer sides of the sanctum sanctorum *(Srikovil)* of the Narasimha temple at Chathankulangara near Chengannur have been attributed to 14th century A. D. by R. V. Poduval on the basis of the *Vattezhuthu* inscriptions engraved at the entrance of the temple. On one of the panels is depicted the story of the theft of the raiments of the Gopa ladies by Sree Krishna. Six Gopa ladies are shown in the carving, three of them standing on the branches of a tree, one in the process of climbing it and two at the foot of the tree on the top of which Sree Krishna is seated with the stolen garments. The nudity of the female figures is artistically mellowed by their endeavour to cover themselves with one hand lifting the other hand to receive the cloth from Sree Krishna. The ornamental pillar on one side of this panel decorated with delicate floral designs adds to the splendour of the carving (Illustration No. 3 of plate 3). An equally picturesque scene is carved on another panel depicting *Sethubandhanam* (bridging of Sethu) in Ramayana. The figures of monkeys and monkey-chiefs carrying boulders on their heads to be thrown into the sea to achieve the Herculean task of bridging it carved in bold and eloquent style would seem to impart a tone of realism to the characteristic mysticism of this mythical scene. Close by this panel is the carving of a gateway in relief. In the centre is the door-screen on which the scene of Sree Krishna (Balakrishna) killing Arishtasura who assumed the form of a bull to attack him at the instance of Kamsa is depicted. Balakrishna is shown standing on the humped bull with one leg on the hump, his right hand holding one of the horns of the bull already plucked by him and his left



Pl. 1. A PART OF THE CEILING OF THE 'NAMASKARA MANDAPA'
Mahadeva Temple, Katinamkulam



Pl. 2. AN ENLARGED PHOTOGRAPH OF ONE OF THE COMPARTMENTS OF PLATE 1



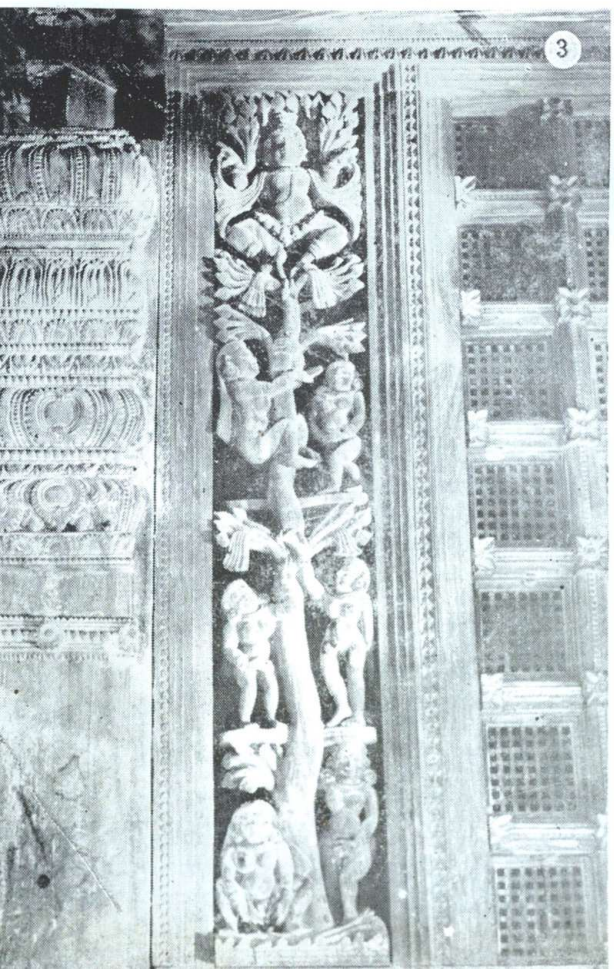


Pl. 3. 1. Image of Vishnu (Trivandrum Museum)

2. Ceiling of ' Namaskara Mandapa ' (Siva Temple, Ettumanur)

3. Krishnaleela—Theft of raiments of Gopa Ladies (Narasimha Temple, Chathankulangara)

4. Coronation of Sree Rama (Siva Temple, Ettumanur)



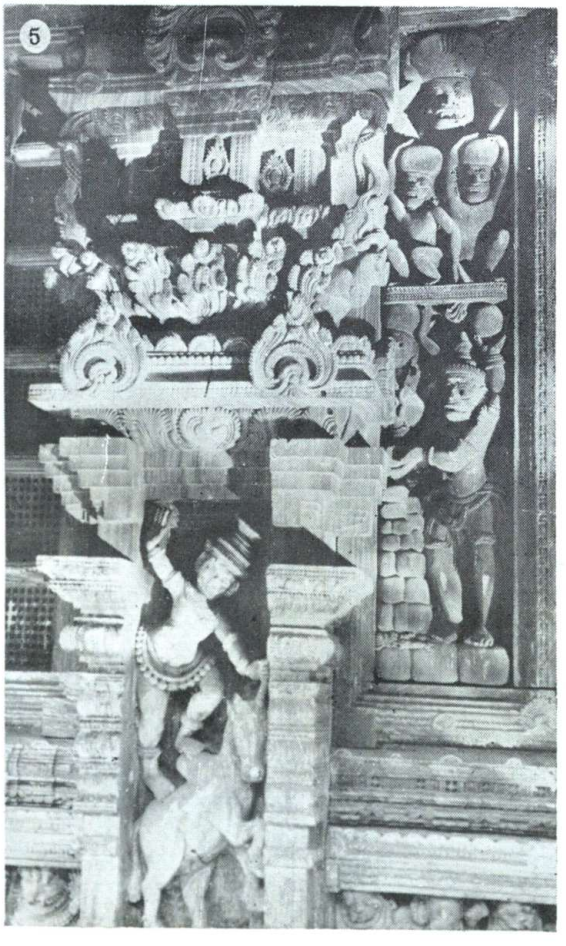












Pl. 4.

1. Chakiar (Subramania Temple, Kidangoor)

2. A ' Dwarapala ' (Door-keeper) on a panel of the ' Srikoil ' (Narasimha Temple, Chathankulangara)

3. An ancient warrior (Subramania Temple, Kidangoor)

4. A lady dressing her hair on the panel of the ' Srikoil ' (Narasimha Temple, Chathankulangara)

5. Sethubandhanam and Arishtasura-vadham on the panel of the ' Srikoil ' (Narasimha Temple, Chathankulangara)

hand plucking the other horn. The pillars on either side of this carving of the gateway are connected at the top by an ornamental panel of magnificent foliage rising in receding ranks (Illustration No. 5 of plate 4). The figure of a door-keeper (Dwarapala) given on another panel marks a high degree of perfection in detailed and delicate carving. The ornamental headgear resembling the headgears used in *Kathakali*, the exquisitely carved ear-rings, necklaces, shoulder plates, shoulder rings and bangles which decorate the image are not only elegant but also free from artistic extravagance. A scarf with floral decorations is seen hanging from the neck on either side (Illustration No. 2 of plate 4). A lady dressing her hair is given on another panel of this temple. In her left hand she holds a mirror on which her attention is focused. The right hand is shown dressing the hair from the top. Her somewhat plumpy body, left naked above the loins, is carved with remarkable realism and the ornaments which decorate her are both exquisite and delicate (Illustration No. 4 of plate 4). On the front side of the sanctum sanctorum *(Srikovil)* is a figure of Narasimha killing Hiranyakasipu. One of the hands of Narasimha holds the torn out bowels of Hiranyakasipu, while two others hold the conch in one and fiery discus in the other. The left lower hand presses down the legs of Hiranyakasipu, while the right lower hand is engaged in keeping down his head. One hand is, however, broken. The height of the figure is 1′ 6½″. Hanuman appearing before Sita in the *Asokavana* is another piece of exquisite work in this temple. Sita is seated in the shade of an Asoka tree *(Jonesia Asoka)* with her head resting on the right hand and Hanuman is shown first perching on the top of the tree and then appearing before Sita with the message of Sree Rama. The height of the figure is 9½″ and width 6″.

Subramanya Temple, Kidangoor

8. The wood carvings in the Kidangoor Subramanya temple have been attributed to some time subsequent to the 17th century. Besides the scenes from Hindu mythology, the figures of Chakiar, (the story-teller in Hindu temples) and an ancient warrior are also depicted. The costume and appearance of Chakiar are comical from head to foot. He is shown in a dancing pose with his palms held in *abhaya* pose but supporting as it were the rope-like *yagnopavita* worn by him (Illustration No. 1 of plate 4). The figure of a warrior given in another part is a beautiful illustration of an ancient soldier. With a large round ornamented shield in his left hand, his right hand held upwards (tip seems broken) as if wielding his sword the sheath of which hangs from his hip, the figure is a magnificent achievement in wood carving. From the ornamented headgear worn by him it would appear that he is not one of ordinary status but belongs to a princely order (Illustration No. 3 of plate 4).

Siva Temple, Ettumanoor

9. The Siva temple of Ettumanoor presents a good number of magnificent carvings in wood which are attributed to the 16th century A. D. It is seen from the inscription on the central shrine that the repairs to the temple were started in 1542 A. D. and the consecration ceremony was performed in 1545 A. D. Among the scenes carved on the panels of the sanctum sanctorum *(Srikovil)* is the coronation of Sree Rama. Sree Rama is shown seated in the centre fully decorated with necklaces, shoulder plates, shoulder rings, *udarabandham* (an ornamental belt over the belly), *kankanam* (bracelet), *katibandham* (girdle), *kiritamakuta* (conical cap) etc., all exquisitely carved. His long arms and legs bearing harmonious proportion to his broad chest and majestic face are shown with the perfection typical of a warrior-king. Sita sits by his left. Hanuman is shown sitting on the floor of the platform as a cheerful devotee. All the figures including Sree Rama seem to look upwards perhaps invoking the blessings of Providence on the occasion (Illustration No. 4 of plate 3). The ceiling above the *Namaskaramandapam* is divided into numerous rectangular columns each of

which is decorated with the carvings of the figures of gods and goddesses from Hindu mythology (Illustration No. 2 of plate 3).

Thiruvarpu Temple

10. Among the wood carvings in the Thiruvarpu temple near Ettumanur the most striking one is that of *Palazhimathanam* (churning of the milky sea), in which the *devas* (gods) on one side and the *asuras* (demons) on the other are shown holding the tail and head of the serpent Vasuki encircling the Manthara mountain used as the churning wheel (Illustration No. 5 of plate 5).

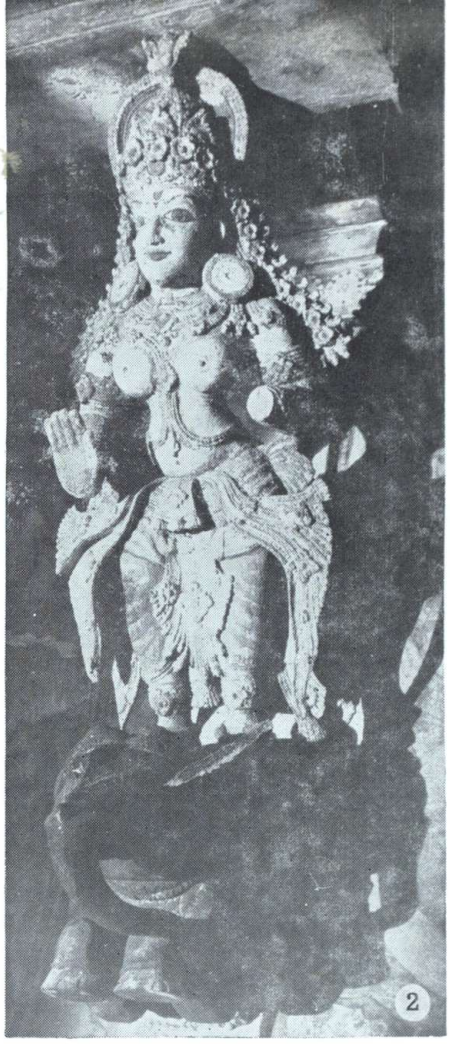
Sree Rama Temple, Triprayar

11. The wood carvings in the Sree Rama temple at Triprayar reveal a high degree of elaborate ornamentation and mature ability of the craftsmen. The figure of Balabhadra adorning the upper portion of the outer wall of the *Srikovil* is a fitting example of the above. Wearing a beautiful crown, necklaces, *udarabandham*, *kadibandham*, shoulder plates, wristlets and anklets, he is shown holding a plough in his right hand. In his left hand a stick is held perhaps, symbolical of the club (Illustration No. 4 of plate 5). The figures of two females which also decorate the outer wall of the sanctum sanctorum are exquisitely carved. A beautiful wreath of flowers hanging on either side from the head perhaps decorating the braids represents an excellent performance in delicate carving. The drapery and ornaments of these figures also reveal a high degree of artistic perfection (Illustrations No. 1 and 2 of plate 5).

Temple Cars

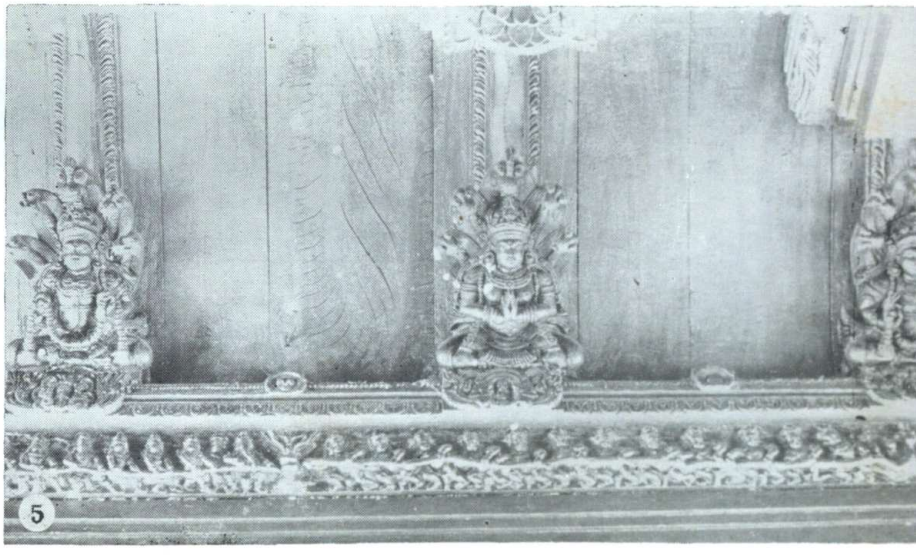
12. The temple cars are fewer in Kerala compared to the east coast temples. A few large ones are available in Kalpathi in Palghat town. These are generally pushed by elephants on the car festival day. Smaller ones are found in other places in the Palghat and Chittur taluks. These can be explained to the proximity of these areas to the Tamilnad. Coming to the south a few large sized richly decorated temple cars are found in the Kanyakumari district, formerly part of Travancore-Cochin State. One of these cars brought from Padmanabhapuram and exhibited in the Trivandrum museum is approximately 10 feet long, 6 feet wide and 12 feet high. The wheels are of two diameters. Those in the rear are 4 feet 2 inches and those in the front are 3 feet 11 inches in diameter, rising in four receding tiers, each tier is richly decorated with minute carvings of well-known scenes from the Hindu mythology. One of these is a story of Kannappa Nayanar, an ardent devotee of Siva, who substituted his own eye for the bleeding eye on the image of Siva he was worshipping. The image vividly shows how at the time of attempting to replace the second eye the devotee makes sure of the place where he should plant the second eye on the image by touching it with the toe of one of his feet, and while trying to pluck his second eye Siva's hand holds him from behind. The posture of the devotee and the manner in which Siva prevents him from the final act of plucking his second eye are carved with extra-ordinary realism. Another image carved on the car is the *oordhathandavam* of Siva in which Siva is shown as taking his ear-rings *(ratnakuntalams)* from his earlobes with his feet and replacing them with the same. One foot is actually shown as picking the ear-rings from the earlobe. There are two images of the man-lion *(Narasimha)* incarnation of Vishnu. In one, which is an old carving, the man-lion is shown holding the head of Hiranyakasipu (whom he kills) with one hand and the neck with another. The second image of the man-lion which is an attempt at replacing an old carving by a recent one shows the man-lion with 6 hands and Hiranyakasipu in abject surrender. The right upper hand of the man-lion holds the fiery discus, while the left upper hand has a conch. The right and left lower hands are pressed on the abdomen of Hiranyakasipu and one each of the remaining 2 hands is shown pressing the head on one side and the legs on the other of the victim to his lap. This highly realistic image is representative of the final stage of











Pl. 5. 1 & 2. Female figures on the outer wall of the 'Srikoil' (Sree Rama Temple, Triprayar)

3. A male figure on the outer wall of the 'Srikoil' (Sree Rama Temple, Triprayar)

4. Balabhadra on the outer wall of the 'Srikoil' (Sree Rama Temple, Triprayar)

5. Palazhimathanom—(Vishnu Temple, Tiruvarpu)



Pl. 6. A TABERNACLE WITH A THRONE
St. George's Church, Kumbalangi



Pl. 7. 'RAMSETHI'
Marthamaryam Valia Palli, Kothamangalam



Pl. 8. ' RAMSETHIS '
Marthamaryam Valia Palli, Kothamangalam



Pl. 9. THE ALTAR
St. Thomas' Church, Mulanthuruthy

Hiranyakasipu's end and has an air of horror about it. A similar attempt at replacing another old carving on the car by a new one is a scene in which Sree Rama is shown shooting the golden deer with an arrow. A still more striking scene beautifully carved and delicately executed is that of *Kylasathandavam* in which Siva and Parvathi are shown at the top of the mount Kylas in a slightly quarrelling mood and Ravana is shown below the mountain uprooting it, lifting it above his head and playing with it in his hands. Ravana is shown resting on his left knee and right foot, with hands upwards lifting the mount and his face erect, a pose fully depicting with utmost realism how the weight of the mountain is borne by him. Similarly, Siva's dance over Gajasura is also represented with equal realism. The figures of *Yalis*, the mythological lions, are carved in distinct style at the corners of the car. These are but a few of the numerous scenes of artistic excellence portrayed on the sides of the car.

Wood Carvings in Churches

13. In olden days when timber was plentiful and labour was cheap the use of timber in the construction of churches covered a luxurious variety of items which included even their walls. Jarric[1] refers to a letter of James Fenicio, a Jesuit missionary who worked in the territory of the Zamorin of Kozhikode in which he mentions about the construction of a new church of St. Cyriac at Palur enclosing apparently within it the primitive church building which was in wood till the new church had risen to the height of the windows and the pulling down of the old structure after much prayer to remove the timidity of the people in doing so. This old church of Palur is one of the seven churches traditionally assigned to the 1st century A. D., when St. Thomas reached Malabar. The wooden structure must, undoubtedly, have been very old, and constructed, no doubt, of teak which formerly grew all over the country, even in comparatively recent times. At that early age the supply must have been plentiful.[2] All the Catholic churches had invariably from time immemorial the tabernacle in wood decorated with carvings of ornamental pillars on the four corners and the figure of a lamb with halo all round in the centre of its door. Above the chamber of the tabernacle an ornamental throne carved in wood with a cupola resting on two pillars in the front and a panel in the rear, was placed. The entire tabernacle was painted in gold and dazzled in light (Plate 6). In later years, the shape of the tabernacles underwent timely changes though they continued to be in wood for a long time. In recent times, however, wooden tabernacles have mostly given place to those in steel or cement concrete. In olden days, again, both Catholic as well as Jacobite churches had candle-stands and flower-stands invariably of wood decked with carvings of floral motifs painted in gold background, red flowers and green leaves. On the flower-stands stood an oval shaped small panel carved with flowers and leaves and neatly painted. This was called *Ramsethi* (Plates 7 and 8). Today, brass or other metal stands for candles and glass or porcelain wares holding mostly natural plants and flowers for flower-stands have taken their place in several churches. The wooden items referred to above though were invariably present in old Christian churches paled into insignificance in comparison with the more elaborate and artistic items of wood carvings like the richly carved wooden panels behind the altars called the *Erathazhu*, the tabernacular ceiling above the chancel known as the *Thora*, the altar itself, the pulpit, the principal beams and archways, pedestals of crosses and a number of similar items found in some of the ancient Catholic

(1) Indicarum Rerum Tom III lit II Chapter V, pages 50–51 quoted in St. Thomas and India by Bishop Medlycot

(2) History of Kerala by K. P. Padmanabha Menon, Vol. IV, page 153

and Jacobite churches. The statues of God the Father, the Holy Ghost, Christ, Virgin Mary, the saints and angels carved in wood and painted in life colours form another field, mostly in Catholic churches, manifesting the rare achievements of artistic excellence in ancient wood carvings. With the change in artistic trends, the wooden panels of the altars of several churches which were once richly decorated with excellent carvings have been replaced either by plain wood works or altars of cement concrete representing more of simple elegance in preference to elaborate ornamentation. Yet, those churches which preserve the ancient wooden altars, panels and similar items of wood carvings are still outstanding monuments of superb works of art. They have little been explored and much less commented upon so far. A brief reference to a few of them might seem better late than never.

St. Thomas' Church, Mulanthuruthy

14. The panel behind the altar of the St. Thomas' Church, Mulanthuruthy, stands unique in its artistic superiority.[1] This wooden panel which is about 24 ft. in height and 17 ft. in width is a marvellous repository of delicate carvings rendered in noble figurative and eloquent style. Rising in four tiers from the bottom, each tier having more than one column separated from the other by ornamental pillars, this panel represents within its compass the most exquisite carvings of Christ and his apostles, angels and floral motifs besides oil paintings of high quality (Plate 9). Starting from the bottom of the panel one finds Christ and his apostles sitting at the last supper carved in neat, bold and natural style and painted in life colours. St. Peter is shown holding 'the keys of heaven' and Judas with the bag of 'silver coins'. St. John is prostrating on the left hand side of Christ who pats him with his left hand on the head. In his right hand Christ holds a cup of wine offering to his disciples his blood of the New Testament (Plate 10). A few of these figures on the extreme right have been defaced by chopping said to be done by Peter III, Patriarch of Antioch when he visited this church fearing that the presence of these figures might savour of image worship. He, however, did not complete the destruction. The miniature pillars which divide the columns in each tier of the panel are slender, mystical and dreamy like the gothic nook shafts marking the height of perfection in carving minute designs with utmost delicacy and exactitude. Both at the bottom and in the centre of the pillars a row of angels' faces are carved and painted. A vine is shown creeping from the bottom of the pillars up to the top spreading its leaves and grapes all round. At the foot of the vine a few double headed pelicans perch on the vine pecking grapes from the heavy bunches. While the carvings of pelicans are painted in natural colours, the surface of the vine and the bunches of grapes is painted in gold against light blue background covering the depths of the carving. The vine is carved in such a manner as to form circles at regular intervals throughout the entire length and circumference of the pillars, these being inset with carvings of the faces of saints on some pillars, the figures of Adam and Eve in their pristine purity and native nudity before eating the forbidden fruit in some others and an elephant on globe in still others (Plate 11). The second tier is decorated by pillars similarly carved and painted as in the lower one and oil paintings in each of the three columns. One of them is an old painting of a miracle of St. Thomas, the Apostle lifting a heavy log of wood which elephants could not lift, with a tiny hook, probably borrowed from the mahouts on the spot. A couple of elephants and their mahouts, a big log of wood and the lifting scene by St. Thomas are vividly depicted in the picture. At the other end

(1) The tradition goes that this church was constructed somewhere in the 10th Century A. D. by the Catholics of Kaduthuruthy and later passed on to the Jacobites. Now it is a jacobite Syrian Church.



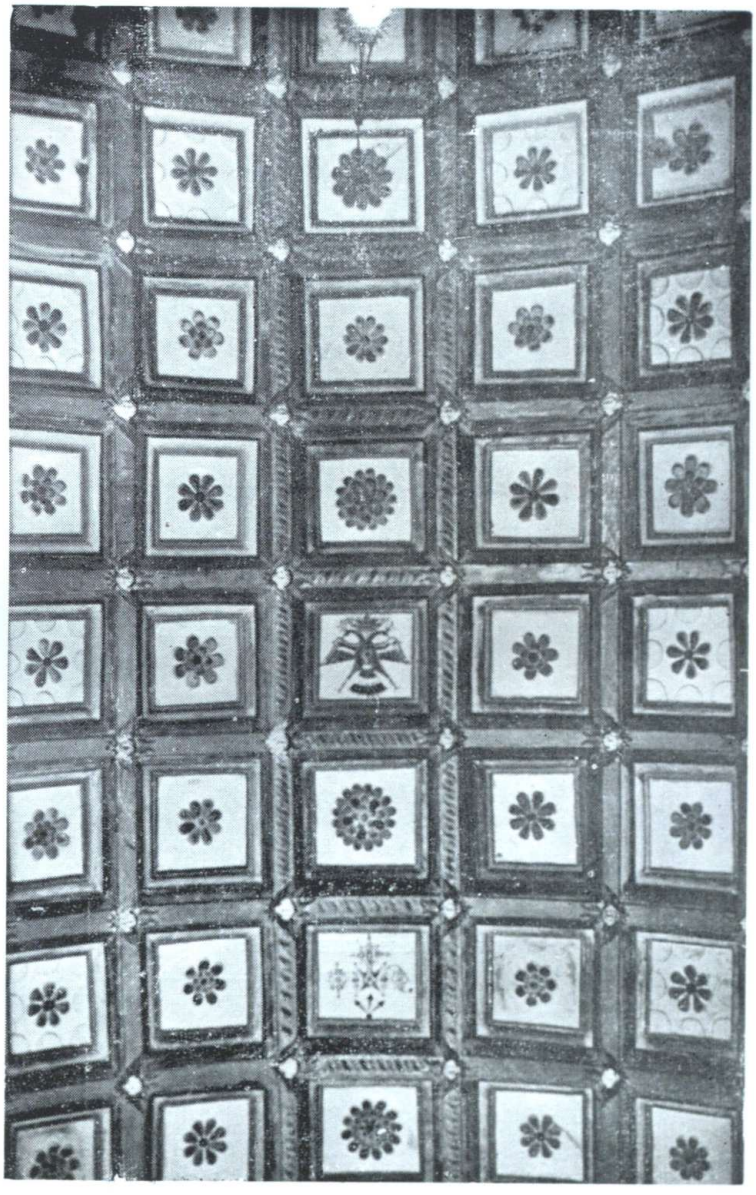
Pl. 10. CHRIST AND HIS APOSTLES AT THE LAST SUPPER
St. Thomas' Church, Mulanthuruthy



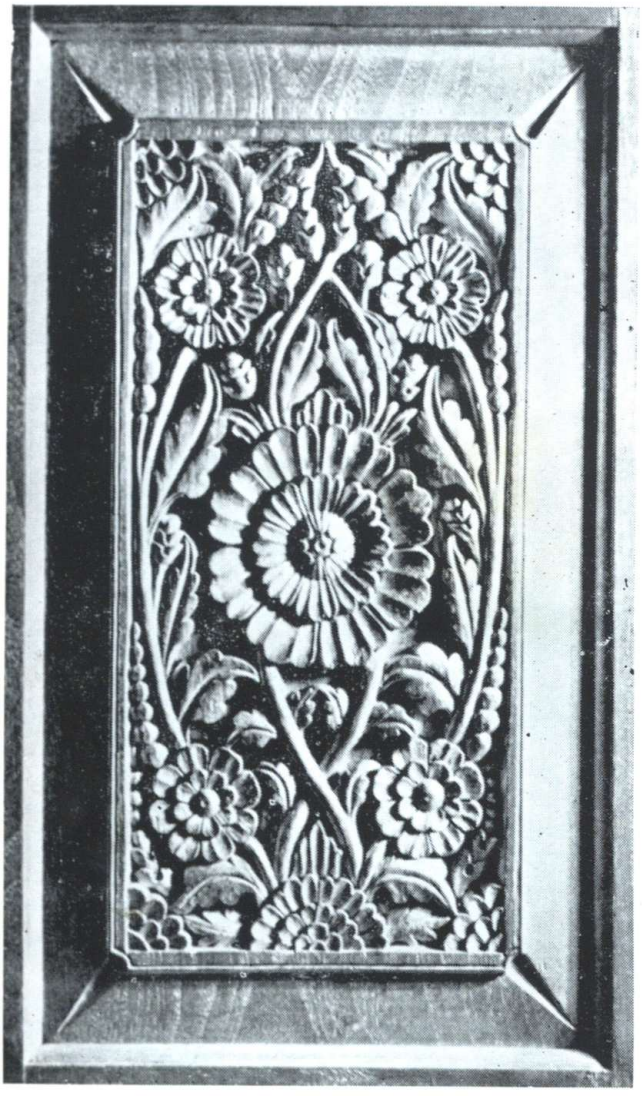
Pl. 11. MINIATURE PILLARS ON THE ALTAR PANEL (sketch)
St. Thomas' Church, Mulanthuruthy



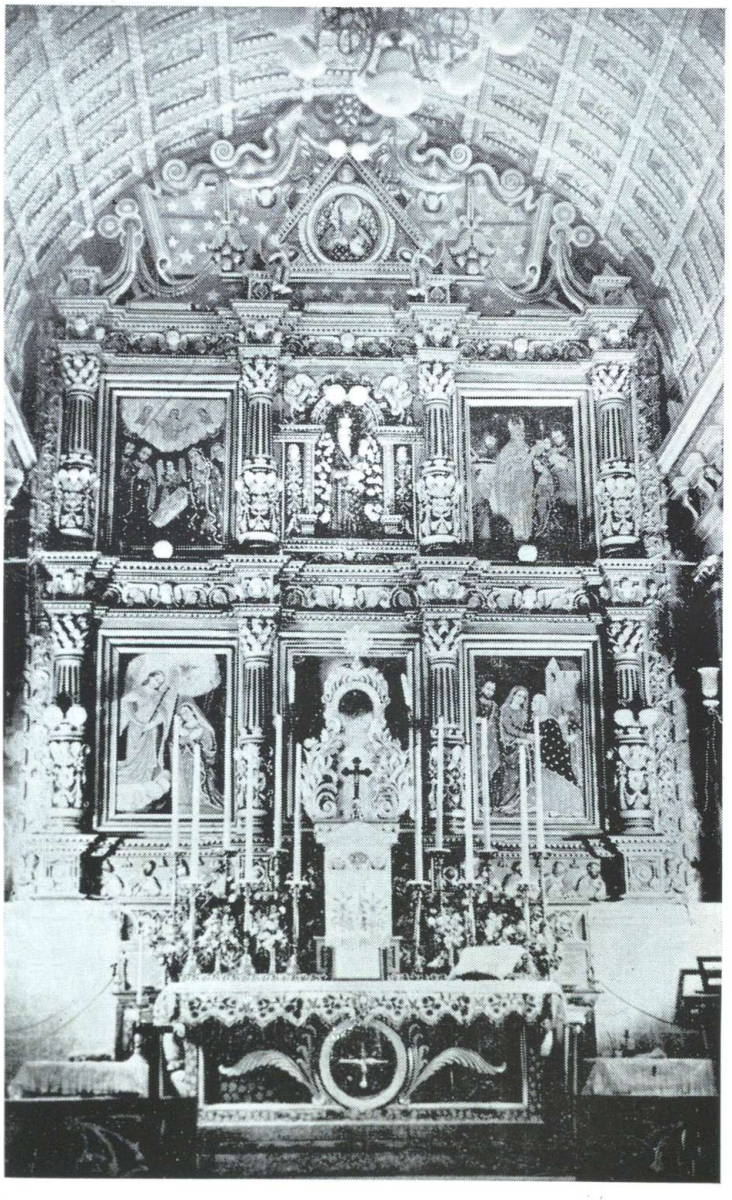
Pl. 12. MINIATURE PILLARS ON THE ALTAR PANEL (photo)
St. Thomas' Church, Mulanthuruthy



Pl. 13. THE 'THORA'
St. Thomas' Church, Mulanthuruthy



(Left) Pl. 14. A DOOR PANEL
St. Thomas' Church, Mulanthuruthy



(Right) Pl. 15. THE ALTAR
St. Sebastian's Church, Kanhur

is another old oil painting depicting the beheading of St. John, the Baptist, under orders of Herod the Tetarch, who had promised the daughter of his concubine Herodia at a dance performed by her on his birthday to grant any wish expressed by her and was confronted with a demand for the head of St. John who was then kept a prisoner at the instance of Herodia for criticising Herod in having her who was his brother's wife. The figures of Herod and a lady (either Herodia or her daughter), the head of St. John dripping with blood served in a charger and the beheaded body of St. John are given in the picture with remarkable realism. In the centre is a figure of Virgin Mary holding Infant Jesus in her hands. A pair of angels, carved in bold style and painted, adorn the sides of this tier. The topmost is a carving of God the Father and the Holy Ghost with a pair of angels on either side. Each storey is separated from the lower one by a row of floral motifs (Plate 12).

St. Sebastian's Church, Kanhur

15. The St. Sebastian's Church, Kanhur[1] is rich in wood carvings on not only the altar and the panel behind but also the *thora* and the pulpit and several statues. Each altar step is decorated with wood carvings of vines and painted in gold against green background. The panel behind the altar rises in four ranks (Plate 15). The first rank depicts Christ and his Apostles in cenacle. This carving which is neatly painted closely resembles the one on the panel of the altar in the St. Thomas' Church, Mulanthuruthy. Each tier is divided into three columns separated by ornamental pillars carved in wood. The bottom of each pillar is decorated with the carving of the figure of an angel and painted. From here up to the top the entire shaft of the pillar is carved in fluted style and painted in gold. The capitals of these tiny pillars are foliated with carvings and painted in green. The carving of the pillars here is much simpler than that of the pillars on the altar of the St. Thomas' Church, Mulanthuruthy. Each tier of the altar panel is seperated from the other by designs of vines and grapes with figures of Cherubims in the centre of each line as also on the top of each pillar, reminding one of the house built by King Solomon for the Lord in which "the two doors also were of olive tree and he carved upon them carvings of Cherubims and palm trees and open flowers and overlaid them with gold, and spread gold upon the Cherubims and upon the palm trees".The topmost tier which takes the form of an arch with ornamentally carved fringes is painted in red and gold. In the centre of this a triangular portion has been carved with a circular niche in the middle containing a carving of God, the Father. The second and third ranks of the panel are decorated with old oil paintings also. On the right hand side of the second tier is a painting of the Annunciation scene in which Archangel Gabriel appears before St. Mary to convey the message of God that Christ should be born through her. The face of Gabriel is full of divine kindness. The supernatural air inherent in the angelic form is clearly brought out in the picture. The emotion visible in the face of St. Mary is a rare blending of surprise and submission to the will of God. On the left hand side of this tier is another painting of St. Mary visiting her aunt Elizabeth following the Annunciation. Flanked by these two paintings on either side is the painting of St. Mary in the middle with Infant Jesus in her hand. This rare painting of Virgin Mary is supposed to be the replica of the famous painting of St. Mary by St. Luke. On the right hand side of the third tier is a picture of the birth of Christ. Another picture of the presentation of Infant Jesus in the temple of Jeruselum is on the extreme left of this tier. In the centre is the niche containing the statue of St. Mary with Infant Jesus in her hand. This statue,

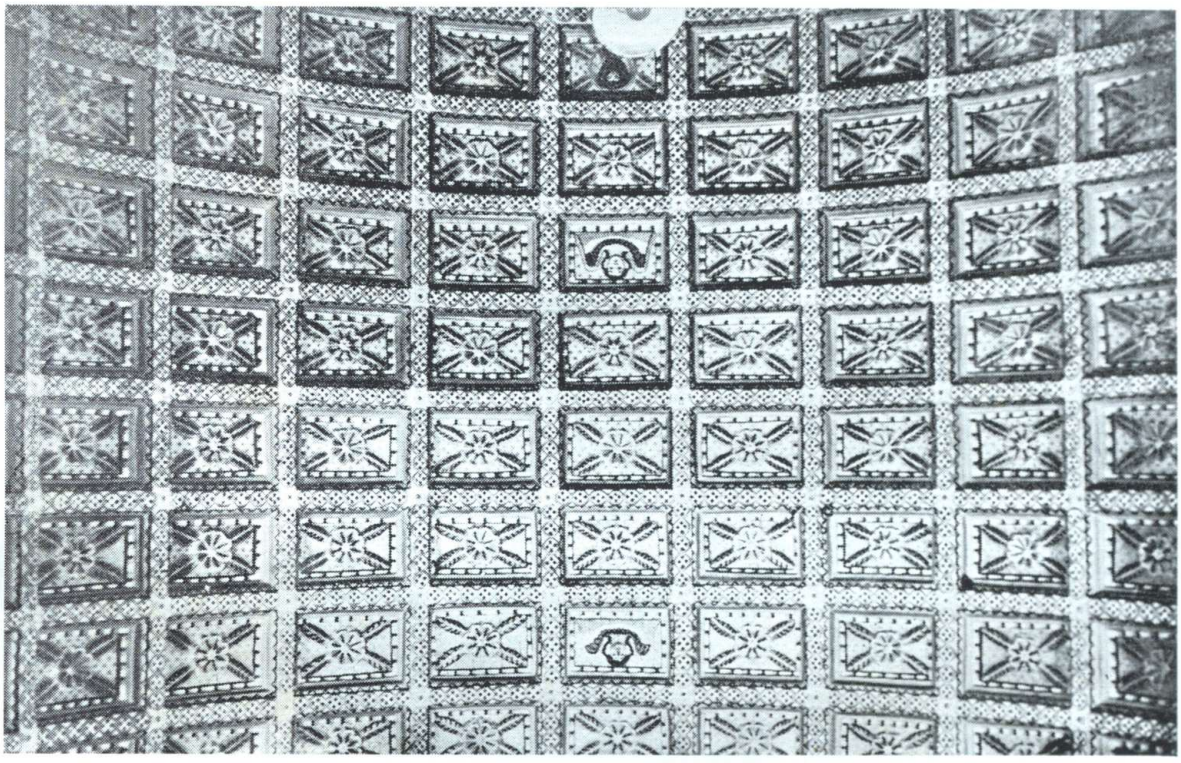
(1) A Roman Catholic Syrian Church built about 500 years ago in the place of an older one founded in 1001 A. D.

which is carved in wood and painted is more than 3 ft. in height. The carving is exquisite. The semicircular vault-like ceiling above the chancel called the *Thora* consists of a series of rectangular columns with ridged borders (Plate 16). In the centre of each rectangle is a flower resting on a leaf, the flower being painted in red with white margins and the leaf in green. The base of the *Thora* is also carved with floral motifs. There is close resemblance between the designing of the panels behind the altars of this church and the St. Thomas' Church, Mulanthuruthy. The wooden pulpit of this church is also one of the outstanding achievements in wood carving (Illustration No. 3 in plate 17). It stands on a carved wooden pillar resembling a shoot sprouting from the mouth of a strange mythical animal, the head of which alone is shown as if it bears the entire weight of the pulpit. Just below this head, on the front side is the head of an elephant holding its trunk in a trumpeting pose. The pillar is as slender as possible but strong enough to support the pulpit. At the top of this pillar is the cup-like bottom of the pulpit. Each side of this is decorated with the figure of an angel carved on it. From this portion rise the wooden panels encircling the platform of the pulpit, each panel being decorated with carvings. A few feet above this hangs a wooden canopy which is also beautifully carved with the figure of the Holy Ghost and the halo and painted. Above the canopy is the figure of an eagle holding with its beak a chain on which the canopy is suspended. The entire pulpit except its canopy suspended above would look like a flower plant with a single shoot sprouting from below and ending with a beautiful flower blossoming from the top of the shoot. The head of the animal from which the shoot has sprouted and the elephant's head attached to it could well be imagined to take the place of the leaves of the plant at the bottom. There are, no doubt, similar pulpits in some other churches as well like the Roman Catholic Churches at Malayattoor, Koratti and Ollur. But this pulpit is superior in its make compared to them in that the shoot-like pillar is more slender and the carvings are somewhat plain but natural and beautiful at the same time. The device by which the eagle is shown holding the canopy above the pulpit also excels the pulpits in the other churches. The statue of St. Sebastian of this church carved in wood and beautifully painted is a marvel in wood carving. The saint is shown tied down to a tree and shot with arrows, the expression in the face indicating the heroic suffering of the persecution with calmness and composure. The eyes are lifted to the sky (Plate 18).

St. Thomas' Church, Malayattoor

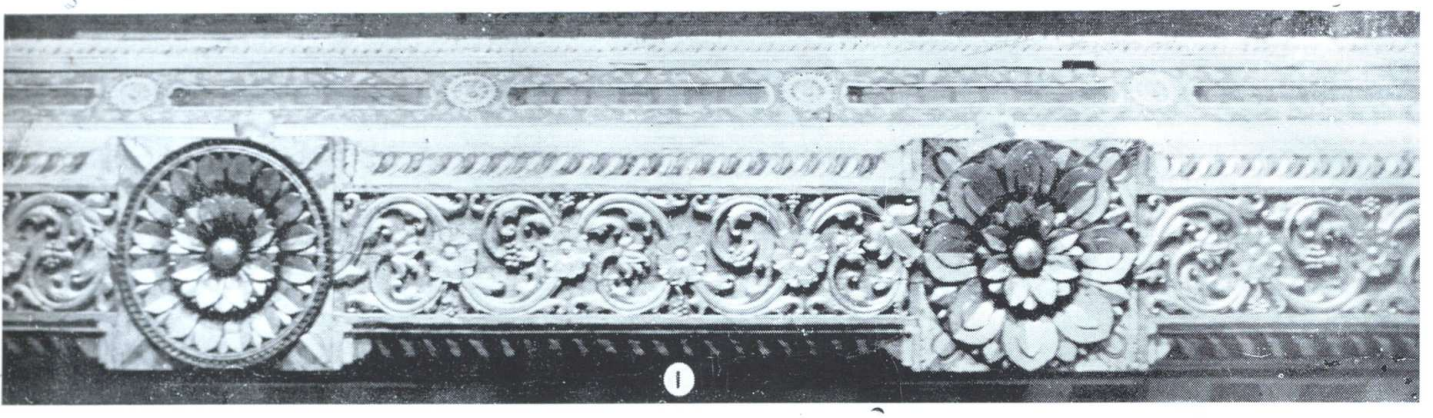
16. Of a slightly different pattern are the wood carvings on the panel behind the altar of the St. Thomas' Church, Malayattoor[1]. The panel of the altar is flanked by richly foliated margins on both sides. There are only two tiers for the panel. The first one consists of a niche in the centre with a pillar each on either side. A vine is shown creeping over the fluted designs on the pillar giving it a beautiful ornamentation. This tier is separated from the next one by a line of floral motifs. The second tier with which the panel ends has a semicircular formation at the top fringed with floral designs and the figures of angels. In the centre of the semicircle is a carving representing the Holy Ghost on both sides of which an angel each is shown in kneeling pose holding a crown above. The figures are painted in gold and other appropriate colours. Below the altar is a panel in which also the figures of two angels in adoration of the Sacred Heart of Jesus shown in the centre with halo all round are carved. These figures are also neatly painted. The pulpit of this church is also decorated with wood carvings of the figures of the Apostles and painted. The beam below the balcony inside the church contains an array of floral motifs well

(1) A Roman Catholic Syrian Church founded in 900 A. D.

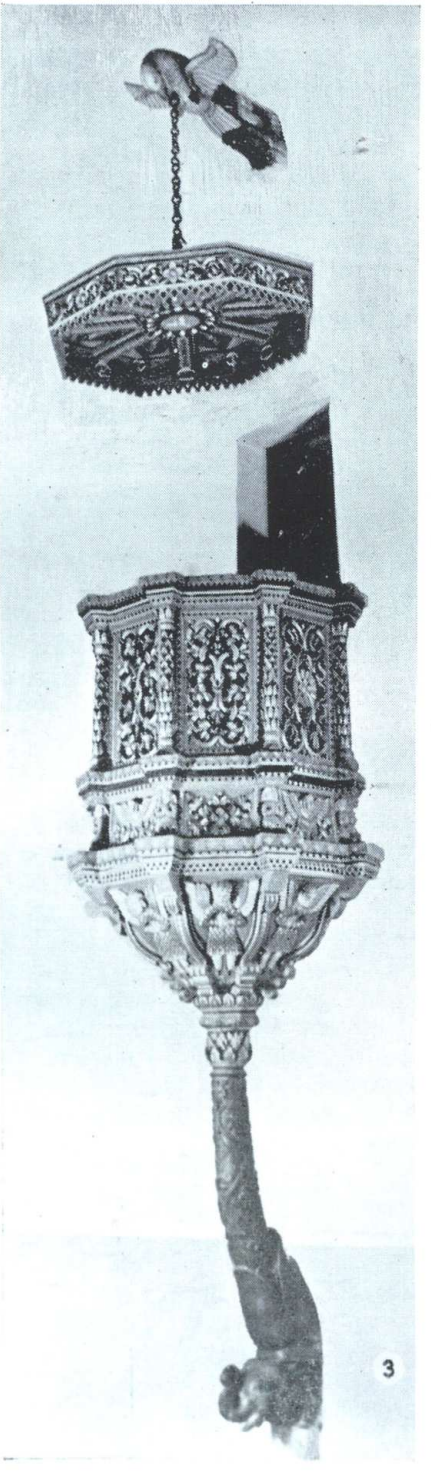


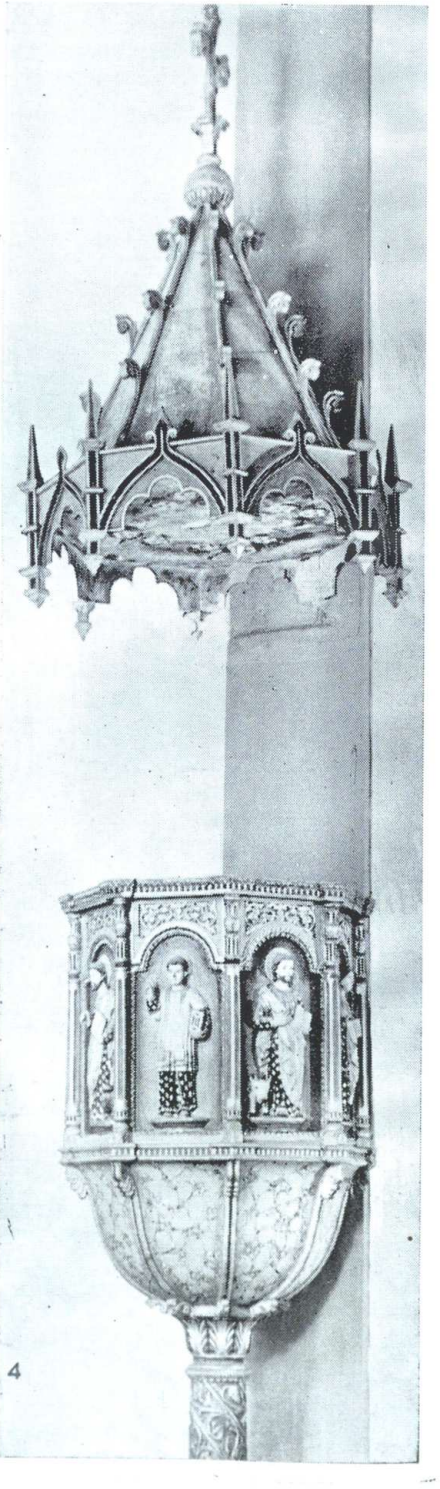
Pl. 16. THE 'THORA'

St. Sebastian's Church, Kanhur









Pl. 17. 1. THE FRONT BEAM OF THE BALCONY
St. Antony's Church, Ollur

2. WOODEN CROSS
Marthamaryam Valia Palli, Kothamangalam

3. THE PULPIT
St. Sebastian's Church, Kanhur

4. THE PULPIT
St. Mary's Church, Koratty



Pl. 18. THE STATUE OF ST. SEBASTIAN
St. Sebastian's Church, Kanhur



Pl. 19. THE ALTAR
St. Mary's Church, Koratty

carved and painted in natural colours.

St. Mary's Church, Koratti

17. The St. Mary's Church, Koratti[1] is a rich repository of wood carvings on the altar steps, the panels behind the altar and the pulpit and a few statues. The main altar has its steps covered with wooden planks carved with vines and neatly painted (Plate 22). Behind the altar steps is a wooden panel about 25 ft. high and 20 ft. wide rising in three ranks, carved and painted mostly in gold (Plate 19). There are three niches in each tier. Between the niches beautiful tiny pillars and the figures of apostles are carved and painted in gold and life colours. The pillars are decorated with vase and foliage carvings (Plate 20). The central niche in the first tier contains a statue of the Sacred Heart of Jesus and the two on either side of it hold the statue of St. Mary and the statue of St. Joseph each. The central niche in the second tier holds a picture of St. Mary. In the side niches are placed the statues of Apostles. The pattern of carvings between the niches is similar to that of the first tier. At the top, which marks the end of the panel is a carving of the Holy Trinity and the celestial Choir (Plate 21). Below the altar is another wooden panel resembling the one in the St. Thomas Church, Malayattoor. The pulpit is also rich in carving modelled on the one in the St. Thomas Church, Malayattoor. (Illustration 4 of Plate 17). The statue of St. Mary in this church is carved in wood and painted except the palms of the hands which are of ivory. The statue excels several others of the type (Plate 23). There is also a life-size statue of Christ on the cross with movable limbs. As similar statues are found in other churches as well, a common description is given elsewhere in this monograph.

St. Antony's Church, Ollur

18. Almost the same pattern of carvings as in the St. Thomas' Church, Malayattoor is found on the altar panel of the St. Antony's Church, Ollur[2] (Plate 24). The pulpit in this church is also modelled on that of the Malayattoor church. But the pillar of the pulpit is much stouter. It also sprouts from the mouth of a crouching mythical animal its attitude suggesting that it bears a heavy burden and painted in life colours (Plate 25). As a background to the pillar a vine is carved in wood and fixed against the wall behind. It is large and beautiful and painted in gold. In the centre of this carving is a shield. The beams below the balcony inside the church rest on elephant's heads carved in wood. The front beam is decorated with carvings of vines and bunches of grapes with human heads at intervals on the sides and large circular floral motifs below (Illustration 1 of Plate 17). Of the statues in wood the one of St. Augustine which is about 4 ft. in height with glass eyes deserves special mention (Plate 26).

Marthamaryam Valiya Palli, Kothamangalam

19. Although both the Jacobite churches at Kothamangalam have some wood carvings in them the Marthamaryam Valia Palli has more. The altar panel of this church is richly decorated with wood carvings of high quality (Plate 27). This church also contains *Ramsethis* (floral motifs carved in wood and placed in a wooden flower pot all painted in gold and natural colours) (Plate 8). A beautifully carved wooden cross of this church is also worth mentioning (Illustration 2 of Plate 17).

St. Mary's Jacobite Church, Manarcad

20. The St. Mary's Jacobite Church, Manarcad[3] has a wooden altar panel carved with tiny, fluted and foliated triple pillars on either side painted in gold against blue background (Plate 28). The vase-shaped bottom of these pillars is decorated with floral carvings, the flowers being painted in

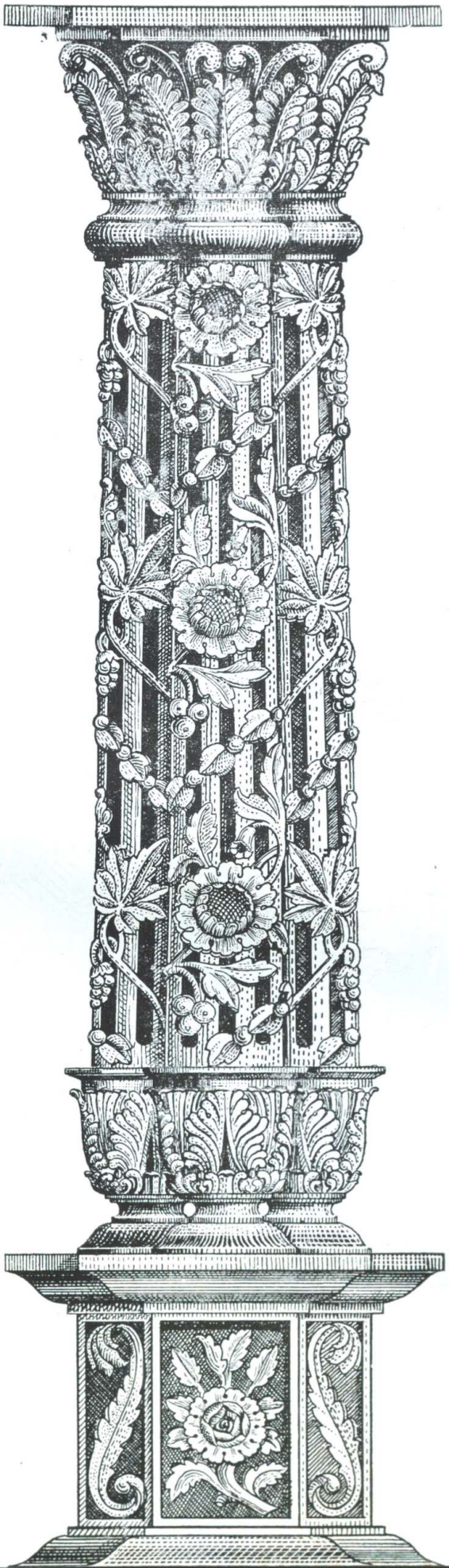
(1) A Roman Catholic Syrian Church founded in 1381 A. D.
(2) A Roman Catholic Syrian Church founded about 400 years ago.
(3) A Jacobite Syrian Church.

gold on the sides and red inside. The panel between the pillars rises up to the top of the altar with an arch ending with a crown and floral motifs on either side. In the centre of this semi-circular portion of the panel is a carving of the Holy Ghost with halo all round painted in gold against red background. Below this is a niche in which a beautiful painting of St. Mary with Infant Jesus is placed. This painting is unveiled to the public only once a year which occasion marks the most important festival in the church. The upper Jacobite Syrian church, Manarcad also contains a wooden altar panel the one distinctive feature of which is that the panel rises in triangular formation edged with floral motifs on both the ascending sides.

St. Louis' Church, Mundamveli

21. The St. Louis' Church, Mundamveli[1] which was constructed in 1868 A. D. has a few side altars of excellent wood carving. Before the construction of this church there were four other churches all of which submerged in the sea. The oldest of them was in existence at the time of the advent of the Portuguese. Some of the wooden altars in the present church were taken from the earlier churches. The oldest of these altars is that of the Sacred Heart of Jesus which was made in 1842 A.D. On the left side altar a wooden statue of St. James is placed (Plate 29). This is made in Kumbil wood (Gmelina asiatica). The saint is shown as a splendid cavalier nonchalantly astride a gigantic rearing charger holding a sabre in his right hand and a shield, flag and the reins of his horse in the left. The tradition goes that the piece of wood from which the statue was carved was lying in a tank belonging to a carpenter. The piece of wood used to show symptoms of life by making sounds and bubbles. Occasionally, shoots sprouted from this which the carpenter used to remove from time to time until to his great surprise he saw the piece of wood taking the shape of the statue. The altar steps are decorated with wood carvings, the lower one with the carvings of vine and bunches of grapes painted in gold against red background.In the centre is a flower motif resting on green leaves. The panel behind the altar steps consists of two tiers, the first with a triangular carving in the centre of which is shown the Holy Eucharist and the chalice on both sides of which angels are holding out incense, the letters I. H. S. being carved inside a circle above the Holy Eucharist and the second ending in a triangular formation with its edges as well as the surface decorated with carvings of floral motifs painted in gold against marble painted background. The St. Joseph's altar on the right hand side is modelled on the one described above with the only difference that there is a crown with the inscription "Joseph Fili David Salus Nostra In Manu Tua" in the centre of the triangle instead of the Holy Eucharist. The altar of the Sacred Heart of Jesus which was taken from the earlier church and installed in this church has the altar steps decorated with wooden carvings of angels and vines painted in gold and green against red background. The panel behind the altar has in the middle a statue of the Sacred Heart of Jesus. Above these are two angels, one each on either side kneeling on the top of a pillar in devotion to the figure of God, the Father, carved within a circle in the centre. The altar ends with a semi-circular arch-like formation decorated with floral designs and painted against green background and cherubs whose wings are painted in red with golden borders, face in white and hair in gold (Plate 30). A wooden panel is placed in front of all the side altars. This panel has the design of a foliated cross. At the foot of the cross are ears of wheat. In the centre of the panel is the figure of the lamb on the missal (i. e. a book and a cross) with halo all round. The borders of the panel are also decorated with carvings and painted. The statue of the Mother of Freedom in the main altar wearing a crown, holding Infant

(1) A Roman Catholic Latin Church.



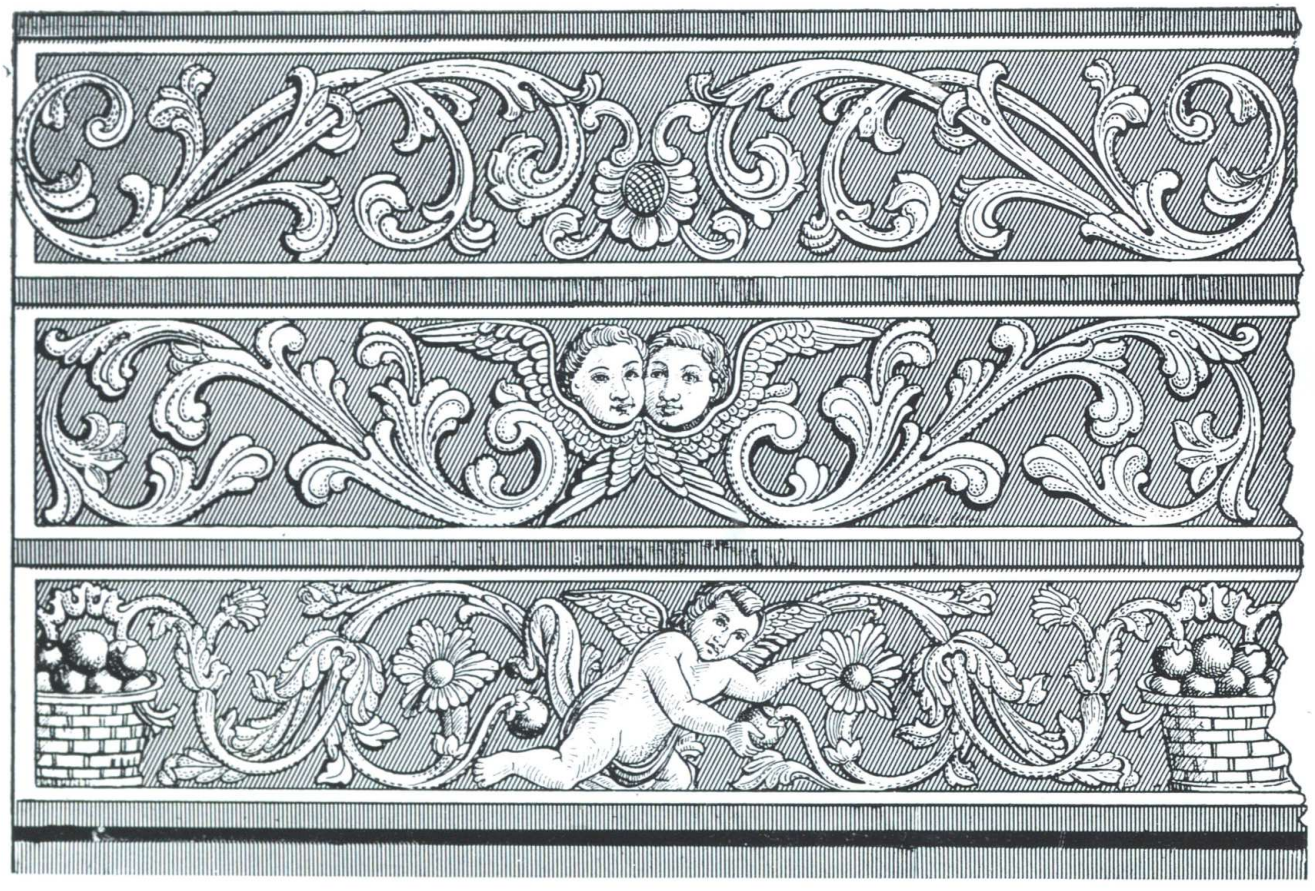
Pl. 20. A VASE AND FOLIAGE PILLAR ON THE ALTAR PANEL
St. Mary's Church, Koratty



Pl. 21. THE TOPMOST TIER
St. Mary's Church



Pl. 21. THE TOPMOST TIER OF THE ALTAR PANEL
St, Mary's Church, Koratty



Pl. 22. THE ALTAR STEPS

St. Mary's Church, Koratty

Jesus and standing on a pedestal of clouds is carved in wood and painted in gold. It is about 3 ft in height.

All Saints' Church, Udayamperoor

22. The All Saints' Church, Udayamperoor[1], one of the ancient churches and well-known for the Synod of Diamper held in 1599 A. D. has a few items of wood carvings. One of these is a statue of St. Michael about 4 ft in height carved in wood (Plate 31). This statue is said to belong to the Portuguese period. The Archangel is shown standing on a devil represented in the form of a dragon thrusting a spear into its mouth. Though fierce in appearance the dragon is groaning and sinking under the weight of the Archangel and the thrust of the spear. A balance is held in the left hand symbolising the assessment of virtue and vice. The wings of the Archangel spread behind are beautifully carved and painted in varied colours. An ornamental crown is worn on the head with feathers on the top. The costume consists of an inner and an outer jacket, a cope just below the neck covering the chest and shoulders, a girdle on the loins and a belt above, the outer jacket, shoulder plates, trousers, stockings and shoes. The outer jacket and belt are painted deep green and checkered with golden lines. The trousers are painted in blue. The bottom of the inner jacket carved with frills is painted in gold with red lining on the edges. The stockings are painted green but the garters are yellow. A faint creeping vine is carved over the stockings and painted yellow over the deep green background. The cornices on which beams of the roof of the church rest are decorated with the carvings of various figures like the head of elephant (Plate 32), horse, rhinoceros, a crocodile devouring a woman etc. These carvings look several hundred years old. A small wooden pedestal of a cross about a foot in length 5 inches in width and 3 inches in height recovered from the remnants of a part of this church has been preserved here. The fringes of the pedestal are carved with flower buds except in the front. In the forefront is a ridge resembling a hillock. In the centre is the head of Adam over a cross. On the right hand side a human figure is shown with his head slightly bent towards the right and leaning on the elbow of his right hand. On the left hand an opening is made in the centre of a small arc through which a serpent is shown passing. A pair of forceps, a crown of thorns, a lizard and nails and hammer are also carved behind the arc. The groove in which a cross can be fixed is still seen in the centre of this.

St. George's Church, Kumbalangi

23. Though the altar panel of the St. George's Church, Kumbalangi[2] is almost of the same model as of the other churches mentioned above, the bold featuring of some of the items and the general design of the panel deserve special mention. The panel rises in two tiers, the lower one having five niches. The central niche in which the statue of St. George is placed, is decorated by an insignia consisting of the sword, spear and helmet at the top of the niche. It is flanked by a triple pillar, fluted and foliated. The second tier is decorated with curves and floral motifs on both sides which taper to the top ending in the apex of the triangle on which a cross is shown resting on a global pedestal. Out of four curves in the floral designs on each side of the second tier of the panel the figures of cherubs with musical instruments like violin and trumpet are carved in bold and neat style on three of them and the figure of an Archangel holding a wreath on the remaining one. While the cross and its pedestal are painted in gold, the curves are painted in red, green and gold. The angels are shown with golden wings interlined with red. The wreaths are also painted in gold. In the centre of the second tier, is a niche with the statue of

(1) A Roman Catholic Syrian Church founded in 510 A. D.
(2) A Roman Catholic Latin Church founded in 1848 A. D.

St. Mary. This is flanked by the carvings of God, the Father, with red mantle holding a golden sceptre in the right hand and the figure of God, the Son wearing a golden mantle and holding a golden cross. No other garb is carved on this figure. Between the central niche and the cross is a carving of the Holy Ghost with the halo, painted in gold. The Archangels are shown wearing the garb of the pattern of St. Michael already referred to in the All Saints' Church, Udayamperoor. The pillars are painted in green, red and gold colours. The gentle elevation of the panel from the broad and beautifully carved first tier to the apex which holds the globe and the cross is magnificent (Plate 33). A life-size wooden statue of Christ 6 feet 2 inches in height kept in this church is a rare product of wood carving. Wearing a crown of thorns and shorn of his raiment, this statue of Christ full of bleeding wounds represents the passion of Christ with perfect realism. To complete the realistic character of the statue its head, eyes, hands and legs are rendered movable when operated through a string device. The locks of hair seen on the statue form a separate fitting made of some animal hair dyed to suit the shade of Christ's locks. The beard also is of some animal hair but plastered to the face of the statue. The crown of thorns is made of some thorny creeper and painted. In former days this statue used to be exhibited with full movement of the limbs on Good Fridays to represent the passion of Christ on the cross. His death on the cross used to be depicted with drooping head and eyelids. The chest portion of the statue is carved hollow inside so that the bleeding of the heart can be rehearsed by filling the cavity with some blood-coloured liquid which can be made to ooze out by suitable devices at the appropriate time. Statues of this pattern are found in a few more churches like the St. Mary's Church, Koratty, St. Laurence's Church, Edacochin, Madre de Deus Church, Vettukat, St. Antony's Church, Valiyathura and St. Nicholas' Church, Chinnamarthandanthura, etc. The custom of rehearsing the passion of Christ has been discontinued in most of the churches except a few. On the evening of Good Friday, however, the statue is placed in a coffin and taken in procession even now.

Valia Pally, Kottayam

24. The panel behind the altar of the Valia Pally, Kottayam[1] consisting of eight columns is decorated with pillars carved in wood and painted in gold. On the top of these columns are the carvings of guardian angels watching the three chieftains of evil spirits. On the side altar close to the chancel are preserved several floral motifs of large size and a few worn out carvings in wood.

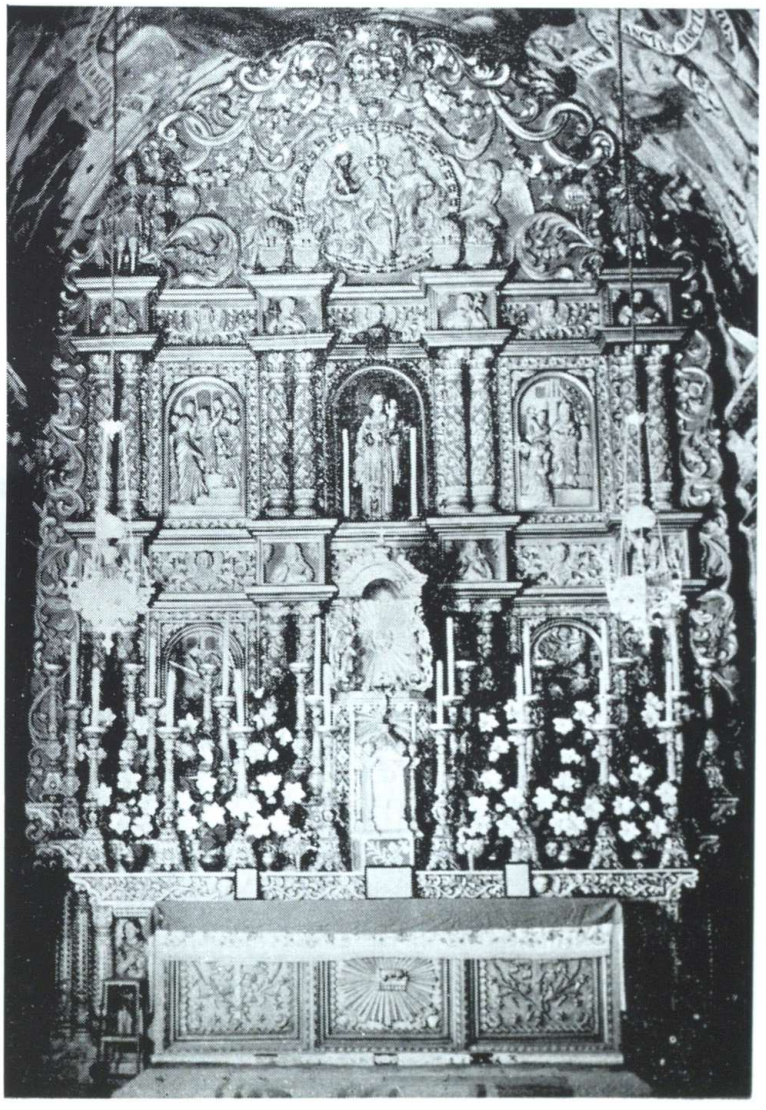
St. George's Church, Edappally

25. Although the main altar of this ancient church has a wooden panel in the rear it is not so picturesque as in the other churches described here. But there are two wooden statues of St. George in this church which deserve special mention. The older statue which is not exhibited now in the church is made in the Persian style. It is still preserved in the church. The statue which is enshrined in the church depicts St. George as a cavalier sitting on a gigantic rearing horse and engaged in a furious combat with a fabulous dragon which is being enslaved by the thrust of his long spear. The princess who is saved from the dragon is shown kneeling down in devotion to God. The ease with which the dragon is fought by the Saint is singular and matching with the feeling of exultant invincibility so patent in the face of the Saint translating the power of good over evil. The horse is painted white. It looks lively and up to the task although the dragon is lying between its legs. The costume of the Saint is fully western (Plate No. 34). The tradition goes that this statue was made by a priest of the

(1) An ancient Jacobite Syrian Church



(Left) Pl. 23. STATUE OF ST. MARY
St. Mary's Church, Koratty



(Right) Pl. 24. THE ALTAR
St. Antony's Church, Ollur



Pl. 25 (a). THE PULPIT

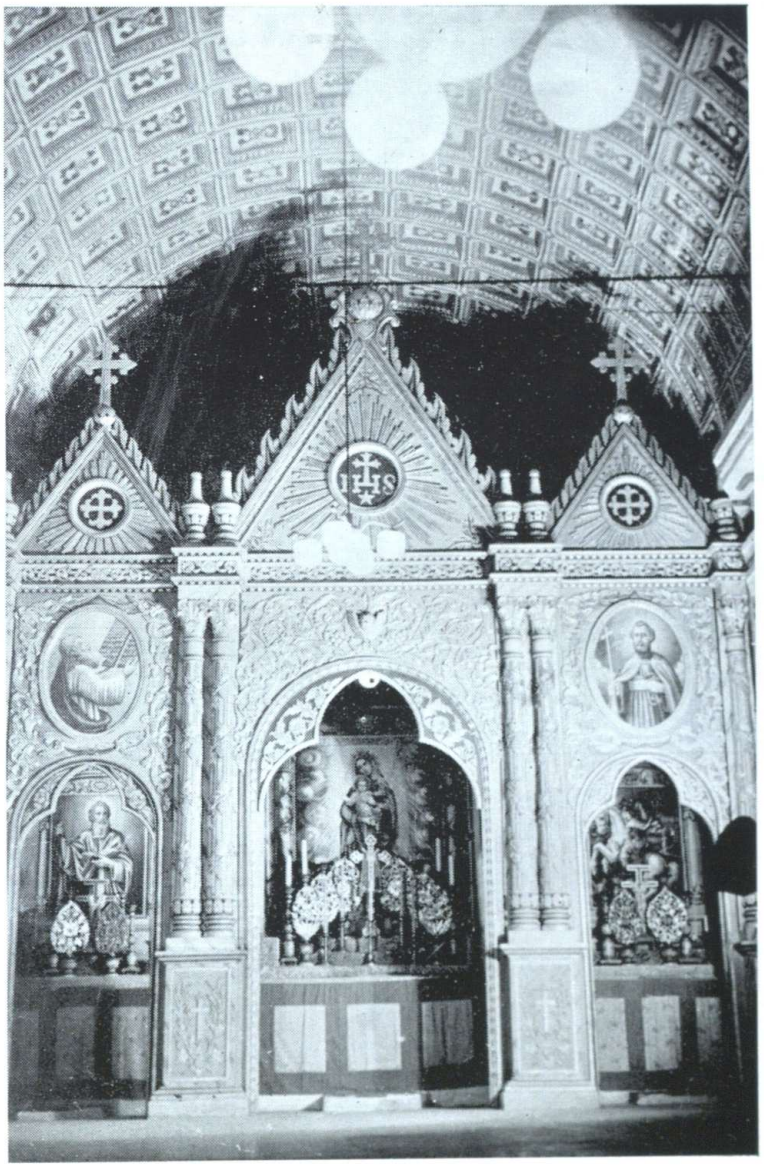


Pl. 25 (b) BOTTOM OF THE PULPIT

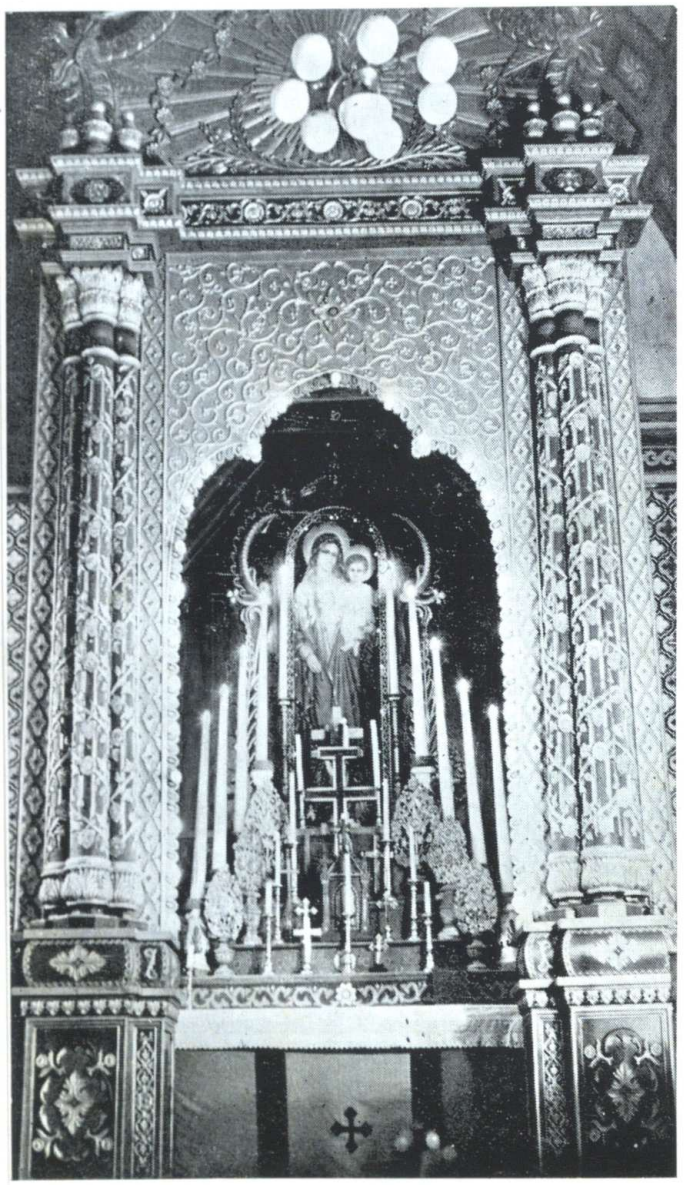
St. Antony's Church, Ollur



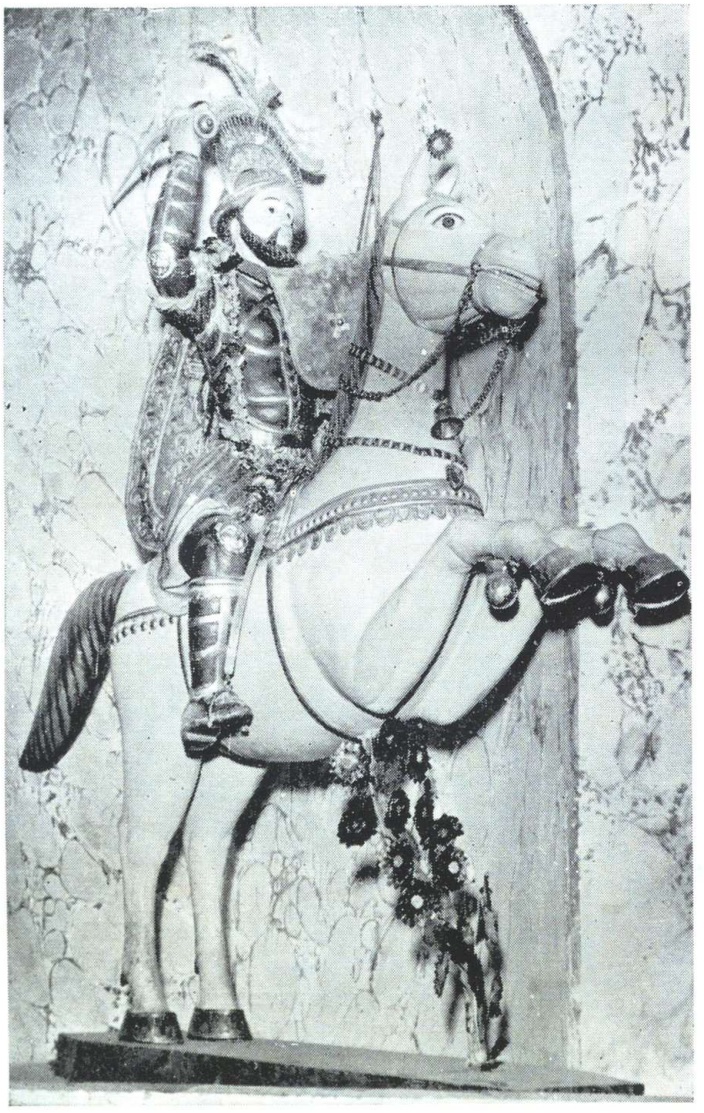
(Left) Pl. 26. STATUE OF ST. AUGUSTIN
St. Antony's Church, Ollur



(Right) Pl. 27. THE ALTAR
Marthamaryam Valia Palli, Kothamangalam



(Left) Pl. 28. THE ALTAR
St. Mary's Jacobite Syrian Church, Manarcad



(Right) Pl. 29. STATUE OF ST. JAMES
St. Louis' Church, Mundanveli

Cheruthuruthi family while he was engaged in missionary work in the Tamilnad and presented to the Church. Several miracles are associated with St. George in this Church.

26. The panels of the altars of the St. George's Forane Church, Ankamali[1], the St. Mary's Church, Thrippunithura[2], the Jacobite Syrian Church, Piravom, the Cathedral Church, Alleppey[3], the St. James' Church, Pulluvila[4], the St. Antony's Church Kochuthura[5], the St. Bartholomio's Church Karimkulam[6] and few other churches also contain wood carvings of one or other type mentioned above.

27. The carvings in churches belong to different periods as could be judged from their appearance. The wooden models of the head of elephant and rhinoceros on which the beams of the All Saints' Church, Udayamperoor rest are certainly very old, perhaps as old as the church itself which is attributed to the 6th century and in any case much older than the altar panels of other churches. From the costumes of certain figures like the angels carved on the panels behind the altars of some other churches consisting of items of western garments it could be inferred that these carvings, unlike in the case of the carving of the All Saints' Church, Udayamperoor, belong to a later period in which western influence dominated. The probability is that although a few churches had wood carvings even before the advent of the Portuguese, a special pattern of wood carvings came into vogue and thrived in the churches of Kerala during the Portuguese period. Several of the churches containing important items of wood carvings have, no doubt, been founded much earlier than the advent of the Portuguese. But there is no evidence to trace the existing altar panels or statues or other items of carvings to the time when these churches were founded. From the practice of periodical changes in the pattern of altars found in the churches of Kerala there is a high probability of the existing altar panels and similar items having come into existence as a step at improving or replacing the original altars of these churches.

A comparison

28. A study of the wood carvings in the temples and churches of Kerala would reveal several interesting features. As observed earlier the spiritual content dominates the wood carvings of both Hindu temples and churches, the rest being subsurvient to this. This is responsible for most of the carvings being devoted to the gods and goddesses and scenes of the Hindu mythology in the case of temples and the figures of holy characters of the Christian religion and their activities in the case of the churches. The ornamental carvings serving as a background to the spiritual ones take the form of foliated and fluted pillar shafts mostly carved in relief with pulsating light and shadow, scalloped bases and capitals, floral designs, string courses, etc., in both temples and churches. But, while in the case of churches the pillars are shorter and tiny often appearing in clusters and painted, in Hindu temples they are larger and perhaps more ornamental and rarely painted. The designs of flowers and foliage in temples are mostly of lotus while those in churches are of vines, grapes and ears of wheat and flowers. The pre-eminent place occupied by lotus in Hindu mythology and vine and ears of corn in biblical references account for this difference. The supernatural air of the characters covered by the carvings is greater in the case of temples than in churches. Generally, the carvings in temples present more complicated compositions, at times strange and manifold, presenting figurative dramas, as it were, in wood, while those in churches are simpler, with a few exceptions relating more to divine figures than to scenes of action which are mostly depicted in paintings on the altar panels or the ceiling above the chancels. Painting over wood carvings

(1) A Roman Catholic Syrian Church
(2) A Jacobite Syrian Church
(3) (4), (5) and (6):—Roman Catholic Latin Churches

is more pronounced in churches than in temples. While it is only in a few temples like the one at Ettumanoor that the wood carvings are painted, in the case of churches there is hardly any carving on the altar panel which would not have been painted. Similarly the statues in the churches are also invariably painted. The bright colours like gold, red, etc., used in the paintings over the wood carvings in churches, no doubt, give a lustre to the carvings. At the same time, they have, to some extent, made the excellence of the carvings subservient to the paintings over them. Above all, the carvings in Hindu temples reflect a higher degree of oriental influence about them than those in churches. Both have their great merits and also their distinctive features, and though in different forms and with different degrees of perfection, the carvings in both Hindu temples and churches have made their own valuable contribution to the art of wood carving.

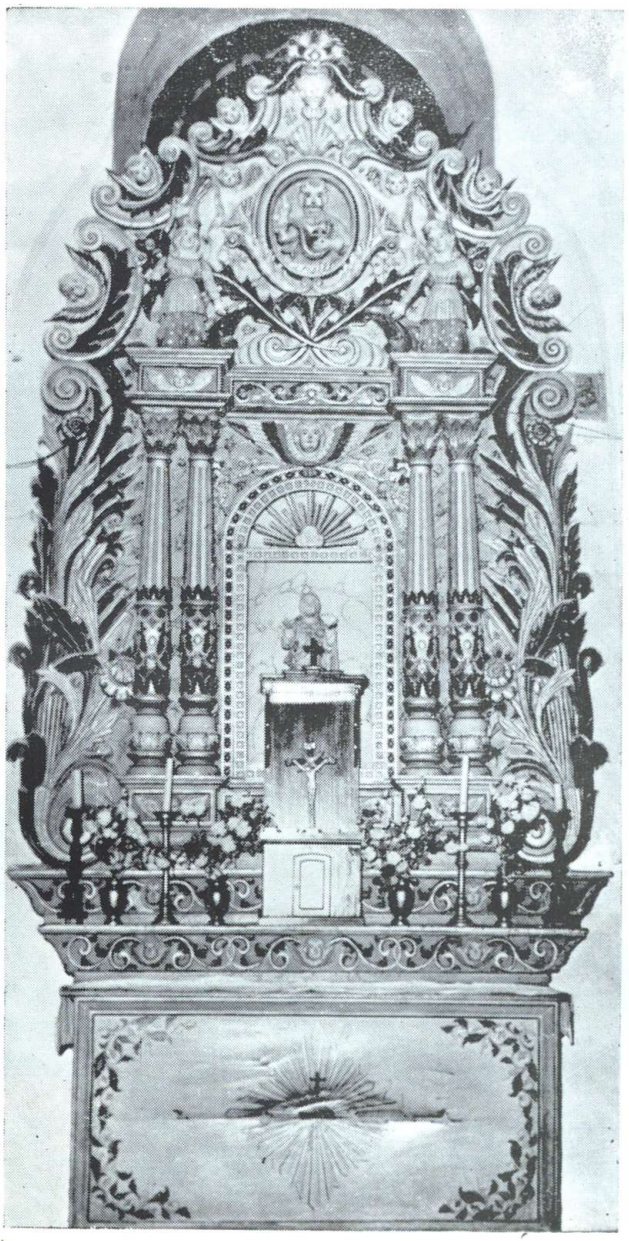
Collection of wood carvings in Museums

29. Of the various collections of wood carvings in the Trivandrum Museum, perhaps the most striking one is the image of Sree Rama with Hanuman (Plate 35). This image carved in *anjili* (Artocarpus hirsuta) wood shows Sree Rama holding a bow in his left hand and arrows in his right hand. The left hand is held high, while the right hand is hung straight low. A branch of a tree is carved in the background rising well above the head of Sree Rama. The figure of Hanuman touching Sree Rama on the left is shown holding an umbrella over the head of the latter. The image of Sree Rama is crowned by the *kiritamakuta* exquisitely carved in great detail. The circular ear-rings adorning the ear-lobes of Sree Rama, the delicate and beautiful necklaces flowing from the neck and covering the chest, the shoulder rings *(Keyoma)*, the *kankanams* on the wrists, the *udarabandham* above the hip, the *yagnopavitam* (Sacred thread) flowing down the hip to the right and the *katibandham* floating over the drapery down to the knee are all carved with minute attention to details. The image of Sree Rama is 3 feet 3 inches and of Hanuman 2 feet in height. The umbrella held by him over the head of Sree Rama is carved in highly ornamental style. Hanuman is shown wearing a crown over the head and necklace round the neck.

30. Another image bearing the caption "Thripuranthakamurthi", 2 feet 7 inches in height depicts an aspect of Siva in dancing pose (Plate 36). The crown is shown on the head, with a *Prabhavali* (ring of light) encircling it. Two circular ear-rings *(Ratnakuntalam)* adorn the ear-lobes. The right hand is held high. *Kankanams* (bangles) and wristlets are shown adorning the wrist but the tip of the hand is broken. The whole of the left hand is also broken. While both the legs are shown turned to the right the rest of the body and feet are in straight pose. The drapery and ornamentation are the same as in the case of the images of Sree Rama and Hanuman.

31. The image of Vishnu in meditation is another one among the collections. The legs and feet indicate the *ardhapadmasana* pose. The upper right hand holds the fiery discus, while the upper left hand holds the conch. The lower right hand is broken and the lower left hand held in *abhaya* pose. The *kiritamakuta* is richly decorated with jewels exquisitely carved and finely finished. A pair of ornaments cover the upper portion of the ears, while circular ear-rings *(Makarakuntala)* adorn the ear-lobes. The necklace round the neck and chest, the *udarabandham* and the *yagnopavitam*, the *katibandham* etc., are carved on the same pattern as on the image of Sree Rama already described, but as Vishnu is shown in a sitting pose a part of the *katibandham* is covered by the feet, its tip flowing down to the pedestal. A *prabhavali* flanks the image from bottom to the top of the *kiritamakuta* from either side in the form of an arch.

32. A statue of Bhima recovered from Palluruthy and kept in the Trichur museum is an excellent product of wood carving.



(Left) Pl. 30. THE SACRED HEART'S ALTAR
St. Louis' Church, Mundanveli



(Right) Pl. 31. STATUE OF ST. MICHAEL
All Saints' Church, Udayamperur



Pl. 32. FIGURE OF AN ELEPHANT'S HEAD ON THE CORNICE
All Saints' Church, Udayamperur



Pl. 33. THE ALTAR
St. George's Church, Kumbalangi



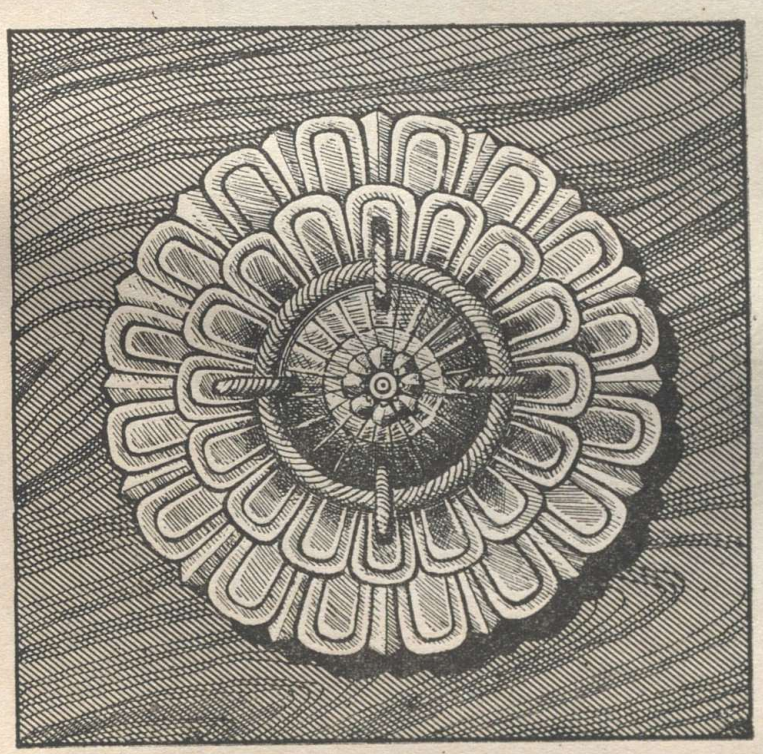
Pl. 34. STATUE OF ST. GEORGE
St. George's Church, Edappally

Apart from the liveliness of the face the headgear of the figure and the ornaments on the arms are singularly picturesque. (Plate No. 37)

Wood Carving in Palaces and Private Houses

33. Varthema observes about the palace of the king of Calicut that it is about a mile in circumference and 'the walls are low with very beautiful divisions of wood, with devils carved in relief'. Describing the palace of the Raja of Porakkad in 1664 the Dutch Captain Nieuhoff says, "This palace of the king is a four square structure of about 40 paces in the square in the midst of which the apartments (of which there is a great number) are built; they are all four square, their chief ornaments within being the carving of leaves and other works in all sorts of fine wood. In some of these lodgings you see fine cisterns for the conveniency of bathing. You ascend (descend?) to them by certain broad stone steps like our grave stone."[1]

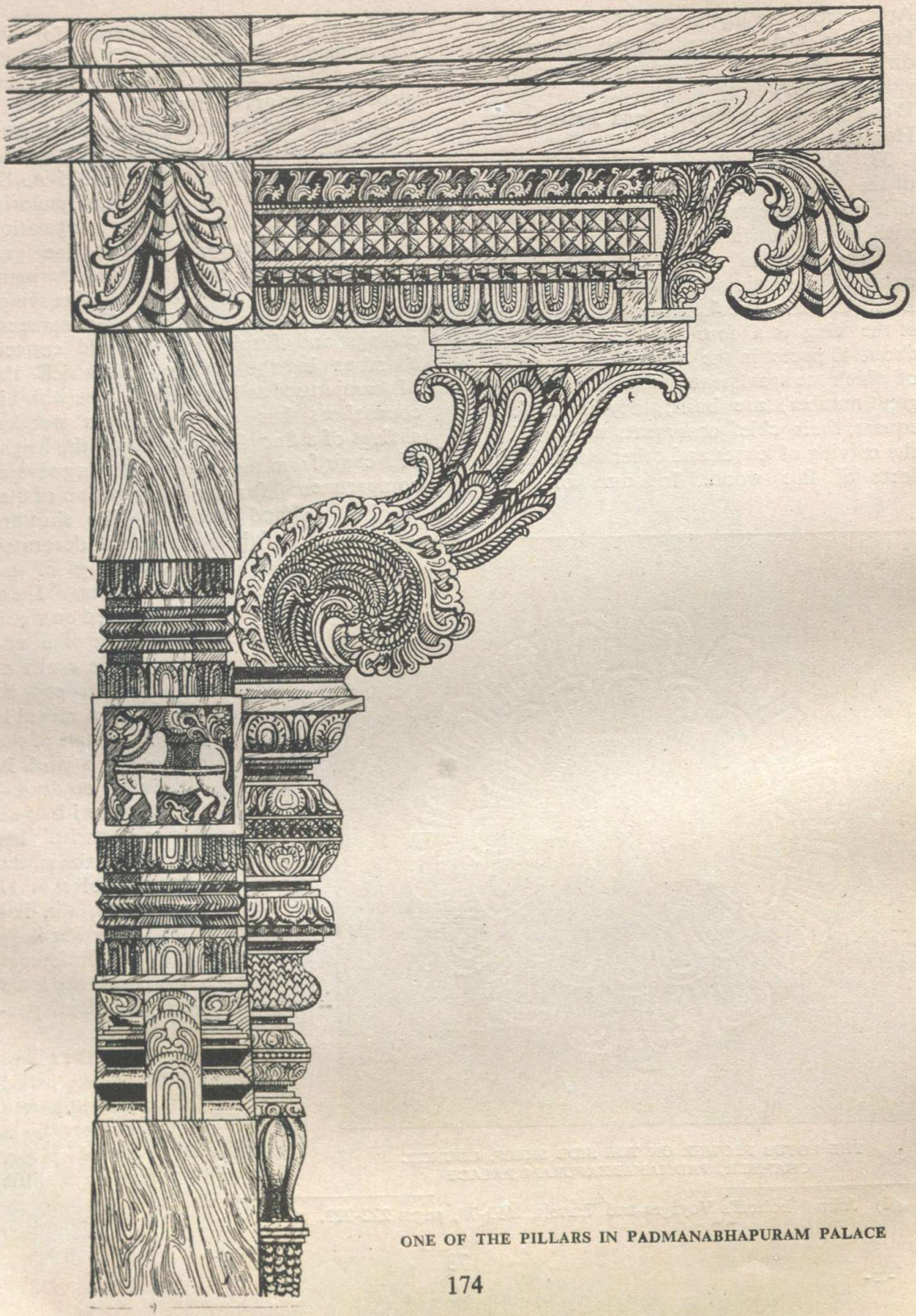
34. The Padmanabhapuram palace near Thuckala, which is still retained by the Kerala Government, built in 1335 A. D. contains, amidst its numerous pictorial records of the Hindu religious imagination in noble figuratives, eloquent line and pleasing colours, pointed gables, dormant windows and intricate and beautiful carvings of a high order on its pillars, door-screens, ceilings and furniture. The old council chamber in the palace in which the Maharaja used to have discussions with his counsellors has on three sides wooden shelves of a fine finish of about the height of a chair from the floor containing several compartments for the preservation of files and records. The shutters of these shelves are decorated with elegant carvings of immense lotus flowers. These flowers are so carved on wood that by operating the unopened petals in the centre of the flower the doors can be bolted or opened. A movable ring piercing the petals of the flowers is a superb work in carving. It is made so dexterously that one can, with ease, rotate this ring with his fingers. While the size of the shutters of these shelves is 11 inches by 12 inches, the diameter of the lotus flower is 9½ inches and its circumference 30 inches. In effect, the lotus flower covers, the major portion of each shutter.



THE LOTUS FLOWER ON THE SIDE SHELF, COUNCIL CHAMBER, PADMANABHAPURAM PALACE

35. The ceiling of the oldest building in the palace called the *Thai Kottaram* is supported in one of the corners by a magnificiently carved pillar. This pillar which is a little

(1) John Nieuhoff's Voyages and Travels, 1653–70, pages 222–223.



ONE OF THE PILLARS IN PADMANABHAPURAM PALACE



(Left) Pl. 35. SREE RAMA WITH HANUMAN
Trivandrum Museum

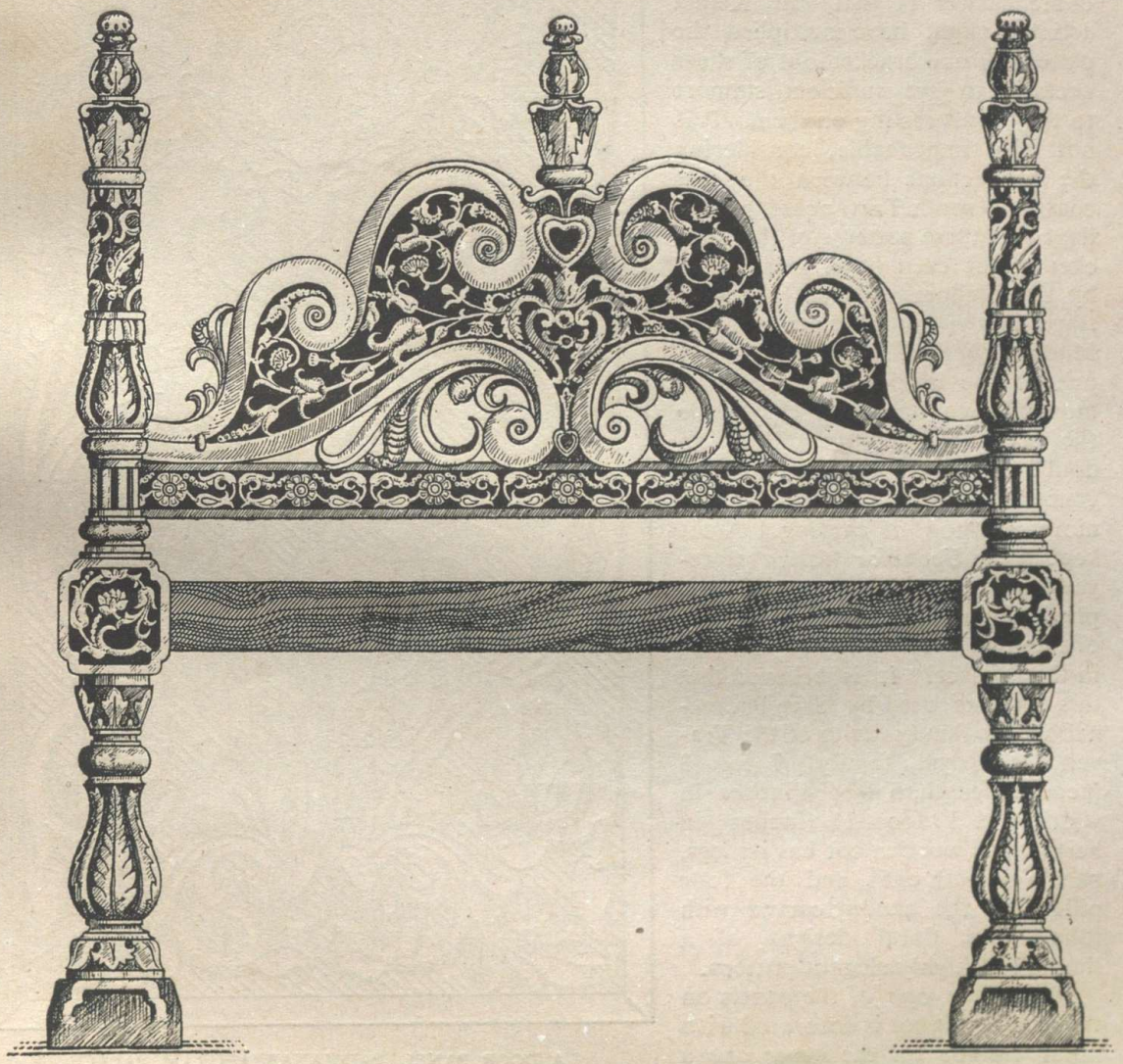


(Right) Pl. 36. THRIPURANTHAKAMURTHI
Trivandrum Museum



Pl. 37. BHEEMA
Trichur Museum

more than 7½ feet in height consists of a single square-cut shaft between the base and the capital. The base, however, is of granite with a few decorative carvings. From half the height of the pillar richly ornamented brackets are attached on all the four corners rising up to the capital and spreading out like the foliated branches of a tree with large pendants elaborated into 'a volute terminating in an inverted lotus bud'. The base of the brackets encircling the centre of the shaft is decorated with floral motifs and carvings of the serpent-hoods. The shaft above this central base excluding the portion where the brackets are attached is also plain like the portion below interrupted only by a few decorative string-courses encircling the shaft. While the richness of details and the complicated compositions manifested in the structural carvings of the brackets with the drooping pendants of the inverted lotus pattern have much of the artistic perfection of the Vijayanagar period, the radiating formation



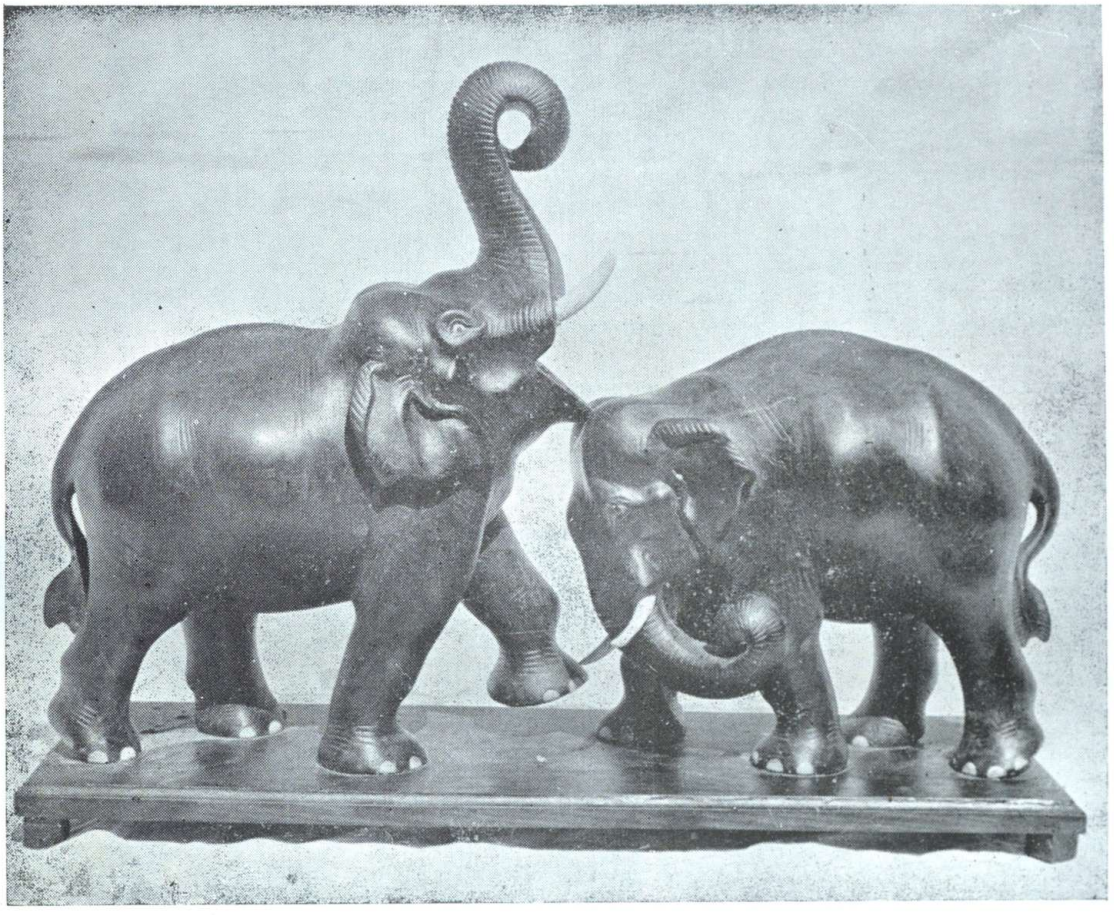
ONE OF THE PANELS ON THE END OF THE COT IN UPPARIKA MALIKA, PADMANABHAPURAM PALACE

of the brackets has something of the Madura period. The serpent-hoods at the base of the brackets are, perhaps, indigenous. Considering the period of the origin of this palace which clearly falls in the Vijayanagar period which starts from the middle of the 13th century A. D., it is probable that this pillar is after the Vijayanagar school of carving. But as to how the radiating brackets which are identified with the later Madura style was adopted at an earlier stage the probable answer is that the Kerala artisan might have multiplied the pattern of one bracket out of sheer necessity to give sufficient support to the beams resting on them. It is not also improbable, considering the connections between the east coast and south Travancore in early days that these patterns of the bracket might even have been copied by the Madura artisans at some stage in the development of the Madura style of architecture. On one of the drooping pendants a movable ring has been cut inside the petals of the lotus. This, no doubt, is almost a craft extravagance but represents a highly ingenious method of carving. A cot kept in the *Upparika Malika* (storeyed building) which was used as a place of worship is another example of the high order of wood carving in this palace. It is believed that this cot was used by Sree Padmanabha, the family deity of the Travancore Royal family. 7 feet 3 inches in length, 5 feet 4 inches in width and 1 foot 11 inches in height, this wooden cot has its legs, panels on both ends, and the four pillars of the canopy carved with foliage and floral designs of a simple but highly elegant pattern.

36. While one of the panels on the ends of the cot is decorated with floral designs on the other one a heart-shaped emblem is carved with a grinning human face at the bottom of a 'T' shaped figure over which a falcon is shown spreading its wings. A pair of tiny birds are also carved on either side of the emblem besides another pair pecking the vulture from both sides. Two children, one each on either side, stand with a bugle in one hand and a bunch of fruits in the other.



A DOOR PANEL, PADMANABHAPURAM PALACE



Pl. 38. MODEL OF ELEPHANTS

The Cochin Central Co-operative Handicrafts Society, Trichur



(Above) Pl. 39. (Top) AN ELEPHANT PULLING A LOG OF WOOD AND ANOTHER ONE PUSHING IT UP

(Bottom left) A WOMAN BEATING COCOANUT HUSK (Bottom centre) SASTHA
The Cochin Central Co-operative Handicrafts Society, Trichur



Pl. 40. RATHI-MANMATHA
The Cochin Central Co-operative Handicrafts Society, Trichur



Pl. 41. KATHAKALI MODELS
Trivandrum Museum

CHAPTER III

MODERN PRODUCTS AND THE PROCESS OF THEIR PRODUCTION

37. The love for elaborate and ornamental carving which characterised the ancient wood carvings in Kerala no more finds a place in modern wood works. Simplicity is considered to be the test of good wood work in modern days. This tendency has led to new patterns of wood work in almost all fields. Most of the churches which have constructed modern wooden altars have them invariably in plain and simple style. Very rarely, indeed, there are floral designs on them. But such designs are quite simple and are never painted with any bright colours. Instead, they are only painted with wood polish so that the wooden surface is fully visible. In the case of pulpits also, carvings on their panels are limited to such simple work as vine and grapes. So far as temples are concerned, the sanctum sanctorum *(sricoil)* which used to be walled with carved wooden panels are now mostly constructed of brick-work or cement concrete. The custom of carving the door screens, window screens, panels on the ceilings and pillars of secular buildings including dwellings has disappeared for ever. Such works are not only considered a waste of time and money from the utilitarian point of view but even opposed to the modern notions of architecture. The beginnings of this transition could be traced to the early decades of this century, except in respect of temples in the case of which the change is more recent. While this tendency has almost put an iron curtain as it were on the progress of the art of wood carving of the glorious ancient pattern except in respect of a few items like wooden statues, it has opened the door to a few new avenues in carving which have more of a commercial air about them. To this modern school should be attributed the various wooden models for exhibition in the drawing-rooms, wooden toys, and models of *Kathakali* figures. The wooden statues of the ancient model, however, continue to be produced. Trichur and Trivandrum produce excellent wooden models of animals and *Kathakali* characters, while Trichur, Ernakulam, Kanhirathanam and Changanacherry produce wooden statues of high quality of the Christian religious figures and national leaders. Trivandrum, Cochin, Trichur and Kozhikode produce wooden toys of all varieties. It would be incorrect to assume from the change of pattern already referred to that there is any decline in the artistic talents of the Kerala wood carvers. From some of the new carvings of the scenes of Hindu mythology replacing the old ones on the temple-car exhibited in the Trivandrum Museum it could be inferred that the modern craftsmen are as good as their predecessors of ancient times. The only difference is that there are not enough patrons for such works as in the past. This factor has been responsible for diverting the talents of the craftsmen to new items of wood carving. In this field the Kerala craftsmen have succeeded in achieving a very high standard of perfection. This perfection lies in successfully copying the objects in wood without losing their natural qualities. The wooden models of a couple of elephants given separately (Plate 38) is not only simple and beautiful but also fully corresponding to the natural objects they represent. As distinguished from the supernatural splendour of the ancient carvings it is typical of the natural realism portrayed by the modern carvings. The two images on either side of Sastha and the model of elephants pulling a log of wood (plate 39) are also excellent examples of this. Even in the carving of mythologi-

cal figures the modern wood carver has adopted simpler styles without detracting from the beauty of the figures. The model of Rathi-Manmatha given in Plate 40 is an example of this supreme achievement in simple carving in noble style. The statue of Sastha given in Plate 39 is another of this category. One of the popular fields in which modern wood carving has distinguished itself in Kerala is the production of *Kathakali* models. These models are carved with scrupulous adherence to the *Kathakali* characters. They have also established good market both in India and outside and is likely to have an expanding market in times to come. The two models given in Plate 41 are examples of the exquisite productions in this field. Although the Christian statues in wood are still made in some centres in Kerala it has to be observed that in view of the greater popularity of statues in plaster of Paris for internal use in churches and cement statues for external use the demand for statues in wood is very much on the decline. Yet, some craftsmen in this field are continuing to put forth their best for the survival of this art.

Process of Production

38. The processes of production of the wooden carved models of the different items have much in common with but minor shades of variations depending upon the nature of the model to be produced. The raw materials, however, vary with each class of models as different varieties of timber are used for different types.

Statues

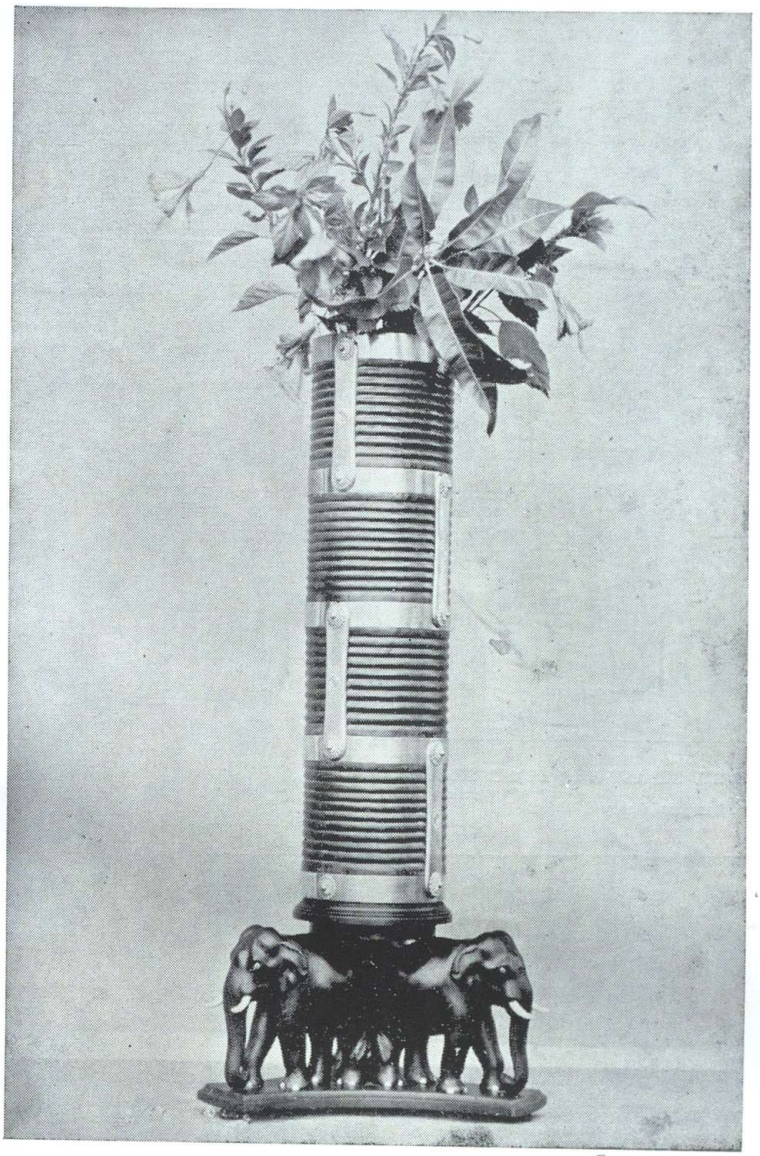
39. Statues are generally made out of *Kumbil* wood (Gmelina asiatica). Teak and jackwood are also used but only rarely. Apart from its lightness and cheapness, its easy pliability to carving accounts for the popularity of *Kumbil* wood in statue making. The design for a statue is taken from photos or paintings. When the size of the figure is determined, a suitable piece of dry wood is cut out by means of a hand-saw (Plate 43). A sketch of the figure to be carved is then drawn in pencil on the wood. Along this outline the figure is shaped by a chisel which is usually held in the left hand and is driven with a mallet in the right hand. When a rough figure is shaped like this, a finer variety of chisel with thinner and narrow cutting edge is used in the same manner for carving the details of the figure (Plate 44). The rough surface is then smoothened by rubbing it with sandpaper which is a cotton fabric coated with fine sand, a little coarser than glass-paper and finer than emery paper. A small quantity of chalk powder and varnish is now mixed so as to make it a paste. This paste is smeared on the statue for filling up the holes or uneven surfaces. The sandpaper is once again applied and the figure is then given an oil or varnish paint.

Toys

40. The toy making does not command much artistic skill when compared to the carving of statues. As the purpose of toys is only to amuse and distract, it automatically follows that no great importance can be attached to the artistic side. Toy making is mainly confined to the production of the models of animals and birds like horse, elephant, swan and fowl and vehicles like motor buses. The rocking horse is the most popular toy commanding the best demand in the market. The comparatively cheap wood of mango tree is generally used for making this. The craftsmen generally go in for planks of mango wood to be used as the raw material. The surface of the plank is further levelled by pushing a plane forward and backward. When the plank is sufficiently levelled the figure to be made is drawn on it with pencil. It is then cut along the outline either by a fret-saw or hand-saw. The parts are made separately and fitted by fixing nails after which the surface of the toy is smoothened with sandpaper and suitably painted. A large-sized rocking horse will be about $2\frac{1}{2}$ ft. in height and $3\frac{1}{2}$ ft. in length. The process of making other wooden toys is also similar.

Kathakali Models

41. Teakwood and jackwood form the



(Left) Pl. 42. A FLOWER-VASE

The Cochin Central Co-operative Handicrafts Society, Trichur



(Right) Pl. 43. CUTTING OUT A PIECE OF WOOD BY MEANS OF A HAND-SAW



Pl. 44. A STATUE OF ST. SEBASTIAN BEING SHAPED
Changanacherry



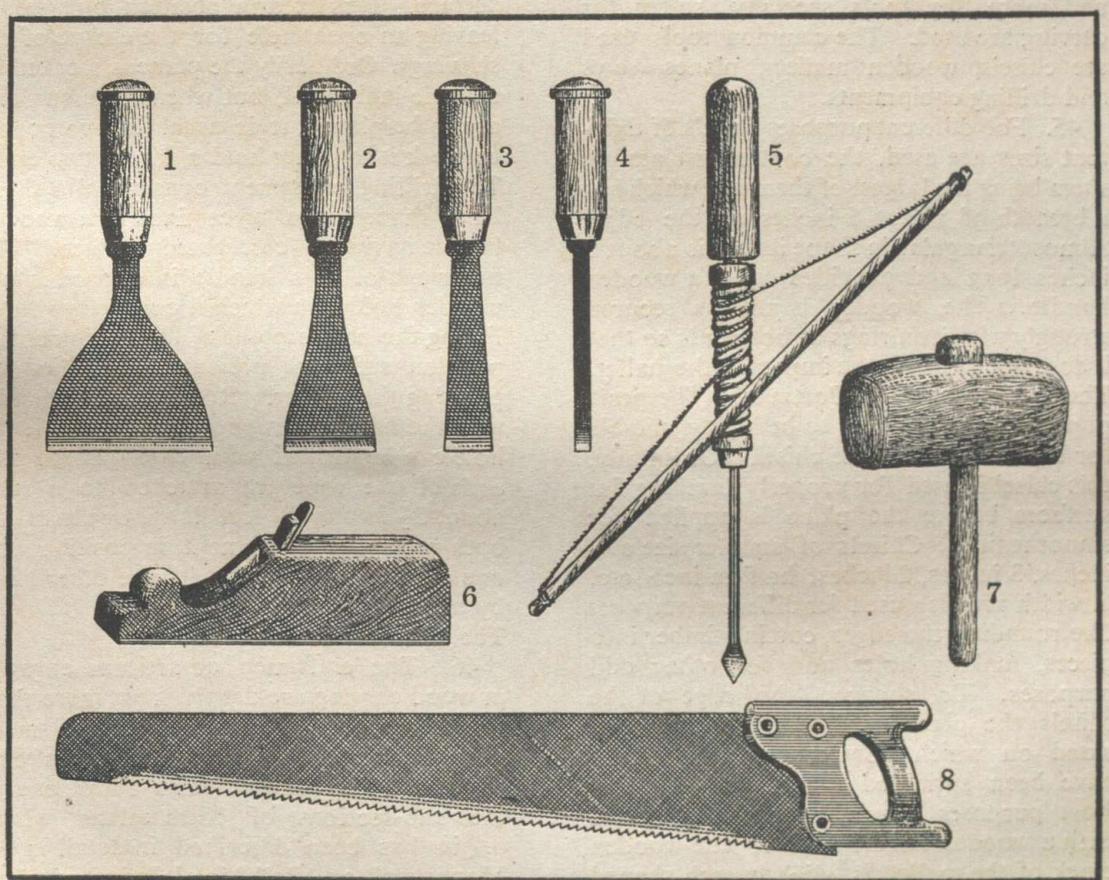
Pl. 45. CARVING KATHAKALI MODELS
Trichur

raw material for carving *Kathakali* models. The usual height of the carved figure is one foot excluding the pedestal which is about 4 inches high. A piece of wood about 1ft. 9 inches in length, 9 inches in breadth and 9 inches in thickness is cut out by a hand-saw. The *Kathakali* models kept in the Trichur and Trivandrum Museums serve as models for the carvers. The process of carving is the same as that of the statues. In the case of these models, a varnish coating is given first to give fastness to the colours and the final coating in oil paint (Plate 45).

Models of Animals

42. For carving model of animals, rosewood which is a kind of hard, dark coloured and fragrant costly wood usually found only in the forests is generally used. Teakwood is also used, but rarely. The wood is cut according to the proposed size of the figure by a hand-saw. A rough sketch of the animal is drawn on the wood with pencil and the carving is done in the same manner as carving the statues. Brown boot-polish is applied at the finishing stage to give the model a shining appearance.

43. What has been described above as



TOOLS

1 to 4. CHISELS 5. DRILLING EQUIPMENT 6. PLANE 7. MALLET 8. HAND-SAW

the process of production is only the bare outlines of the process. The merit of carving depends upon the genius of the craftsman. The life of the carving is the impress of the soul of the artist in it. It is this that has made Michelangelo or Leonardo Da Vinci the great master minds of sculpture. This aspect of carving is beyond description.

Tools

44. The preliminary part of the work in the production of wooden models is done by the ordinary tools used by carpenters. It is only when the finer items of work like the carvings of the eyes, ears, nose, lips, locks etc., of a statue are done that sharper and more tiny tools specially suited for carving are used. The common tools used are chisels, wooden mallets, planes, saws and drilling equipments.

45. For different purposes chisels of different sizes are used, the commonest among them being the largest of them all, which has a breadth of about 6 inches at the edge. Almost triangular in shape its hilt is about 9 inches long and provided with a wooden handle. The wooden handle is secured strongly with iron rings at both ends so that it does not break on the impact of the mallet. The heart-wood of the Portia tree (Thespesia populnea) is supposed to be highly suitable for the handle of the chisel. Ordinarily, this chisel is used for properly levelling flat surfaces before the plane is applied for smoothening. Chisels of smaller size of 4 inches, 3 inches, 2 inches, half an inch etc. in width are also used for different purposes like rounding the edges, cutting timber into pieces, making holes and for other odd purposes. To sharpen the edge of the chisels the plane surface of a flat piece of wood on which powdered quartz would have been sprinkled is made use of. For most purposes a wooden mallet provided with a wooden handle is used. The wooden block of the mallet is slightly arch-shaped and has a length of about 10 inches with almost an oval cross-section. The mallet is made of the heart-wood of the tamarind tree (Tamarindus indica), supposed to be hard and heavy, and the hard portion of the palmyra tree, the latter being used for the handle only. The total weight of this type of mallet will not be more than 5 lbs. While this is used for most purposes, there are smaller wooden and metal hammers for special purposes. The plane is made of a piece of wood of about 12 inches to 15 inches in length and 3 inches in breadth. The bottom surface is truly plane and smooth while one end of the top is slightly curved upwards to facilitate firm handling. A blade which is about 3 inches long and 2 inches broad is fixed in a hole almost at the middle, inclined about 60° to the bottom surface. It is fixed in position by a wedge leaving an open hole for the escape of the shavings. Ordinarily the plane is worked by a single individual, but when large surfaces are to be planed, it is usual for two people to work it together holding at the two ends. The drilling equipment consists of a sharp lance-shaped iron piece fixed to a wooden handle having a corrugated surface. The other end of this handle is cupped into a wooden holder in which it can freely rotate. Fixing the needle point of the equipment in position sufficient pressure is applied by pressing the holder. Rotating the handle with the help of a rope wound round it the hole can be drilled with ease. If the two ends of the rope are attached to a stick about 2½ feet to 3 feet long, one man can both press the equipment in position with one hand and rotate it with the other hand by moving the stick to and fro.

The Craftsmen

46. The craftsmen or artisans engaged in wood carving are drawn from more than one community. The traditional craftsmen, however, are Viswakarmas or Asaris (carpenters). The Viswakarmas form one of the sub-sections of Kammalans whose origin has been described in detail in the Monograph on 'Bell Metal Industry' given supra. The traditional carving in architectural constructions was done only by Viswakarmas in former days. In respect of

other items, however, members of other communities were also among the workers and still continue to be so. So far as statue making is concerned the craft is mainly in the hands of Christians, and the carving of *Kathakali* characters in the hands of Hindus including Asaris (carpenters). Most of the toys are made by Asaris (carpenters) though there are members of other communities also doing this work. The same applies to the models of animals as well.

CHAPTER IV

CONCLUSION

Economics of the Craft

47. The cost of raw materials for a set of statues fetching Rs. 265 will come to about Rs. 85. It is estimated that about 60 days' carving work will be required for this. The craftsman will be getting about Rs. 3 as remuneration per day. In the case of toys the cost of raw materials for producing a toy worth Rs. 6.50 will come to Rs. 4.50. Estimating that one day's work of the craftsman is required for the production of one toy, the craftsman gets Rs. 2 per day. The production of *Kathakali* models is comparatively more remunerative. The cost of raw materials for producing a *Kathakali* model which could be sold for Rs. 100 comes only to Rs. 13. About 20 days will be required for the artisan to complete the work. The daily earnings, therefore, work out to Rs. 4.35. In the case of wooden models of animals the cost of raw materials of a set of models fetching Rs. 25/– comes to Rs. 1.96. Assuming that the carving involved will extend to three days' work the craftsmen can earn Rs. 7.68 a day.

48. Item-wise details of the cost of production of the above units excluding carving charges are given below:—

Statues

	Rs.
Cost of wood *(Kumbil)* per candy (16 c.ft)	40.00
Transportation and cutting charges	20.00
Cost of paint, sandpaper etc.	25.00
Total cost of raw materials	85.00

Toys

Cost of wood (1 c.ft.)	3.50
Paint (¼ lb.)	0.50
Sandpaper, nails etc.	0.50
Total cost of raw materials	4.50

Kathakali Models

	Rs.
Cost of Jackwood for one model (1 c.ft.) (Teakwood costs Rs. 9 to Rs. 30 per c.ft.)	8.00
Cost of paint and sandpaper	5.00
Total cost of raw materials	13.00

Models of Animals (elephant)

Cost of wood (140 c. inches)	1.46
Cost of sandpaper and polish	0.50
Total cost of raw materials	1.96

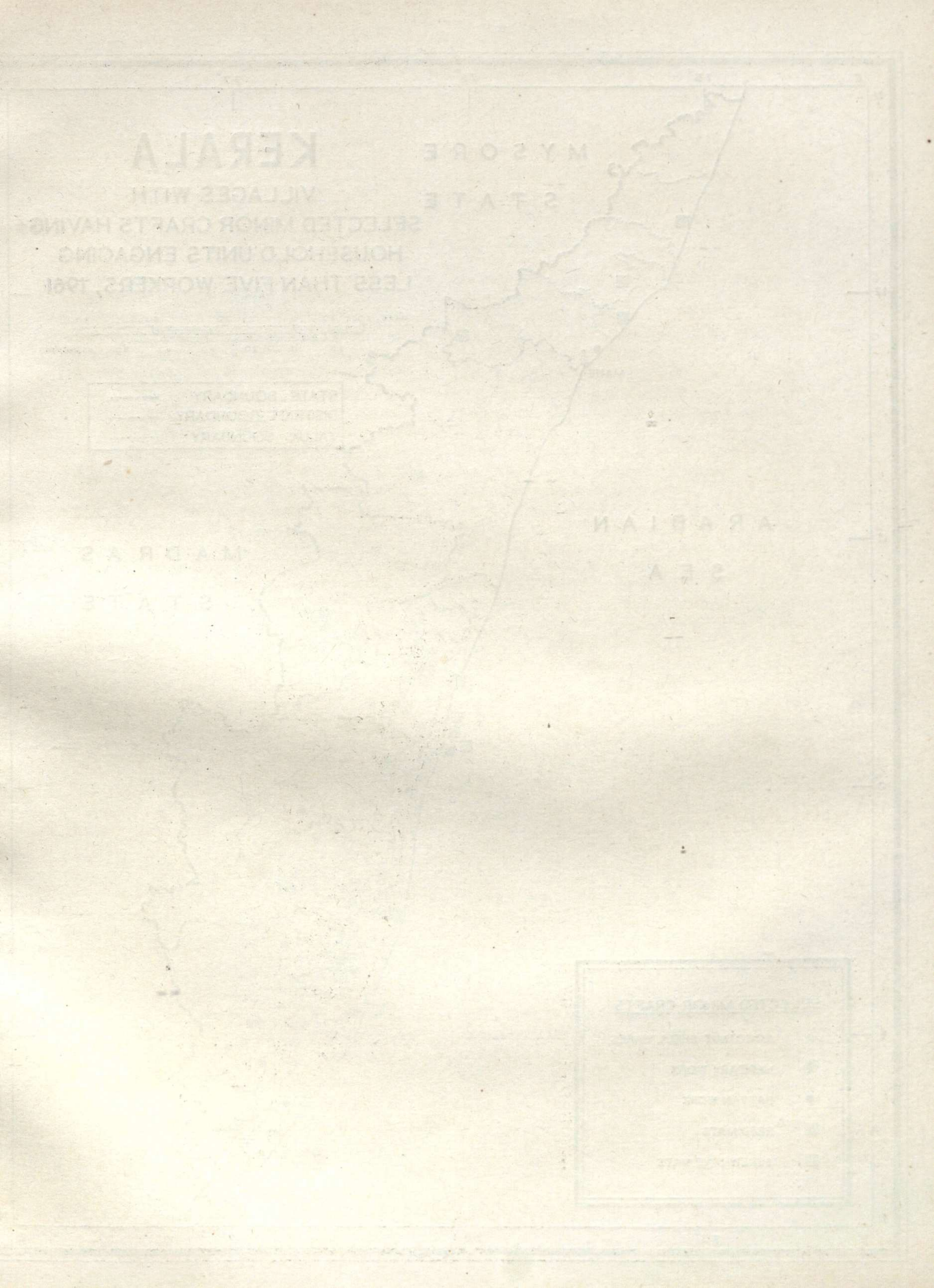
Prospects of the Industry

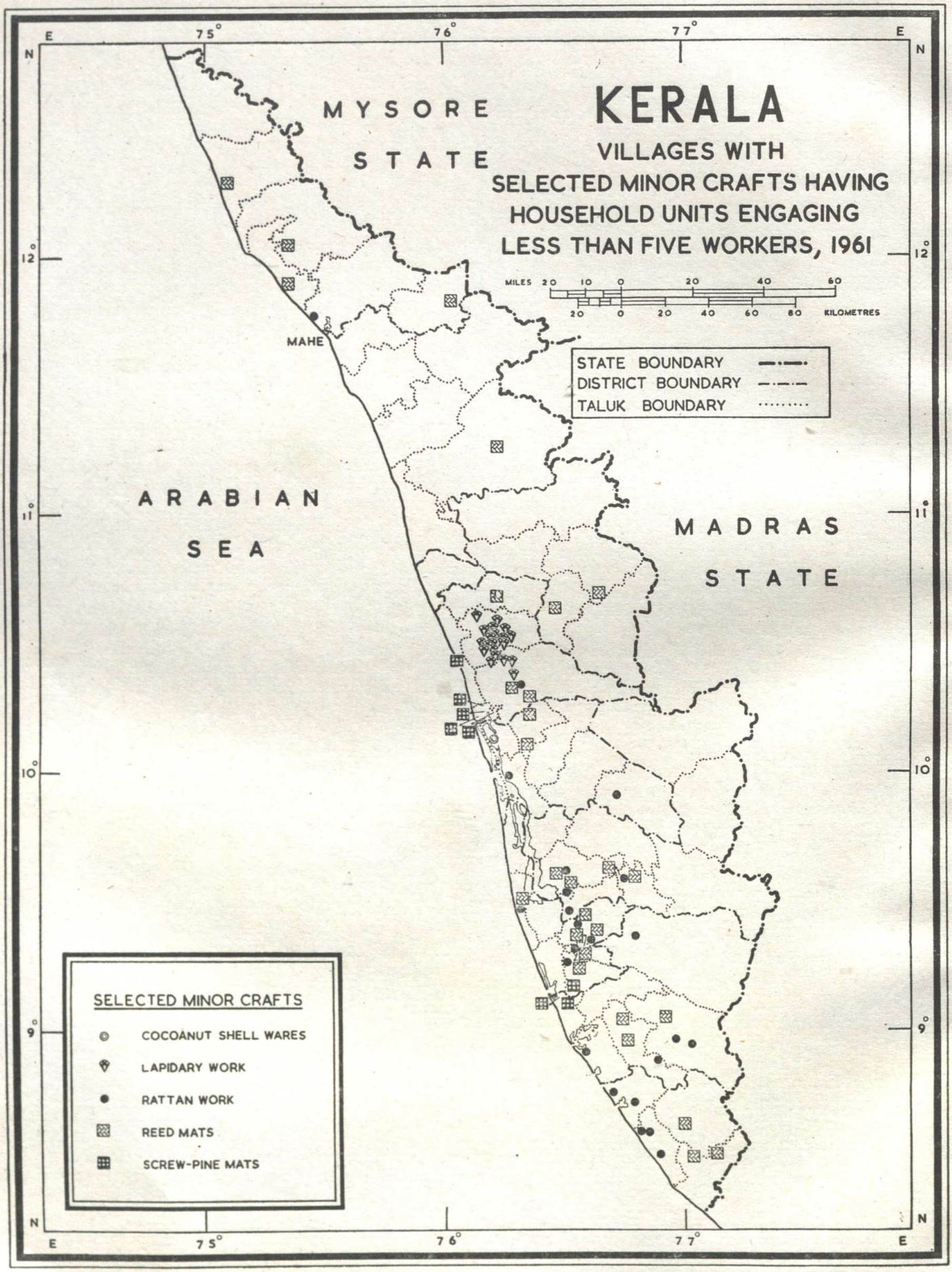
49. The future of any industry depending upon carving is beset with several limitations. While carving is an art-craft and its merit depends upon the quality of the work put in, the products of such art-craft can find a market only according to the number of people who have a knowledge and love for art and also the financial capacity to purchase the products. The number of such people will naturally be limited. The more the quality of the product depends upon the work put in by the artisan, as is but natural in such products of art, the more it becomes difficult to produce them at common place competitive rate. The marginal utility of purchasing the products of art-craft depends upon the value which one's frame of mind attaches to the product. It is only too true to say that a real work of art is an invaluable asset. But it cannot be a commercial proposition. Taking the production of statues for example, while the wooden Christian statues were very much valued in former days, today they can hardly stand competition with the statues made out of plaster of Paris some of which are produced mechanically. What the wooden statues command compared to them

is the greater durability. But unless the cost of the statues considerably comes down it is difficult to hope that wooden statues will be in a position to compete with the statues of plaster of Paris. Perhaps, the only way of achieving this object is by placing greater emphasis upon the household character of the industry which would enable the female members and children of the family to contribute their share to the production of these statues by the craftsman atleast in respect of such items of work which do not require much of craft skill. If this is done, it might be possible to reduce the labour cost to some extent and thereby reduce the sale price of the product. By doing so the women and children of the household can contribute their labour though not for full wage atleast for a part of it and the time which they would otherwise have wasted could be more usefully spent.

50. In the case of toys, however, the position is slightly brighter especially with modern models of toys which are comparatively more mechanised than the old models. Where the wooden toys fall short of the toys made of other materials is in the automatic mechanical devices which the latter possess in a greater degree than the wooden toys. This feature should open the eyes of the producer of wooden toys to the fact that if he succeeds in producing good mechanised automatic toys out of wood there is a greater possibility of finding competitive markets for such products. Indeed, this change of pattern which has been in progress for the last few decades in India requires some amount of mechanical training for the craftsmen in wood carving. This is being imparted in several institutions set up by Government for the purpose and it can be hoped that in course of time a proper utilisation of the knowledge gained from this training will lead to more satisfactory results in this field.

51. So far as the production of *Kathakali* models are concerned there is good demand for them and, therefore, there is a chance of this industry having better prospects in times to come. Already, Kerala Government have started a training centre for the carving of *Kathakali* models at Trichur under the Director of Industries and Commerce. Perhaps, more training centres might prove useful. The production of the *Kathakali* characters in wood could be enhanced by developing the industry on co-operative lines. This will also facilitate the exploration of more foreign markets for these products.




KERALA
VILLAGES WITH
SELECTED MINOR CRAFTS HAVING
HOUSEHOLD UNITS ENGAGING
LESS THAN FIVE WORKERS, 1961
MYSORE
STATE
MAHE
ARABIAN
SEA
MADRAS
STATE
MILES 20 10 0 20 40 60
20 0 20 40 60 80 KILOMETRES
STATE BOUNDARY
DISTRICT BOUNDARY
TALUK BOUNDARY
SELECTED MINOR CRAFTS
COCOANUT SHELL WARES
LAPIDARY WORK
RATTAN WORK
REED MATS
SCREW-PINE MATS
75°
76°
77°
12°
11°
10°
9°
N
E

SHORT NOTES ON SELECTED CRAFTS

1. COCOANUT SHELL WARES

Introduction

The love for the cocoanut palm is so deeply cherished by the Malayalees that there is hardly any part of the tree and its produces which they do not make use of in one way or other. While the people were content with using the cocoanut shell, as fuel, drinking cup or spoon, no significant use of artistic importance was ever thought of. Purchas, while speaking of the cocoanut tree, says that the people in the islands of Malduiva make drinking cups out of the shell. The recent strides of progress in art-crafts have succeeded in converting the cocoanut shell into artistic containers of different sizes and patterns.

2. The cocoanut shell is the hard outer case enclosing the kernel. In Trivandrum, Attingal and Neyyattinkara, a few craftsmen are producing cocoanut shell articles like cups, vases, tea-pots, rose-water sprinklers etc. on a limited scale. The craft has not so far developed on a commercial scale and it is mainly attended to by the craftsmen during their spare time.

3. More important than the above are the products of cocoanut shell set in brass covering made at Quilandy of the Kozhikode District. Products like pineapple wall flower vases, pickle bowls, lampstands, hookahs etc. are produced here. The hookahs produced here are in great demand in Middle East countries. The organisation of the Quilandy Artisans' Co-operative Society and the establishment of a training school for this craft have contributed substantially in popularising the craft. Twenty young men and women are given training in the craft for two years in the training school. Each student is given a stipend of Rs. 25/- per mensem by way of incentive, on condition that after training he should enrol himself as a member of the Artisans' Co-operative Society.

Process of Production

4. The process of production of the articles like cups etc. mainly consists of smoothening the surface of the hard shell. This requires much labour and patience. The shell of the required size is selected, and its outer surface is rubbed by a *patiyaram*, which is a tool of hard steel with rough notches on the edge like the teeth of a saw. The inner side is smoothened by the help of small chisels. Sandpaper is then applied thoroughly. A circular base and a handle separately made with shell are attached to the cup by fixing screws. When this is over, boot polish is applied to the articles with a piece of cloth and a final coating of French polish is given over it. The technique of the brass work on cocoanut shell is almost similar to the casting of bell-metal articles. Bee's wax and charcoal are mixed and melted. The solution is filtered through a piece of cloth and deposited in cold water. When it is sufficiently cooled, it is taken out and heated slightly and pressed on the templets. The templet is a small square piece of lead with various designs. The square pieces of wax are taken out of the templets and pressed against the wooden model of the article proposed to be made. After the wooden model is completely covered by the wax pieces the model is removed and the wax mould is given a coating with a mixture of clay and chalk powder. In some cases, paddy husk is also added to the mixture. Then the mould is dried in the sun. Three such coatings are given to the mould. When the mould has dried up it is heated when the wax comes out through the opening provided for the purpose. Copper and

zinc in the ratio of 1:1 are melted in a clay crucible, for which only a very narrow opening is provided. The mould is placed over the crucible which contains the molten liquid with their openings coming into close contact with each other. Then the positions of the crucible and the mould are interchanged with the help of tongs when the liquid occupies the cavity produced by the removal of the wax. After allowing the metal to cool down for about two hours, the mould is removed and the uneven surface of the metal is filed away. German silver is also used in the place of brass. The next stage consists of fixing the cocoanut shell to the brass frame. The cocoanut shell is smoothened by a chisel and is fixed inside the frame by the help of a gum prepared by melting *pantham* (dammar) and cocoanut oil. A small quantity of sealing wax is boiled in water and the sediment collected from it is then smeared on the cocoanut shell to get an attractive colour.

Cost of Production

5. The major part of the cost of production goes as labour charges, since the cost of the main raw material viz. cocoanut shell, is negligible. The cost of raw materials for the production of a powder box is only less than 25 nP. A worker has to work for about three days on a powder box which could be sold at Rs. 4/–. He, therefore, earns Rs. 1. 25 a day as wages. The position regarding the brass work is different. In this case the cost of production entirely depends on the brass work and it has no relation to the work on cocoanut shell. According to the present market rates, the cost of raw materials required for the brass work is as follows:—

Copper	Rs. 4·00 per kg.
Zinc	,, 1·50 ,,
German silver	,, 7·00 ,,
Pantham	,, 1·50 ,,
Sealing wax	Rs. 1.50 per kg.
Wax	,, 6.00 ,, *

6. The cost of production of a common hookah of 16″ height is as follows:—

Raw materials	*Quantity required*	*Cost* Rs.
Copper	1 kg.	4.00
Zinc	1 kg.	1.50
Pantham	1½kg.	2.25
Sealing wax	500 gm.	0.75
Wax	500 gm.	3.00
German silver	500 gm.	3.50
Fuel, cocoanut oil etc.		7.50
	Total	22.50
Wages for the production of the hookah		24.00
Total cost of production		46.50

The sale price of the above hookah at the Quilandy Artisans' Co-operative Society is Rs. 52·75.

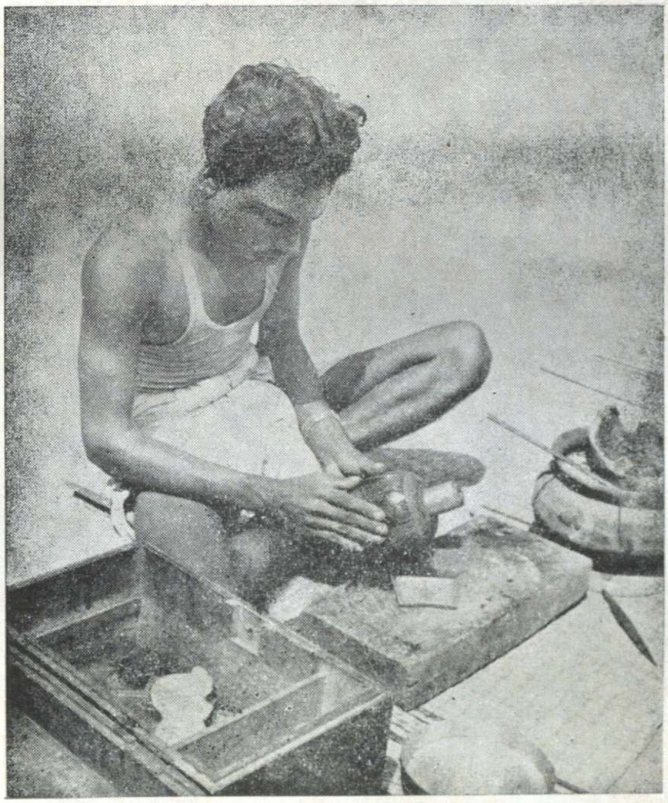
7. A craftsman has to work about eight days to produce the hookah. He therefore earns Rs. 3 per day as wages. The craftsmen are Asaris (carpenters), Moosaries (bell-metal smiths) and Kollans (blacksmiths) who come under the group of Kammalas.

8. It cannot be said that the cocoanut shell wares, barring the brass set ones, have much demand in the market. Due to the poor return the workers are also not much interested in taking to the craft seriously. But the articles with brass work are in great demand in India and abroad. In fact, the Artisans' Co-operative Society, Quilandy is unable to meet the demand for want of finance. Difficulty is also experienced by the craftsmen in getting zinc plates and other raw materials at reasonable prices. When these difficulties are overcome and when a regular market is obtained for the articles, this infant craft can make further progress.

* The cost of raw materials furnished in the monograph on bell metal Industry is based on the price existing in the year 1961 whereas the figures furnished here relate to 1964.



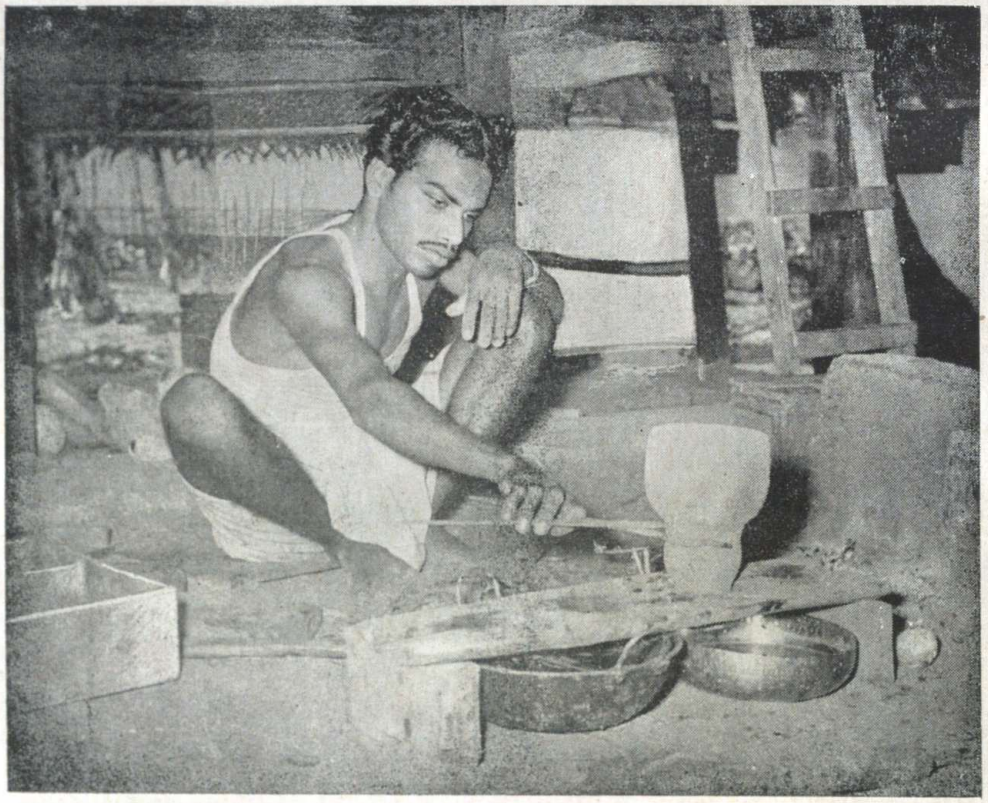
Pl. 1. WAX IS BEING PRESSED ON A TEMPLET, WHICH IS A SMALL SQUARE PIECE OF LEAD WITH DESIGN



Pl. 2. THE PIECES OF WAX TAKEN OUT OF THE TEMPLETS ARE BEING PRESSED AGAINST THE WOODEN MODEL OF THE ARTICLES PROPOSED TO BE MADE



Pl. 3. AFTER THE WOODEN MODEL IS COMPLETELY COVERED BY THE WAX PIECES, THE MODEL IS RRMOVED AND THE WAX MOULD IS GIVEN A COATING WITH A MIXTURE OF CLAY AND CHALK POWDER



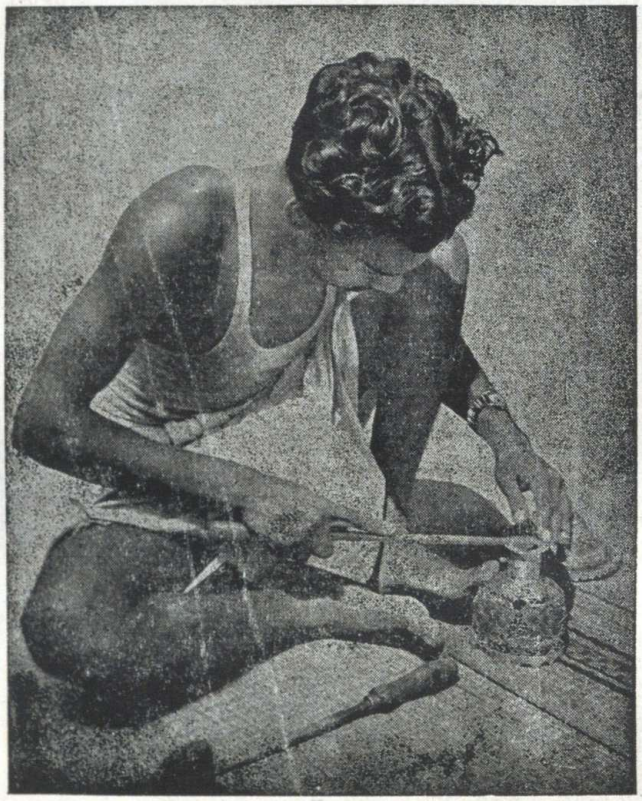
Pl. 4. THE MOLTEN WAX IS REMOVED COMPLETELY FROM THE MOULD AND IS COLLECTED IN A SMALL VESSEL



Pl. 5. THE POSITIONS OF THE CRUCIBLE AND THE MOULD ARE INTERCHANGED WITH THE HELP OF TONGS WHEN THE LIQUID OCCUPIES THE CAVITY PRODUCED BY THE REMOVAL OF THE WAX



Pl. 6. THE METAL IS HAMMERED AND THE DEFECTS REMOVED



Pl. 7. FILING THE UNEVEN SURFACE



Pl. 8. LAMPSTANDS MADE OF COCOANUT SHELL



Pl. 9. TOOLS



2. EMBROIDERED LITURGICAL VESTMENTS

Introduction

"The art of embroidery is clearly of Eastern origin and is of such ancient lineage that our knowledge of it stretches into prehistoric ages. Egyptian mummies have been found wrapped in garments curiously wrought with thin strips of gold, and if we glance at the presentation of wall paintings of Egyptian temples, we see that the robes of Kings and nobles and the trappings of the chariots were embellished with needle work. The materials for embroidery in those early days were principally linen and wool, the long hair of Eastern goats and camel hair and very narrow strips of silver and gold. The Israelites excelled in the art and practised it before they settled in the land of Canan and the Phoenicians and Greeks derived their knowledge of it from that country. It was practised in Mesopotamia in the 9th century and may have come to Bengal from there."[1] In Europe the earliest embroidery was developed in the Aegean Islands and reached a high degree of perfection. There are indications to show that the art of embroidery was not unknown in the East. Roman nobles and their ladies wore embroidered robes which their consuls sent them from the East. Wace refers to the three main sources of embroidery in the Greek islands as 'Oriental, Italian and the old Levantine tradition'.[2]

2. In India, the needle was in use from earliest times. Both Rigveda and Amarasimha mention about the needle. A Rigvedic hymn says 'with never breaking needle may she sew her work and give her a son most wealthy, meet for praise'. In the excavations at both Harappa and Mohanjo Daro, needles have been found. Since sewing was not required for any early Indian dress, it can be assumed that the needle was used for adorning the dresses by embroidery. *Suchi-Vayakarman* i.e. tailoring and weaving, is one of the sixty-four arts specified in the Kamasutra of Vatsyayana.

3. Chronologically, Syrian embroidery was the earliest to find its way into Travancore, having been introduced early in the Christian era by the colony of Syrians who settled in this land.[3] In the later centuries, the embroidery became very popular among the kings and rich nobles of Kerala. We have a description of the reception of the Portuguese Vasco da Gama, by the Zamorin in 1498. The Zamorin was dressed in a robe of fine white muslin and a silk turban, both splendidly embroidered with gold. His arms and legs were without clothing but were ornamented with a great number of costly bracelets. When the visitors drew near, he lifted his head from an embroidered cushion and signalled the visitor to sit down.[4]

4. The production of beautiful embroidered liturgical vestments in the traditional designs is a particular branch of the embroidery. The Church and Christianity had established themselves in Kerala even in the early years of the Christian era. But it cannot be said that embroidery on Church vestments is as old as Christianity since the custom of wearing such dresses is a later development. 'Up to the fifth century, Christian priests wore ordinary dress—the change came only after that time.'[5]

5. The work of producing embroidered church vestments is attended to mainly at

(1) Costumes and Textiles of India by Jamila Brij Bhushan
(2) Ibid
(3) The Travancore State Manual 1940 by T. K. Velu Pillai, Vol. III
(4) Costumes and Textiles of India by Jamila Brij Bhushan
(5) Ibid

Changanachery. It has been reported that there are craftsmen at Ernakulam, Alwaye and Trichur who undertake the work as and when they get an order from the local churches. One notable feature of this craft is that while all other embroidery work in Kerala is almost the monopoly of women, this work is wholly done by men folk. Most of the craftsmen are Roman catholics.

6. The following are the important items of liturgical vestments.

(1)	Alb	(5)	Cope
(2)	Maniple	(6)	Dalmatic
(3)	Stole	(7)	Surplice
(4)	Chasuble	(8)	Humeral veil.

Alb

7. Alb is a full, flowing robe of white linen reaching to the feet, covering the entire body. It symbolises the darkness of the mankind being changed in to the Light of Jesus. Alb is the Latin word for white. In ancient Rome, it was the practice to wear full-sleeved white tunic among those having any dignity or authority. The Alb has relation to the act of Herod placing the garment of a fool around Jesus making him the sport of his indecent court.

Maniple

8. This is a short kerchief of the same material and colour as stole and chasuble, worn on left arm about 4 inches wide by 30 inches long. It was the custom in olden days to wear such a cloth on the arm to wipe away dust and perspiration. Its folds were also used as purse. Maniple comes from two Latin words, 'manus plena' meaning, the hand is full. It symbolizes hand full of patient work and service which are precious things to earn the reward of salvation and suggests wiping off the mind and heart, all sloth or fear of labour. It recalls the handcuffs with which the hands of Jesus were bound and the rope by which he was led to death.

Stole

9. This is a long strip of coloured cloth or silk about 3 to 4 inches wide and from 7 to 8 feet long, usually embroidered and having fringed ends worn over the neck so that the ends hang down in front on either side and reach just above the knee. The stole will be of the same material and colour as the chasuble. It is crossed over the breast and fastened in place with the ends of a girdle. It reminds the former practice of wearing a badge of honour as a distinctive mark of duty for those exercising any authority. The stole is significant of the cross of Christ carried on his shoulders and it shows the dignity and duty of working for the cause of Christ.

Chasuble

10. This is a vestment worn over the alb covering nearly all the vestments both in back and front. It is made of silk or linen, is in the form of a kind of cloak, oval in shape, with an opening in the middle for the head, and generally has a large cross besides other embroideries upon it. The chasuble derives its name from Latin word 'casula' meaning a little house. The chasuble recalls the seamless garment of Christ, believed to have been woven by Mary. It symbolizes the yoke of his commandments, made possible by love for Christ.

Cope

11. Cope is a vestment resembling a long cloak without sleeves or armholes worn by the clergy during the benediction of the Blessed Sacrament and on ceremonial occasions as processions etc. and by a bishop while visiting the churches of his diocese. It is also worn by the Archdeacon of the throne during pontifical High Mass. It derives its name from the Latin word 'cappa'.

Dalmatic

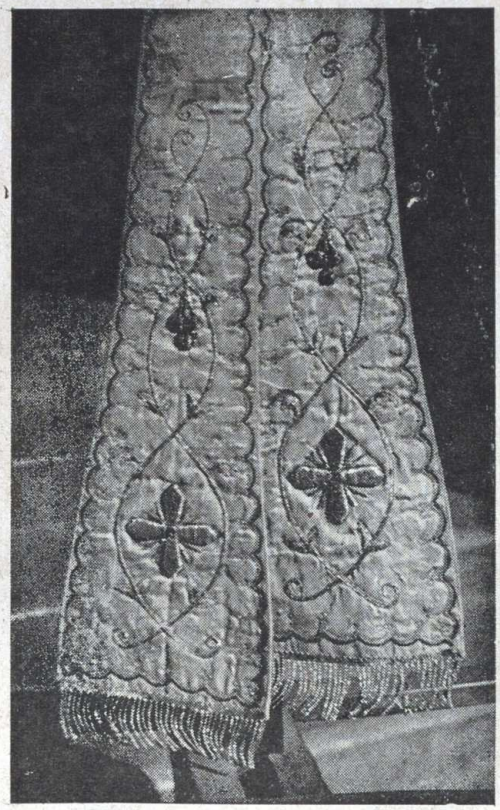
12. This is a loose vestment with wide sleeves and open sides worn under the chasuble by deacons and subdeacons at the celebration of Mass and by bishops.

Surplice

13. This is a loose white vestment of varying length with wide sleeves worn by clergy and usually by a choir at divine service.

Humeral Veil

14. This is a veil put on the scapular



Pl. 1. STOLE



Pl. 2. CHASUBLE



Pl. 3. CHASUBLE



Pl. 4. CHASUBLE



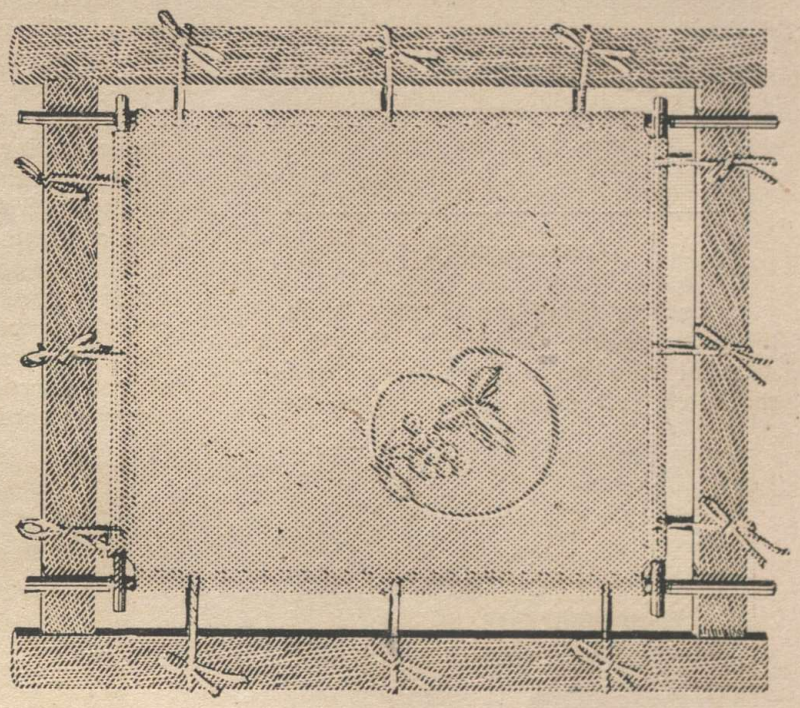
Pl. 5. CHASUBLE

area of the priest by the ends of which both the hands of the priest are covered to hold the monstrance for Benediction. It is of silk with embroidery in the centre and edges. It is worn by the subdeacon also during solemn Mass of three priests. This veil derives its name from the Latin word "humerus" which means 'shoulder'.

15. The colours of liturgical vestments are usually white, red, green, violet, rose and black. White is the symbol of light, of joy and of purity. It is used on all feasts of Jesus except those of his sufferings, on all feasts of St. Mary and on feasts of saints not martyred. Red is the symbol of blood and fire. It is worn in Masses said on the feasts of the Holy Ghost (Pentecost), the precious Blood of Jesus (1st July) and of martyrs. The significance of green is hope. It is used on Sundays after Epiphany to Septuagesima Sunday and on Sundays after Pentecost to Advent. Violet or purple is the symbol of penance. The colour is used during Advent and Lent commencing from Septuagesima Sunday. Rose, substituted as a symbol of joy during penitential seasons is worn on the third Sunday of Advent and the fourth Sunday of the Lent. Black is the symbol of mourning, which is worn only on Good Friday, All Souls' Day (2nd November) and in Masses for the dead.

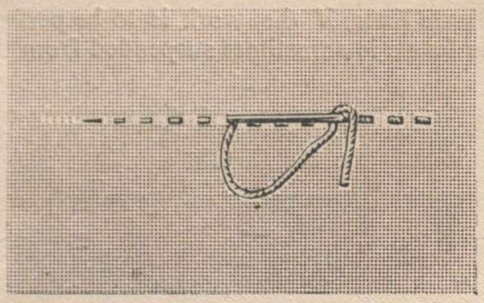
Process of Production

16. A wooden frame, needle, thimble and scissors are the only instruments required for the embroidery. The wooden frame is made by fixing four rods of equal length so as to form a square-shaped frame. The use of an embroidery frame is almost indispensable for all designs requiring fine delicate lines, if the work is to be perfect. The frame is sometimes suspended from the roof by strings or is placed on a wooden stand. The stand consists of two vertical poles of about 2½′ in height fixed on a wooden base and a horizontal rod on the top of each pole.



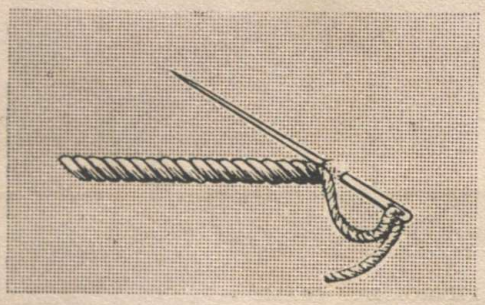
EMBROIDERY FRAME

17. The cloth which is proposed to be used as lining cloth is first cut according to the required size. The sides of the cloth are folded so as to form loops of about 1″ diameter and stitched. Through each loop a wooden rod is inserted taking care that the rods inserted in any two opposite loops are slightly longer than the other two rods. The lining cloth together with the rods is placed on the frame with the longer rods resting on the sides of the frame. All the four rods are fastened to the sides of the frame with strings. The cloth to be embroidered upon is placed on the lining cloth and hemmed down to it in running stitch.



RUNNING STITCH

This stitch, being the simplest of all, is made by passing the needle through the material from two to four threads ahead of the stitch just made and bringing it out



STEM STITCH

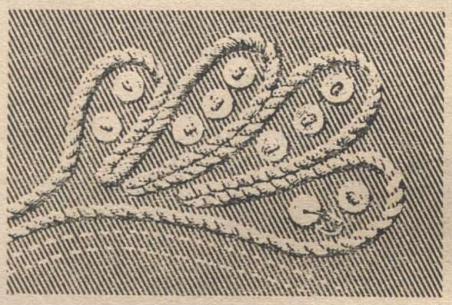
again after the same number of threads farther on. Then the design is traced. The design is generally worked in stem stitch



SATIN STITCH

and satin stitch. The stitches are usually worked more or less obliquely. Stem stitch is worked without a foundation of running stitch. The needle is passed under one of two horizontal threads and four or six vertical ones, in such a way that the last stitch always extends half its length beyond the preceding one. Leaves are generally worked in raised satin stitch, in which the stitches entirely cover the cloth over padding of varying degrees of thickness.

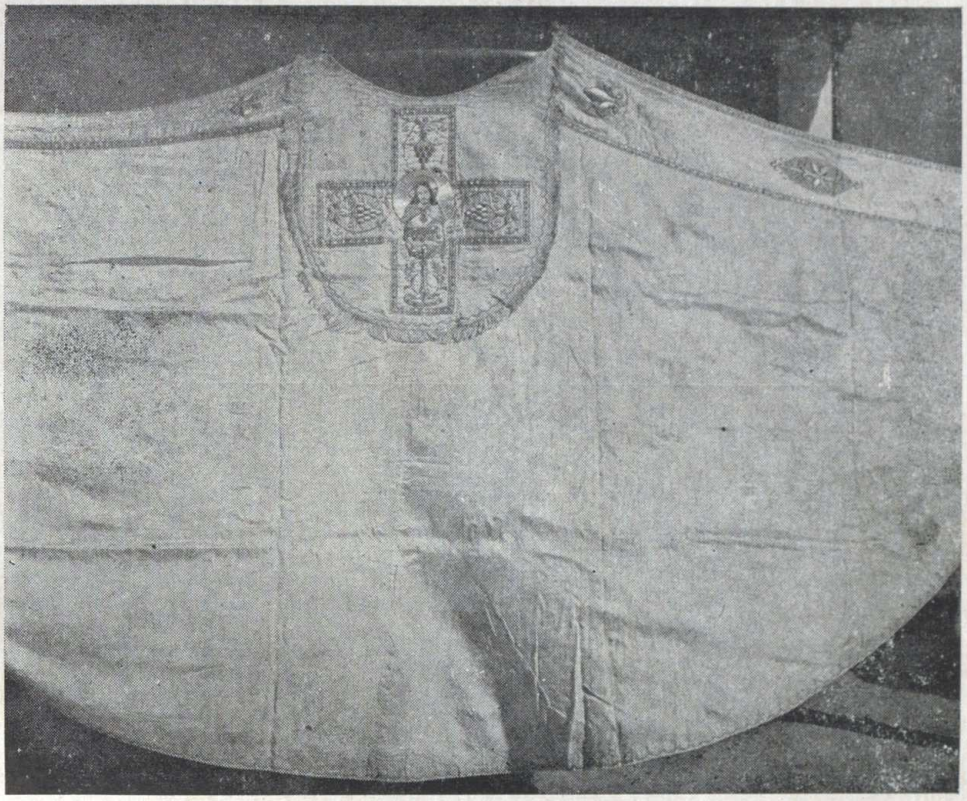
18. The embroidery worked with gold or silver cord and spangles and purl and spangles, occupies a prominent place in liturgical vestments from the point of view of their effectiveness. In the case of embroidery with cord and spangles, the design is



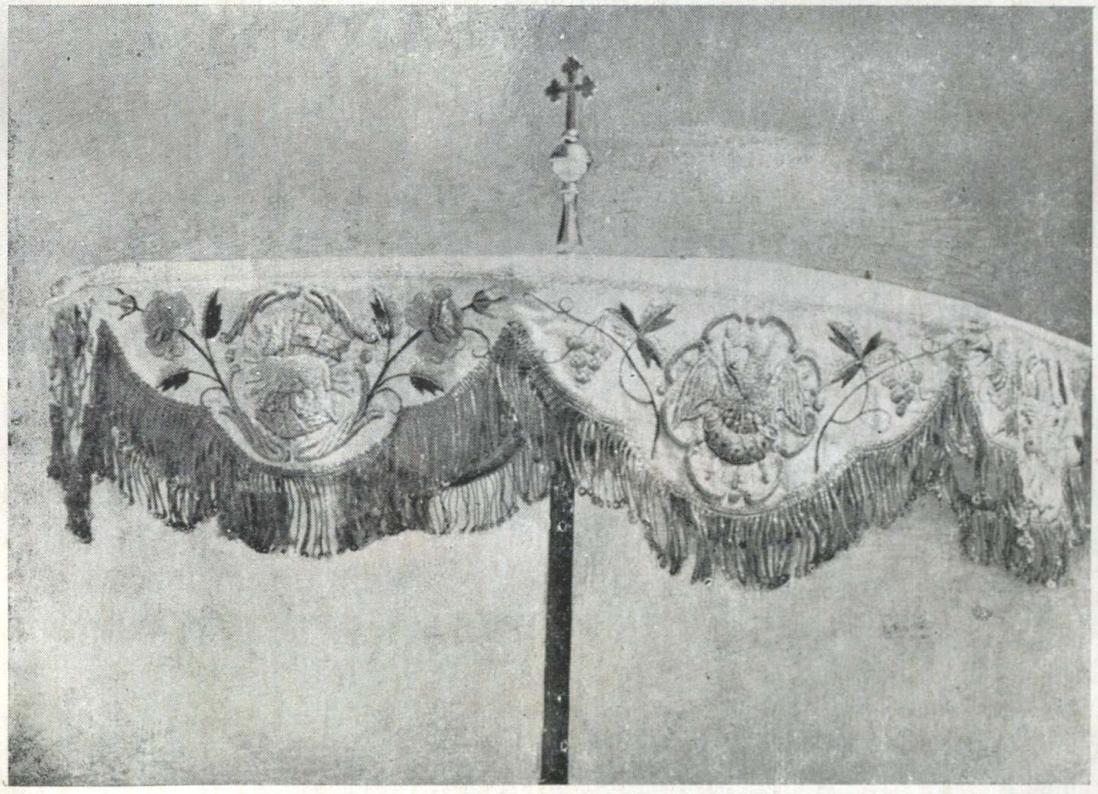
EMBROIDERY WITH CORD AND SPANGLES

outlined with gold cord each twist of the cord being secured to the foundation with an invisible overcast stitch. At the beginning and end of every round, the cord is threaded into a needle of suitable size and passed through to the wrong side. When the whole of the design has been outlined with gold cord, the inside of the little flowers is filled with single spangles, secured by a small piece of purl, caught to the centre of the spangle.

19. Purl embroidery is a little more complicated. The purl is cut into short lengths to suit the varying lengths of the surface of the motif to be covered. One of these lengths is threaded on to the needle, which is already brought out of the material on one side of the motif. The needle is then inserted into the meterial on the other



Pl. 6. COPE

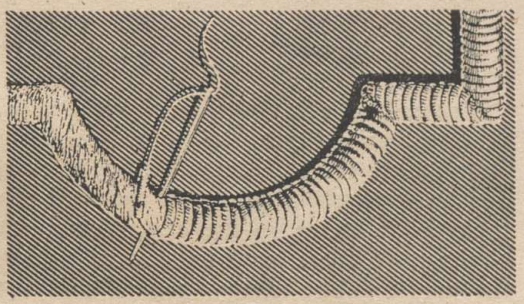


Pl. 7. CANOPY



Pl. 8. HANDS AT WORK

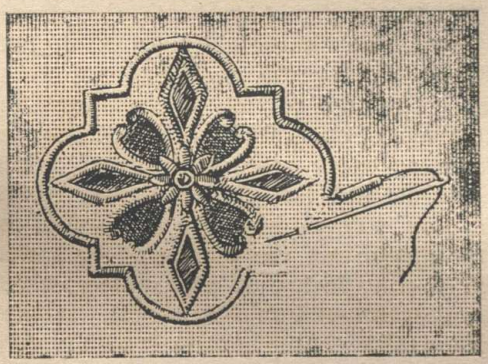
side of the motif and brought out again on the first side. If the purl has been cut to



PURL EMBROIDERY

the correct length, it will exactly cover the width of the motif.

20. After the embroidery is completed, the sides of the cloth are cut along the sides of the rods and taken out of the frame. The sides are then stitched. Golden



PURL EMBROIDERY

lace hangings are fixed at the ends, in the case of the stole. The side stitching and the fixing of golden lace hangings are done on a sewing machine.

21. In olden days the weavers of Kottar, a place formerly of South Travancore but now of Madras State, used to make gold and silver threads locally. But this industry has become extinct and the gold and silver threads are now imported from Surat. The process prevalent in Travancore regarding the production of gold and silver threads was as follows:—

"Silver thread is made out of silver and lead. These metals in proper proportions are melted together in a crucible and solidified into rods as thin as possible. The rods are drawn out into wires by pulling them through holes of different sizes punched into a steel plate, the smallest hole being so small as to admit only a hair to pass through. This process is repeated until the wires assume the shape of fine threads. They are then beaten out into flat tape-like filaments and are wound spirally round the silk or cotton yarn. The silver thread thus prepared is subjected to the action of saffron fume when it takes the golden yellow colour. The quality of the thread depends upon the proportion of lead and silver used. The larger the quantity of lead, the poorer is the quality of the thread and the cheaper is its price. In no case will lead exceed 40 per cent by weight of silver.

22. "Gold thread is also made in the same manner as silver thread but without lead. Silver is melted and converted into thin rods about one foot long and a quarter of an inch thick. They are then covered with thin gold leaves and drawn out into wires on a special appliance described below.

23. "Two wooden rollers six to eight inches in diameter and eight to twelve inches long, fitted with handles at one end, are mounted on frame, one foot apart. At the centre of the space between the rollers is fixed a metal plate containing a row of holes called 'eyes' of varying sizes. The gold coated silver rod is wound round one roller and the outer end of it is passed through the largest 'eye' on the plate and tied to the other roller. The latter is turned gently until the whole length of the rod passes through the 'eye' and is transferred from the first roller to the second. Again the thread is passed through the next smaller 'eye' and transferred back to the first roller. The process is repeated forward and backward alternately until the thread gets the required fineness. To make very fine threads metal plates contaning holes

set with tiny pieces of precious stones are used.....The thread is beaten out gently into a flat tape-like filament, which is wound on a small drum called the 'swift'. The axle of the 'swift' projects out on either side; one end of it is fixed in the ground and the other end is turned by hand. The final process consists in covering yarn with the gold thread, and this is done on a spindle made of bamboo pole. The bobbin on which the yarn is wound is fixed at one end of the pole and the one on which the gold tape is wound is fixed at the other end. The outer ends of the yarn and gold tape are attached to a takli-like spindle, and when this is turned by hand, the yarn gets covered by the gold tape. The thread thus formed is rewound on a swift or a board of lathes and again on a reeler. The thread is then subjected to the action of saffron fume to improve its colour and lustre. A mixture of saffron powder and a kind of red earth called 'kavi', a hydro-silicate of aluminium and iron, is sprinkled on a small heap of rice husk which is burned slowly so as to produce copious fumes. The burning rice husk is covered with a perforated earthen pot and the thread is exposed to the fume emerging from inside the pot until it gets the desired colour and lustre."[1]

Cost of Production

24. Cost of gold thread – Rs. 2·75 per rupee weight.

Cost of silver thread purl and spangles (pure silver) – Rs. 3.50 per rupee weight.

Cost of ordinary thread – Re. 0.28 per 500 yds.

Cost of wool (first quality) – Rs. 2.50 per ounce.

Cost of silk – Rs. 3·75 per yard.

The cost of silk, however, varies according to the quality of the cloth. The design and raw materials are supplied by the clergy and the craftsmen are paid the wages for their work. Due to the dependent nature of the craft, there is no fixed wage rate for the work. The clergy pay a lumpsum amount which may roughly come to Rs. 2/- per day per worker. For the production of one set of vestments of medium quality, one craftsman will have to work for about twenty days. There is work only for five months a year and the craftsmen are forced to seek some other employment for the remaining months.

The future of the Craft

25. This craft, which displays a splendid craftsmanship, is certainly on the decline. The reason for the decline is not far to seek. The craft entirely depends upon the patronage of churches and the necessity for producing more vestments seldom arises, as one set will last for about sixty years. The only way to help the survival of the craft is to divert the talents of the craftsmen to other forms of embroidery, which may have demand in the market. If steps are not taken to reorientate it into a commercial craft, the chances of its survival are very remote.

(1) The Travancore State Manual 1940, Vol. III, page 548—549

3. GRANITE WORK

Introduction

Granite is the granular rock of igneous origin usually of grey shade in colour. Leaving alone the wood, granite was the earliest working material available for man. The age of chipped-stone extended over longer periods than the ages of iron, of bronze and of polished stone. "The chipped-stone implements among the earliest Palaeolithic findings show such purposeful workmanship that we must assume that even they were the results of previous periods of development. The word 'Palaeolithicum' itself (from the Greek palaios, 'old'; and lithos 'stone') stands for the conception of the age of the 'old' or chipped stone implements, while the younger 'Neolithicum' is the period of the 'younger' or polished stone tools. The oldest unpolished stone implements show shell-like chippings of great diversity. Their purpose can easily be determined by the shapes man knew how to give them. They were scrapers, scorpers, blades and the like, whose wooden handles, shafts etc. could not survive the ages. Arrow points of stone are less ancient."[1] The utilisation of stone household implements is almost universal. For chopping and mincing their grains and vegetables the primitive housewives used stone slabs and grinders. Such slabs and mortars retain their utility even today and the modern housewife still finds these articles a necessity.

2. The discoveries at Harappa and Mohanjo-daro reveal that stone carving had attained considerable refinement even before 3000 B. C. Two small stone statuettes were discovered from Harappa. One statuette is of fine red stone, the other of dark grey slate. "In both statuettes, it will be observed, there are socket holes in the neck and shoulders for the attachment of the head and arms, which were made in separate pieces; and in both, moreover, the nipples of the breasts were made independently and fixed in with cement. So far as I know, this technique is without parallel among stone sculptors of the historic period, whether of the Indo-Hellenistic or any other School. On the other hand, it is also unexampled at Mohanjo-daro, though this in any case would hardly surprise us, since the technique in question is one that is specially suited to small statuettes rather than to larger images like those of Mohanjo-daro, which offer much less risk of breakage. There is another point of technique that is also significant. In the red stone statuette there is a large circular depression in front of each shoulder, with a small circular protuberance broken off in the middle of it. What these depressions were for is not clear. They look as if they were intended to be inlaid with circular ornaments something like the circlets in the same position on the prehistoric terra-cotta figurine from Baluchistan. This, however, is beside the point. What I wish to draw attention to is that these depressions were made with a tubular drill and that the tubular drill was habitually used by stone-workers in the Prehistoric, but rarely, if ever, in the historic age."[2] The bright polish of the Asoka pillars bewilders the modern engineers. Hiuen Tsang, who visited Banarasa in the Seventh century A. D., describes the Sarnath Pillar thus: "A stone pillar about seventy feet high. The stone is altogether as bright as Jade. It is glistening and sparkles like light; and all those who pray fervently before it see from time to time, according to their petitions, figures with good or bad signs. It was here that the Tathagata, having arrived at Enlighten-

(1) The Origin of Things by Julius E. Lips, pages 120—122

(2) Mohanjo-daro and the Indus Civilization by Sir John Marshall Vol. I, pages 45—46

ment, began to turn the wheel of the law."[1]

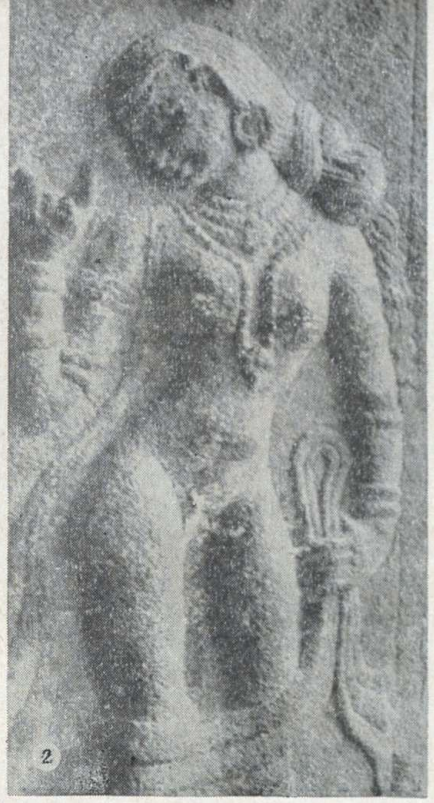
3. Sculpture is well recognised in the early literature. In the Kama-sutra of Vatsyayana, which has been generally attributed to the Second Century B. C., the sixty-four arts specified in connection with the accomplishments to be acquired by men and women, include the art of modelling or making images (Pratimala). The Matsya Purana says that 'an image may be made of gold, silver, copper, gems, precious stones, stone, wood, iron brass, compound of copper and bell-metal, sandalwood or other beautiful wood'.[2] Although the sculpture had its origin in connection with the form of worship, later it developed in various ways. For instance, Buddhism, which is against idol worship, has contributed to the art of sculpture in the form of *stupas*. Stone carving existed in Kerala even during prehistorical times. A series of carvings have been discovered in the Edakal cave in South Wynad about four miles south-west from Sultan's Battery. 'Mr. Fawcett, a superintendent of Police, has introduced the subject with some detail and several plates to readers of the Indian Antiquary in October 1901. One part of the cave contained inscriptions of ancient and mediaeval historical times which were deciphered by Dr. Hultzch. But of much earlier date are the carvings which had been partly covered up by a mould which was completely cleared up only after an excavation of 7 ft. which had accumulated under the roof rock during a long stretch of years after 'the rock carvings had been completed and indeed after the place had been abandoned'. "The carvings clearly represent human beings and animals and objects for human use and symbols, but they so run into each other and are placed so closely together that it takes a protracted and close study to make anything of them. The most interesting features of the sculpture are the frequent human figures with peculiar headdress. There are several rather indistinct figures of animals. The usual Indian symbols are of frequent occurrence, eg., the swastika and specimens of the familiar circular 'Sunsymbols'. There is evidence also of magic squares"[3]. It appears that all the figures are but rude outlines conventionally drawn and probably associated with some magic or totemistic rites. Many appear to be men dancing in masks or masked head-dresses. The elongation of the figures are noticeable here as in Singanpur and Cogul. That they belonged to Neolithic times may be judged from the find of a fragment of a well shaped and polished celt from the place."[4]

4. The three figures found in the cave temple at Kaviyur near Thiruvalla, are specimens of early sculpture. These figures belong to the eighth century A. D., if not earlier.[5] The first is that of the *Dwarapala* (door-keeper) at the entrance of the cave. It is a life size figure. He has a conical head-dress. He wears *Karnakundala* (ear-ring), necklace, girdle, hip-belt and a wrist ornament. The other figure is also tall and of life size. He has his hands crossed on his breast. The ornaments worn by him are the same as those of the *dwarapala*. The pose of this Chieftain is closely related to the figure of a Pallava Chieftain found in the rock-cut cave temple of Kunnandarkoyil, Pudukkottai (Madras State). The third one is that of a bearded man. His hair is in the top knot fashion which was prevalent in Kerala in olden days. He holds his arms akimbo. He has an oval shaped vessel in his left hand.

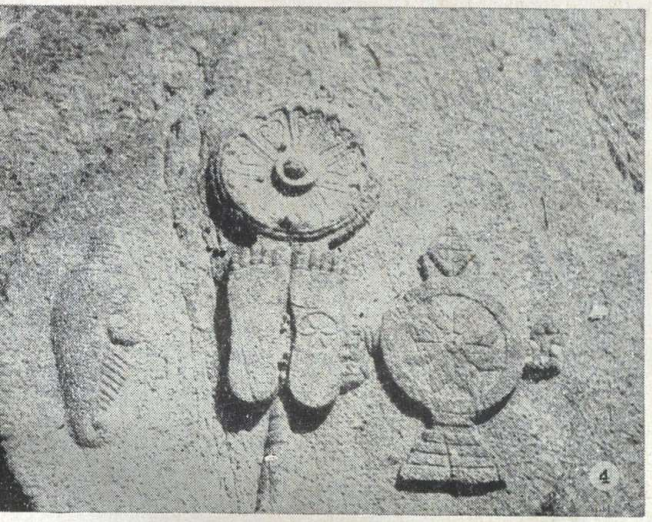
5. The Buddha image at Mavelikkara is attributed to the 9th century A. D. by R. V. Poduval.[6] The image is worshipped

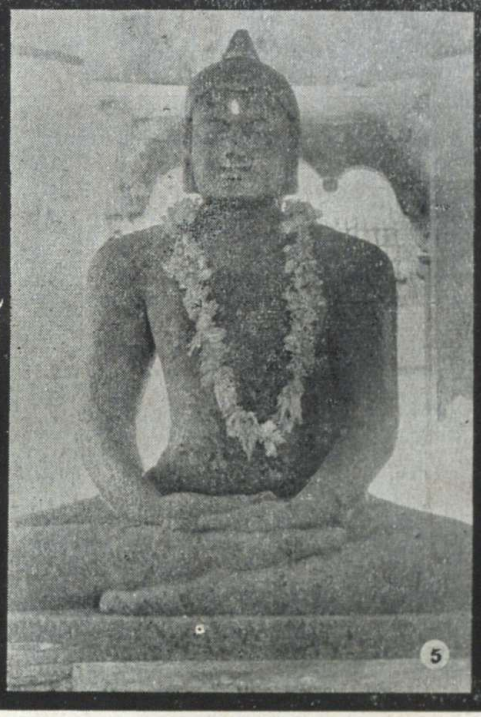
(1) Quoted in the Culture and Art of India (page 105) Radhakamal Mukerjee
(2) Matsya Purana—Part II, Translated by a Taluqdar of Oudh, page 303
(3) Indian Antiquary 1901, page 413 (4) Prehistoric India by Panchanan Mitra, pages 199—200
(5) Sculpture in Travancore by R. V. Poduval in 'Arts and Crafts of Travancore', page 47
(6) Ibid, page 48











Pl. 1. 1. Kudakkuthu (Pot Dance)—Kidangoor Temple

2. A figure in relief—Vaikom Temple

3. Dwarapala ((Door-keeper)—Kaviyoor Temple

4. Carving in Tirunelli Temple, N. Wynad

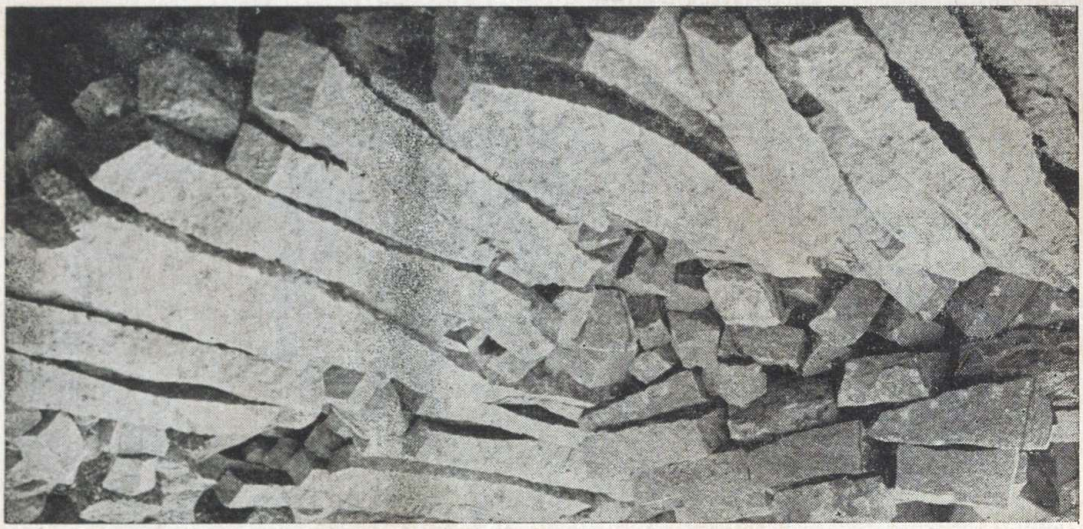
5. Buddha—Mavelikkara

6. Kudaikkuthu (Umbrella dance)—Vishnu Temple, Thrikkodithanam

7. Srikrishna—Thali Temple, Kozhikode







Pl. 2. A HEAP OF FENCING STONES



Pl. 3. MILLS OF GRANITE

by the people of that locality. The stone image of Buddha installed in the Bharanikavu Bhadrakali temple premises, a little to the north of the temple and protected by a thatched shed, closely resembles the Buddha image at Mavelikkara. "Measuring about 2′ in height, the image very elegantly executed shows the Buddha in the usual meditating posture with a gentle smile on its lips. The *Ushnisha* and the *Jvala* on the head and the upper cloth passing over the left shoulder and lying flat on the chest are conspicuous features of the image. The soles of the feet are turned upwards and the hands rest in the lap in the characteristic Dhyanamudra."[1]

6. The two *yali* panels in the Vishnu temple at Thrikkodithanam in Changanacherry taluk, depicting two types of ancient dances of Kerala viz., *kudaikkuthu* (umbrella dance) and *kudakkuthu* (pot dance) are specimens of the 11th century stone sculpture. The *kudaikkuthu* panel represents a dancer dancing in a hall. An attendant is holding an umbrella. Two other attendants are playing on a *mridangam* and cymbals. The roof of the hall contains the carvings of five *hamsas* (swans). In the *kudakkuthu* panel, the head of the dancer is dressed in the *karandamakuta* (bowl shaped crown) style. The right arm of the dancer is bent and touches the hip. The left arm is extended to the left. Two pots are seen resting on the arms one on the left and the other on the right. Three or four pots are in the air ready to be caught on the hand and thrown up in succession. Two attendants are playing the musical instruments. The representation of the dance is very realistic in this panel.

7. Two *yali* panels and two figures of *dwarapalas* found in the temple at Trivikramangalam, three miles east of Trivandrum are fine examples of 12th century stone carvings. The panels depict dancing women with attendants playing musical instruments.

8. The carvings of *Buthaganas* (goblins) and animals like elephants and lions and the image of Parasurama found in the temple at Tiruvallam near Trivandrum are considered to be specimens of the 13th century stone sculpture.

9. According to R. V. Poduval, the image of Vishnu preserved in the ruined Siva temple at Neeramankara near Trivandrum may be considered as an example of 14th century stone sculpture. The image has four hands. The front right hand is in the *abhaya* pose (protection gesture) and the left in *katyavalambita* (hand to hip) pose. The back right hand carries a wheel and the left a conch. The *kiritamakuta* (conical cap), *yajnopavita* (sacred thread), *hara* (necklace), *keyuras* (flat armlet), *kankanas* (wristlet) *udarabhandha* (girdle) and anklets are also shown.

10. The best traditions of the stone sculpture of the 15th and 16th centuries are available in the temple at Suchindram which now forms part of Madras State.

11. The Sree Padmanabhaswami temple, Trivandrum is a store house of the 18th century sculpture. In front of each pillar in the Siveli Mandapa and Kulasekhara Mandapa, the figure of a woman holding a lamp with both her hands is carved out of a single stone. The figure of Vishhu, Ganesa and various other puranic scenes are some of the fine works of artistic skill.

12. The art of sculpture in Kerala began to decline from the 18th century and it has now reached the verge of extinction.

Process of Production

13. Chengannur is an important granite carving centre in Kerala where idols, household requistites, fence stones and articles required for building purposes, stone *chakkis* (meant for the husking of paddy), road rollers, pillars, survey stones, etc. are produced. The craftsmen collect the raw material from the rocks at Thittamel about one mile away from Chengannur. The place is near to Pandavan para where Pandavas are believed to have lived incognito. On the rock, a hole is bored by using

(1) Buddhism in Kerala by P. C. Alexander, page 71

a burin. The hole will have varying depths like ¾′, 1¾′, 2½′, 3½′, etc. depending on the thickness of the required piece of rock. Half the hole is filled by gunpowder and pressed with an iron rod called *Itithamaru kambi*. In the middle of the gun powder, a wick made of paper or cloth is fixed. The wick is made by rolling a long piece of paper or cloth by putting gunpowder in it. The remaining portion of the hole is filled with laterite powder and pressed well. The wick will be so placed as to show its end above the laterite powder. The wick is lighted by a long torch and the man runs away from the spot immediately. The gunpowder will explode with a terrific sound and the rock will break. The broken pieces are collected in a lorry and transported to the workspots.

14. The gunpowder is made by the workers themselves. Sulphur, saltpetre (pottassium nitrate) and charcoal are separately powdered and mixed in the ratio 1: 5: 1. Only the charcoal of light wood like *Pala* (Echites scholaris), cashew (Anacardium occidentale), *Zenga* (Mimosa inga) *Ithikkanni* (Loranthus coriaceus) etc. is used for this purpose. Water is sprinkled in the mixture and it is again powdered. Wooden mortar and pestle are used for powdering the mixture to avoid combustion.

15. The only tools used by the craftsmen are burin and hammer. The burin is held in the left hand and the hammer in the right hand. The designs are worked by striking the hammer on the burin.

16. For the production of idols, only *Krishnasila* is used. This particular rock is brought to Chengannur from a place called Omallur which is twenty-eight miles away. The piece of rock is taken out according to the required measurement. The temple authorities furnish the height of the idol in consultation with the *Thanthri*. The craftsman determines the measurements of the various parts of the body on the basis of Silparatna or Thanthrasamuchaya and works the idol. The figure is carved by using a burin and hammer. The surface is smoothened by the help of a file. Equal quantity of sealing wax and steel powder are mixed together and melted after adding a little water. The image is rubbed by this saturated solution to make it smoother.

17. In south Malabar and surrounding areas, the *Krishnasila* meant for the production of idols is taken only from a place called Trithala near Pattambi. A special sanctity is attached to the place, as it is associated with Melathol Agnihotri. The story goes that Vararuchi, a contemporary of Kalidasa and one of the nine gems in the court of King Vikramaditya, happened to marry a Paraya girl (Scheduled Caste) and had twelve children of superhuman qualities. The children born for the Brahmin and the Paraya girl were abandoned by the parents and they were brought up by persons belonging to various communities. Melathol Agnihotri one among those children, was brought up by a Brahmin in Thrithala. All of them are believed to be the incarnation of Maha Vishnu. It is said that Agnihotri performed hundred sacrifices at Trithala, by virtue of which the *Krishnasila* of that locality has attained a special sanctity. Sixteen *fanams* (Rs. 4.00) have to be paid to the landowner for taking the granite required for one idol.

18. The idols are made only according to order. The eyes of the idols are completed only on the previous day of the consecration. By the completion of the eyes, the idol becomes sacred and it is believed to be a sin to keep it idle.

Cost of Production

19. In most of the places, the granite is obtained free of cost and the workers have to meet only the transportation charges. At Chengannur they are paying one rupee to the owner for every lorry load of stones taken from his lands. He is also paid a sum of rupees two for passing the lorry through his compound.

Cost of	sulphur	Re. 0.50 per lb.
,,	saltpetre	,, 1.00 ,,
,,	charcoal	,, 0.06 ,,



Pl. 4. AT A MILL OF GRANITE



Pl. 5. AT AN IDOL

The cost of gunpowder required for breaking one lorry load of stones will come only to Re. 0·50. The cost of one lorry load of stones is as follows :—

Cost of one lorry load of stones (including transportation charges, loading and unloading charges and other miscellaneous items)	Rs. 18.00
Cost of gunpowder	Re. 0.50
Total	Rs. 18.50

A worker has to spend ½ day for breaking one lorry load of stones. About two days are required for completing the work on the stones, if he is attending to some plain work like the production of foundation-stones etc. If one lorry load of stones are made into foundation-stones, they can be sold at about Rs. 28/-. The wages of the worker would then work out to Rs. 3.80 a day. It is not difficult for a skilled craftsman who is engaged in icon making to earn Rs. 10/- per day. A craftsman who is producing household articles gets only Rs. 3/- per day as wages. A grinding stone of the usual size $1\frac{3}{4}' \times 1'$ costs Rs. 4 to Rs. 10/–. Indeed the work requires a good deal of skill and labour. Hence the natural tendency of the youngsters is to choose the easier work with the result that the artistic skill is declining. The number of proficient craftsmen in the art of idol making has considerably decreased and the day is not too far off when it will become the history of the past. Luckily, the State Government have realised this pathetic situation and have started a training centre at Chengannur under the Directorate of Industries and Commerce to revive this dying art. The institution is imparting training on granite carving in the traditional style seen in temples and also in idol making. Only the students belonging to the traditional Kallasari caste are admitted for the training and they are paid each a stipend of Rs. 20/- p. m. The demand for the idols is very limited.

20. The craftsmen are Kallasaris who form one of the five groups of Kammalas. It is said that the Kallasaris at Chengannur were brought from Pandy for the construction of the local Mahadevar temple. According to the popular belief, this temple was constructed by a Chera king some thousands of years back. Silappathikaram, the famous Tamil poetical work of the second century A. D., says that Kannaki came to 'Chenkuntur' and performed penance and consecrated the *Bhagavathi* in that place. The association between this temple and the Tamilnad is clearly indicated by this reference. In the year 1714 A. D. the temple was completely ruined by a fire accident. In order to prevent such accidents, the temple was reconstructed in granite and the skilled workers were brought from outside for the purpose. It can rightly be presumed that the workers were brought from Pandy for the reconstruction of the temple after the fire accident and not for the work when it was originally constructed.

Conclusion

21. From the economic point of view the craft can be considered as flourishing. Due to the availability of raw materials and the demand for the articles in the market this industry is in an advantageous position when compared to other crafts. Another advantage for this industry is that the investment is negligible. The workers are getting reasonable wages. But one of the major reasons which stand in the way of their progress is that they are addicted to drink by tradition and habit. As a result their financial position shows no improvement. There is one co-operative society at Chengannur. But the workers do not seem to be interested. They prefer independent marketing. The co-operative movement will succeed only in a society which has got the determination to take advantage of it. This will be forthcoming only when they have some common difficulties which are comparatively absent in this industry at present. The modern worker claims that he can attend to any item of

carving work which could compete with the work of his ancestors provided he gets the necessary patronage. Whatever may be the capacity of the present worker, lack of experience is bound to reflect in his art though he is not responsible for such a state of affairs. The concrete slabs have replaced the granite to a considerable extent in the construction of buildings. A special feature of this craft is that the articles are not sent to other places, not even to the neighbouring states. The prohibitive transportation charges due to the heaviness of the articles, may be the main reason which stands in the way of sending the articles to other places. Instead of confining the art of idol making to the use of temples, it would be advantageous to explore the possibilities of making other attractive figures out of granite and giving them either good polish or suitable paint.

The high demand for the clay icons in the market is a pointer in this direction. The tools used by the workers are crude and few. There has not been any improvement in the traditional ways. If some sort of simple machinery could be used, the labour charge can be reduced and the products can be sold at cheaper prices. At present large quantities of rocks are being used in the construction of roads. The use of such large quantities of rocks will result in their shortage in due course and it is bound to affect the granite carving adversely. The rocks which are suitable for the carving work should be preserved and they should not be used for other purposes. The craft has a good future if the workers are properly educated on the use of modern tools and if the industry is properly organised to suit modern taste.

4. KOFTGARI WORK

Introduction

The *Koftgari* work (inlaying of a light metal on a dark one) is one of the popular metal crafts in India. Metal craft in India is as old as her civilization and has survived many centuries unto this day. Way back to the Indus Valley civilization we are reminded of the antiquities discovered from Harappa and Mohenjo-daro which included 'polished gold jewellery, coins, abundant neolithic implements, and above all seals' and of the fineness of the patterns on various metals discovered. That the beginnings of the metal craft in India can be traced back to remote antiquity is further evidenced by the frequent references to gold cups and other 'richly ornamented metallic vessels' in the Rig Veda and other great epics. Apart from being one of the ancient crafts in India the metal work was also a highly developed craft of old. The surviving examples of various antiquities preserved here and there bear eloquent testimony to the 'skill and subtlety of the craftsmanship of our artisans'. The origin of the *Koftgari* craft may be traced back to many centuries past. "The art of damascening or 'Koftgari' work seems to have originated in the desire to decorate weapons of war. 'Damascening', as its name suggests had its home in Damascus, from where it was brought to India directly through Kabul and Persia .....In pre-modern days when the weapons of war were few and simple, the craftsmen spent a busy time ornamenting swords, shields, daggers and other similar objects. Akbar was keenly interested in the art and gave his personal attention to the royal armoury and to the forging and decorating of the weapons made therein."[1] " The best work was done in the Punjab in connection with the decoration of weapons in the Sikh period."[2] In ancient days, attention was paid mainly to the ornamentation of daggers swords, shields, helmets and similar other war weapons. Gradually the demand for the damascened or ornamented weapons waned as a result of the incessant shift in the techniques and weapons used from time to time in the warfare. Consequently the *Koftgari* artisans diverted their attention to the creation of articles of domestic use This craft was practised in Ceylon too. Good examples of demascening on steel are also met with in Siam. In Travancore, *Koftgari* work was in existence even before the reign of Maharaja Marthanda Varma. Handles of swords and other weapons were usually adorned with *Koftgari* work in that State. Reference has already been made in the monograph on ivory carving given supra about the high excellence of workmanship displayed by the craftsmen of Travancore in this art as well as in others referred to in a letter addressed to His Highness the Maharaja of Travancore by Colonel H. P. Hawks, President of the Madras Committee of the London Exhibition 1886.

2. The *Koftgari* work done in Kerala is highly unique and artistic displaying excellent finish, minuteness and ingenuity characteristic of true Indian art. Though there is a good deal of resemblance between the Bidri work of Hyderabad and *Koftgari* they are not without their differences. In the Bidri work of Hyderabad metal plates made of an alloy of zinc, copper, tin and lead are used while in *Koftgari* steel plates take their place. In both the works ornamentation in plates is done against a glittering bluish-black background. But while in Bidri work the plates, originally white in

(1) Arts and Crafts of India and Pakistan by Shanti Swarup, page 84

(2) History of Indian and Indonesian Art by Ananda K. Coomaraswamy, page 134

colour, are blackened by a ferrous coating and ornamentation is done with silver encrustation in *Koftgari* there is not only no ferrous coating but the encrustation is done by gently hammering down the silver wire in the innumerable groves made on the steel plate. The metal plates in Bidri work have, however, a smoother background than the *Koftgari* plates. In the *Koftgari* work, the designs are mostly worked out by line sketches. A wide range of utility-cum-fancy articles, in different sizes and shapes are produced in *Koftgari.* Images of gods and goddesses, natural objects, country scenes, floral designs, as well as utility articles like trays, photo frames, cigarette cases, ash trays etc are commonly wrought out in *Koftgari.* The scenes of the low country side depicting a paddling country boat in the backwaters fringed with cocoanut palms, delicate floral designs in variegated designs, Sree Krishna playing the flute, Sree Padmanabhaswamy in Ananthasayana pose etc. are so graphically represented in silver thread against a bluish-black background of roughened steel that their artistic appeal speaks of the high excellence the craft of *Koftgari* has attained in Kerala.

The Raw Materials

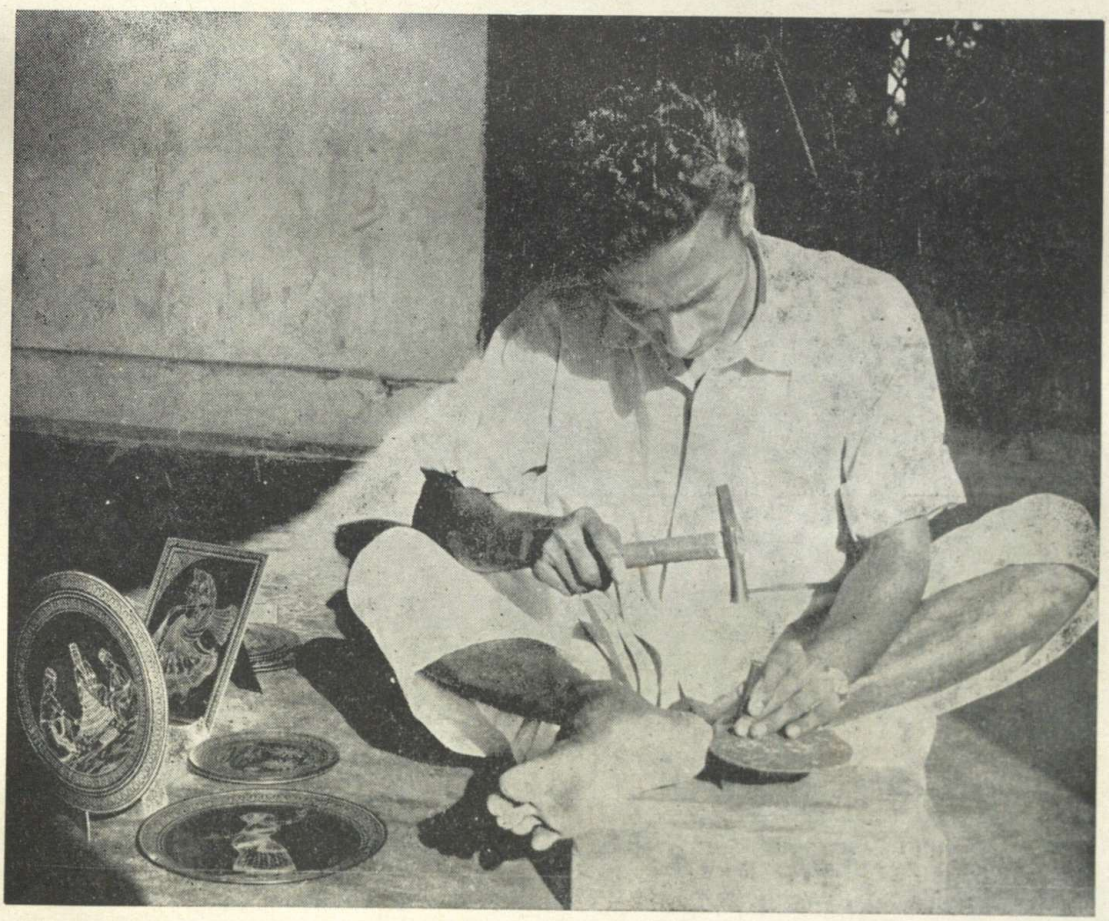
3. The basic raw materials employed in this industry are iron sheets and silver wires. Charcoal, oil, lime, sandpaper, black paint and vaseline are also required in various stages of the production of the Koftgari articles. These raw materials are obtained by the craftsmen from the local markets.

Process of Production

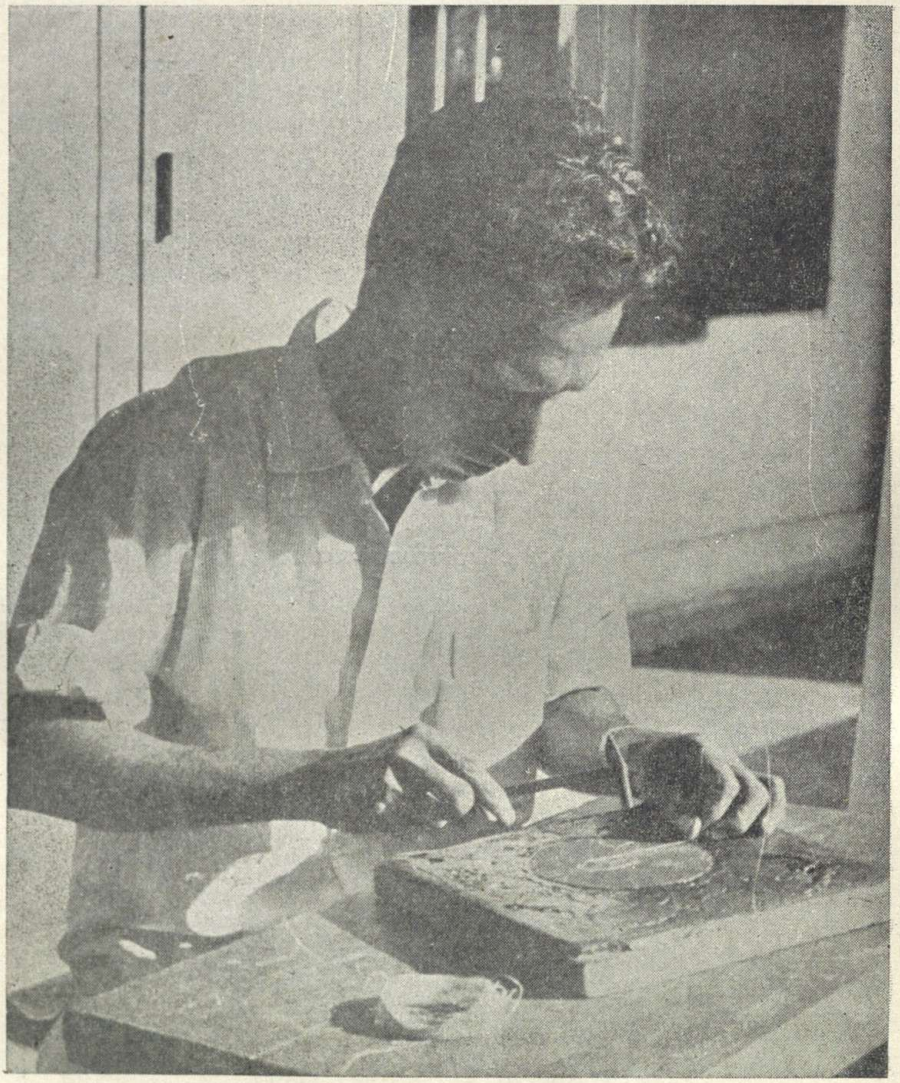
4. No machinery is employed in this industry by the artisans in the State. All the processes are worked by hand. To begin with the production of the article, the craftsman selects the iron sheet conforming to the size of the article in his mind and it is heated up mildly in burning fire. This is just to lessen the temper of the metal in order to work upon it. The iron plate is then slightly hammered out on all sides to obtain a flat and plane surface. Afterwards the craftsman makes innumerable grooves on its roughened surface. This is done by gently hammering a small chisel driven on its surface with a rythmic movement. Having made these grooves, the plate is again put in the burning fire and at a certain degree of temperature when the iron plate becomes bluish in colour, it is taken out and fixed upon a base covered with lac. The lac being a melting substance will instantly give way to the heated iron plate displacing as much surface capacity as is necessary to hold it fast and as soon as the temperature of the iron plate goes down, the same will be permanently secured on the lac base. Now the craftsman actually sets to work upon the metal. He draws bare outlines and sketches of the objects or the sceneries, as the case may be, on the iron plate with the sharpened end of a small chisel to facilitate the encrustration of the silver thread on the desired designs. Minute bits of silver threads are then deftly hammered down in the grooves in the chosen designs. This is the most difficult operation in the whole processes of production of the *Koftgari* articles. Holding out the silver thread between the tip of his thumb and fore finger of the left hand, the craftsman deftly places one end of the thread on the outlines and with his right hand gently hammers them down into the grooves he has made in the plate earlier and cuts and removes the other end of the silver thread as soon as the other part is ingrained on the plate, and thus this process is repeated again and again as a continuous and harmonious chain of operation until the whole design is fully incrusted with silver wires. How swiftly and skilfully the craftsman moves the silver thread on the outlines drawn on the iron plates and makes out different fringes and frills on the designs out of the hairy silver wires with the tip of his chisel, one cannot look but with wonderment. Having finished with the encrustration of silver wires on the plate, it is taken out of the lac base and is heated up



Pl. 1. KOFTGARI TRAYS



Pl. 2. THE CRAFTSMAN MAKING GROOVES ON THE PLATE



Pl. 3. ENCRUSTATION OF SILVER THREAD ON THE PLATE

in the burning fire. Taking out the plate from the burning fire, the iron sheet is gently hammered down on all sides and the surface is made even and plane. Again the plate is put in the burning fire for some time and heated up. After removing it from the burning fire, lime juice is daubed on the plate and it is put again in the fire. After keeping it for some moments in the fire, it is taken out and is brushed up with lime juice, sand and soap-nut. The iron plate is again heated up till it obtains a bluish colour when it is removed from the fire and throughly chiselled with a slender nail-like instrument and the surface smoothened. It is now cut into round, oval, square and other desired forms and its edges filed neatly and smoothened. If the product is a tray or a shallow flat vessel, its fringes are made at this stage. This is done by drawing a line, at the first instance, along the borders of the iron plate and thereafter raising upwards the border portion of the iron plate between the line drawn and the edge of the plate into desired shape by gently hammering that side of the iron plate. The plate is once again heated up and, as a final process, black paint or vaseline is applied on the plate, which gives it a glittering bluish-black colour with the silver ornamentation standing out in bold relief. Only silver and gold wires are used in the *Koftgari* work. This is because that no other metal wires except that of silver and gold can be easily ingrained on the iron plate.

The Tools

5. The following are the tools used in the manufacture.

1. Chisel (big and small)
2. Hammer do.
3. Dividers
4. Compass
5. Plier
6. Centre punch
7. Pincers
8. Blower
9. A flat wooden piece covered with lac
10. Drill
11. File
12. Nice stone
13. Anvil.

It does not appear necessary to give a detailed description of the chisel and hammer as these instruments can be found in use everywhere. These instruments are employed by the craftsmen for cutting the iron sheets as well as for making grooves thereon. The levelling of iron sheets are done with the help of hammer alone.

Dividers. This is an instrument with two legs connected at the top by a movable joint, used for drawing lines, circles etc. on the plates.

Compass. This is also used for the same purpose as the Dividers.

Plier. This is a pair of small pincers used by the craftsman for holding the iron plate in various operations especially when putting it in the hearth and taking it out from the fire.

Centre punch. Centre punch is an instrument resembling a small nail with one end thick and the other sharpened. Small holes and dots are made on the plates with this instrument.

Pincers. This is an instrument having two handles acting as levers for two jaws working on a pivot used for gripping the articles.

Blower. Blower is used for producing and forcing a current of air to blaze up the fire in the hearth. This is a hollow, expansible and movable equipment made up of leather, having close resemblance to the bellows in a camera. The opening of the narrow side of it is fixed to the hearth and the other side, with wide opening, is fixed with two small handles. These handles are systematically pulled and pressed upwards and downwards by hand as a result of which the air creeping into the bellows will be pumped out directly to the hearth and thus the fire in the hearth will blaze up.

Drill and File. Drill is used for making holes in the plates and files for smoothening the edges of the iron sheets.

Nice stone. This is used as a base for sharpening the chisels and other instruments.

Anvil is an equipment used as a base when beating up the iron sheets. This is a flat wooden piece on the top of which is fixed a small, thick, square iron piece, about four or five inches in girth with a flat top.

These tools are less expensive and cost only about Rs. 50/–.

The Cost of Production

6. A correct estimation of the quantity of raw materials required in the manufacture of these articles is not always possible. It depends upon the size and the design and dimension of the articles produced. The bigger the article, the greater the quantity of the raw materials required. This is especially so in the case of silver wires. Silver wires will be consumed more if elaborate and intricate designs are worked out on the iron plates. But on a rough estimate, the requirements for *Koftgari* work on an iron plate of 3″×3″ are two grams of silver, and five grams of silver wire for an iron plate weighing one lb. Generally the craftsman obtains the silver wire direct from the big jewellers who have mechanical contrivances for making wires out of silver. At present the raw materials are obtained from the local market at the following rates.

1.	Iron sheets (1 lb.)	Re. 0.75
2.	Silver wires (5 grms.)	Rs. 1.31

An analysis of the cost of the raw materials employed in the production of *Koftgari* products indicates that the cost of the raw materials will not be proportionate to the size of the articles produced. In other words, if one rupee is incurred by way of cost of raw materials for a *Koftgari* plate of 3″ × 3″ size, it will not necessarily be Rs. 2 for a plate of 6″×6″ size as larger quantities of silver wire will be required for it and hence the cost of the raw materials employed in that piece will always be on the high side. At present, it is given to understand that the cost of production of a *Koftgari* iron plate of 7″ × 5″ size will be as follows:—

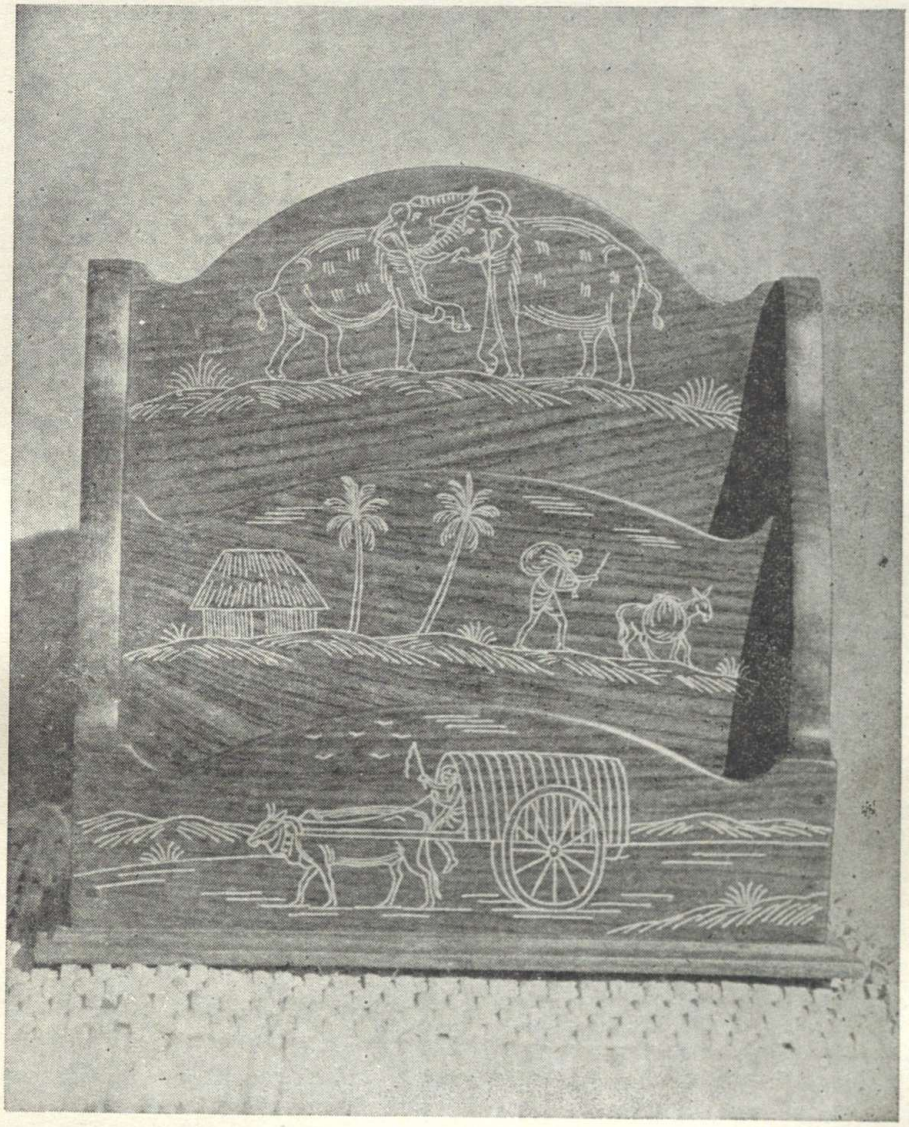
1.	Iron sheet (1 lb.)	Re. 0.75
2.	Silver wires (5 grms.)	Rs. 1.31
3.	Other charges for coal, lime, vaseline etc.	Re. 0.44
4.	Labour charges (for 3 days work)	Rs. 7.50
		Rs. 10.00

The article is sold in the market for Rs. 12.50. It has to be mentioned that the output of a craftsman per day cannot be correctly assessed as in other crafts. It depends upon the skill and efficiency of the craftsman concerned. While one or two articles of small designs can be finished in a day, for an article of elaborate and intricate designs one has to spend even a week on it.

Conclusion

7. Although the *Koftgari* work was practised in Kerala for a very long time and it is noted for its uniqueness and artistic exuberance, it has to be admitted that this industry has thus far not made any notable strides of progress in this State. This is quite evident from the fact that at present this craft is practised in the State only in Trivandrum and that only very few craftsmen are occupied in this industry. Though this is so, the State Government are keen on popularising this craft in the State. A Production-cum-Training Centre has been started under the State Industries Department where at present 15 students are given training in the *Koftgari* work. The duration of their training course is 1½ years. These students are also given a monthly stipend of Rs. 20/–. Another institute run by the Government where training is given in this craft is the School of Arts, Trivandrum.

8. Although the *Koftgari* products do not find a favourable market in this State, it is claimed that they are in good demand outside the State as well as in foreign countries. Of all the *Koftgari* products those depicting natural sceneries of Kerala are said to be more popular in and outside



Pl. 4. A WOODEN ENVELOPE RACK INCRUSTED WITH SILVER
Though not strictly koftgari work, the incrustation of silver wires on wooden articles is a similar work practised at Trivandrum.

the State. The reason for the slump in this trade in Kerala can be attributed mainly to the exorbitant price of the articles, lack of sufficient funds and partly to the inertia of the craftsmen. Like all other artistic and decorative works, the production of the *Koftgari* articles also involves considerable time and labour. Hence the producers are bound to charge a high price for these articles which the common man cannot ordinarily afford to pay. This has a direct bearing on the craftsmen also. Since the artisans do not often get returns commensurate with the time and energy they spend in producing these articles, most of them are not interested in pursuing this craft at all times. They seek more remunerative occupations elsewhere. As in the case of some of the handicrafts of Kerala this industry too is on the verge of extinction. It is hoped that with the initiative taken by the government in starting training centres perhaps a brighter future might attend the industry.

9. At present, though the *Koftgari* articles produced in Kerala are being exhibited in some of the emporia outside the State such as the Victoria Technical Institute, Madras, the Khadi Gramodyogh Bhavan, Madras, All India Handicrafts Board, New Delhi etc. with the intention of popularising these articles in those places, much more is desired to be done in the direction of publicity. If these articles are exhibited in the important emporia in all the capital cities in India, they are likely to command better market. A mutual arrangement by which the State Governments agree to exhibit the handicraft products of the sister states in the Art Houses of the States is likely to facilitate publicity to the mutual advantage of all States.

10. The tools and equipments employed by the artisans in this industry are mostly crude. The earlier they are modernised the more the prospects of the industry can be improved.

11. The artisans engaged in this industry do not have much knowledge of the local market trends and of the articles that are easily sold out in the markets. The consumers' choice is an important factor. The production of these articles has, therefore, to be organised tāking into consideration this vital aspect. Novel designs which attract the consumers and which can be sold out quickly, have to be developed from time to time.

5. LACQUER WORK

Introduction

Lac is the secretion of the hypodermal glands on the back of a scale-insect deposited on the twigs of certain trees. Father Tachard, a French priest, was the first man to describe the insect scientifically, in 1709. As a mark of appreciation towards his effort, the insect was named Tachardia lacca. It is grouped in the family of *Lacca Coccidae*. There are six species coming under this family, out of which five species are capable of producing lac. But lac can be collected profitably only from the insects of the species called laccifer. They are found on the branches of the forest trees in India, Pakistan, Burma, Ceylon, Java, Malaya, China and Thailand. "The mouth part of the insect consists of a beak combined with a pointed lancet to pierce the bark of the trees and draw up the sap by means of a sucking tube. It is a siphonlike insect and the sap continuously sucked up through the beak, after modification and absorption of some of its products, comes out as an excretion at the end of the body. This excretion solidifies on contact with air and thus there is gradually formed round the body of the insect a scale or cell popularly known as lac, which usually encloses the insect altogether. Perhaps it is for protection from its enemies that the scale is produced. But even this production does not rid it altogether of them."[1]

2. The lac industry is one of the most ancient of the minor industries of India. The lac and the tiny insect from which it is derived were known to the Indians from very early days. The term lac itself is derived from the Indian word *laksha*, which means one hundred thousand, in reference to the numerous lac insects that swarm on the trees. The chief trees on which the insects flourishes are the *Kusumb* (Schleichera trijuga) and the *Palas* tree (Butea frondosa) the latter of which is known as the *Lakshataru* in Sanskrit literature. In one of the hymns of the Atharva-Veda (Book V, Hymn 5) addressed to a plant to mend a broken bone, there is reference about *laksha* meaning apparently a plant on which the cochineal insect which produces the red dye (lac) is found.[2] Mahabharata refers to the construction of a lac house at the instance of the Kauravas, with a view to destroying their rivals, the Pandavas. There is also reference about lac dye in Kalidasa's famous work Sakuntala. At the time of Sakuntala's departure to her husband's palace, the hermits went to collect flowers for her, when unexpectedly some tree gave forth moon–white silken garments suited to the auspicious ceremony; another exuded lac dye suited for dyeing the feet;[3] from others ornaments were presented by the hands of the sylvan nymphs raised up to the wrists, which vied with the sprouts which grew on the trees (Act IV). "From ancient days shellac was used as a varnish in India and a Dutch man sent to India by the King of Portugal, writes of this substance in his reports of explorations which were published as early as 1596."[4]

3. The lacquer industry has existed in Kerala for many years and the Malabar lacquer work applied to objects such as trays, shields, boxes and cots, was famous

(1) The Shellac industry and its possibilities in Travancore: Department of Industries (Government of Travancore) Bulletin No. VII by S. G. Barker

(2) The Hymns of the Atharva-Veda, translated by Ralph T. H. Griffith, Vol. I, pages 195 and 196

(3) Even now lac dye is employed by women in various parts of Bengal for dyeing their feet

(4) The shellac industry and its possibilities in Travancore: Department of Industries (Government of Travancore) Bulletin No. VII by S. G. Barker

throughout India. The work was carried on successfully in a little village called Pandalam in Alleppey district by a small settlement of hereditary workers, with the tools of a most primitive character.

4. "To understand the manner in which the lac is produced a thorough acquaintance with the life history of the insect is indispensable. Its life history is not the same throughout India, because of the varying nature of the climate. During the beginning of July and December, and sometimes as late as January, the young larvae are seen to swarm upon the trees in large numbers. The eggs of one insect do not all hatch together, but the larvae emerge out of the shelly incrustation in which they are imprisoned, during a period of a fortnight.

5. "A lac insect which has been newly hatched is very small and is of a red or orange colour. In shape it is elliptical, and it has two marginal eyes in the head and two feelers. It has six short legs and the average length is one fortieth of an inch. The newly hatched larva at once crawls on to a neighbouring twig, and as soon as it comes to a sappy soft part, it buries its beak and comes to rest. But if it is not able to come to a suitable part within a few hours, it dies. After coming to rest it begins to suck up the sap and exude lac, which dries round it on contact with air in a circular or oval shape. Because the grubs usually settle very close to one another the cells generally coalesce and produce the well known thick incrustation known as the stick lac.

6. "Within one month after the larval stage, the female insect becomes considerably swollen and enlarged by the excretion of the resinous scale round herself, and grows to a length of one eighteenth of an inch. When she is two and a half months old she becomes impregnated by the male, and she continues to grow and excrete the lac for another 2½ months more. The ovary becomes considerably large and filled with a bright red fluid. The interior of a fully grown female is filled with irregularly massed bundles of the white tracheae and the ovary which contains the red colouring matter, which has the same qualities as the 'Lac Dye'. The scale which covers the female insect is circular in shape and is covered with a kind of white powder in patches here and there. During the last month of her life the eggs are gradually formed from the bright red fluid contained in the ovary. The female produces as many as a thousand eggs, and when these are fully developed in the ovary, the mother dies, having been reduced to mere skin. On hatching, the young ones emerge out through ruptures in the skin or through the oval orifice, thus leaving the lac incrustation empty.

7. "The life history of the male insect is a little different. In size it is only little larger than the newly hatched larva, and is red in colour. It has four eyes, two lateral and two placed underneath the head, the latter pair developing during maturity. After a short period of activity after hatching, the male also comes to a stage of rest on the twig and buries its proboscis in it. A small elliptical scale is formed which is open at one end, and on maturity, which takes place about two and a half months after the period of swarming of the larvae it leaves the scale at the open end, walking backwards. Then it crawls over the lac incrustations and impregnates the female, which is covered by the scale, through the oval opening. After pairing the male expires."[1]

8. The lac is collected from the branches and ground in hand-operated mortars. The resulting material is separated into (a) granules of lac known as seed lac (b) dust, which is used to make toys, bracelets, and bangles and (c) wood which is used as fuel. The seed lac is next soaked in water and trodden by foot, which crushes and washes

(1) The Shellac Industry and its possibilities in Travancore: Department of Industries (Government of Travancore) Bulletin No. VII by S. G. Barker

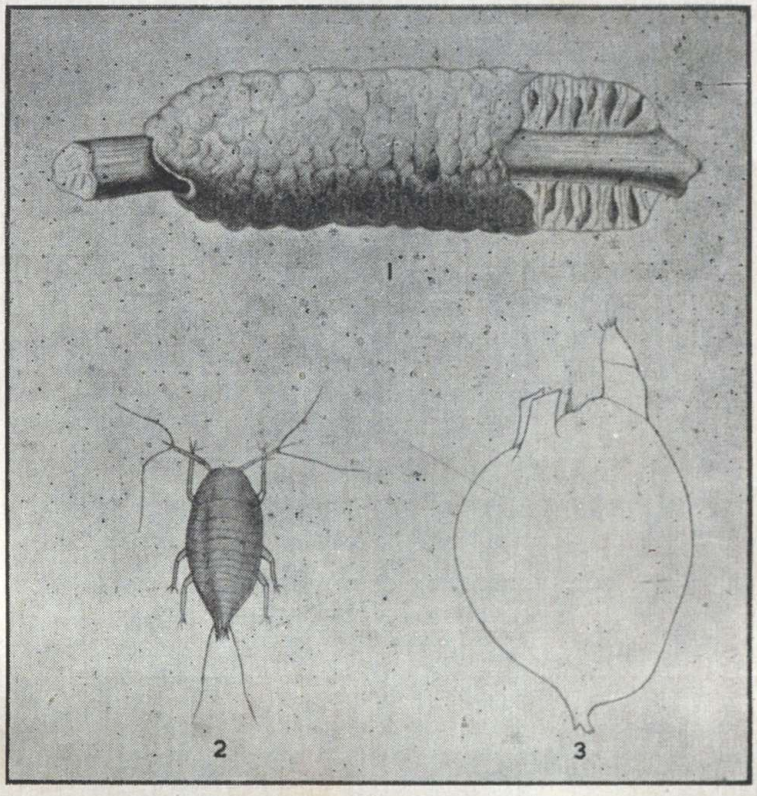
out the wine-coloured pigments that were formerly sold as dyes but no longer have any commercial value. The granular lac, after drying and bleaching in the sun, is placed in slender cloth bags, 10 or 12 feet long, is heated by open charcoal fires and, by the twisting of the ends of the bag, is forced out as it melts, dropping upon the floor. Before these pads of melted lac have had time to congeal, they are grasped by the workers who stretch them with their hands, teeth and feet to extremely thin sheets. After drying, these sheets are broken into thin, small flakes; in this condition they are shipped. Dissolving the flake lac produces the familiar white or orange, liquid shellac. It requires about 150,000 lac insects to make a pound of lac.[1] The insect is not domesticated. They live on the forest trees in abundance, providing means of livelihood for millions of poor classes of India. The synthetic lacquers now coming in the market, are sure to replace the true shellac to a considerable extent.

Process of Production

9. The lacquer work now existing in Kerala is confined to the lac coatings to the fancy-cum-utility articles like time-piece stands, flower vases, lampstands etc. and also the coloured lac coatings to the wooden umbrella handles and toys. Lac flakes called button lac are slightly melted on live charcoal and they are pressed on the ends of two long wooden sticks. Again the ends of the sticks are shown on the live charcoal and some more quantity of lac is absorbed on the sticks. The process is repeated until about two pounds of lac are deposited at the end of each stick. A small quantity of titanium oxide and chemical dyes are dissolved in water and made into a thick paste. For every pound of lac, four ounces of titanium oxide and one thola of dye are required. With the help of another stick, the paste is added to the lac on the two sticks, which are again shown on live charcoal and the lac paste is thoroughly mixed by pressing the two sticks together. The lac is then allowed to cool on a plank and then made into long bars. Colouring of the lac is not necessary for the coatings to the articles like time-piece stands, and certain types of flower vases etc. and so the chemical dyes will not be mixed in such cases.

10. Soft wood like *pala* (Echites scholaris) and *kadambu* (Hymenodictyon excelsum) are used for the lacquer work. For umbrella handles *pala* wood is preferred and for other articles like flower vases etc. for which no colouring of lac is required *kadambu* wood is generally used. For the umbrella handles the wood is cut into rectangular pieces according to the required size by the help of a round saw. The pieces are then dried in the sun and each piece is pressed against a drilling machine to make a hole about 3/4" in depth. It is then fitted on a lathe, which is operated by electricity. A chisel is pressed against the sides of the rotating rectangular wooden piece, and by paring the surface, it is made into a cylinder. Curves and grooves are also made on the cylinder by the same process. Sandpaper is then pressed on the piece, to make the surface smooth. The lac bar already prepared is pressed against the sides of the rotating piece. The heat produced by the friction of the lac and the wood melts the lac and it is covered on the surface of the wood. Then a grooving cutter is pressed against it to get various designs. A grooving cutter is a small iron cylinder provided with parallel grooves and fitted to a handle, on which it can freely rotate. The final polish is obtained by pressing with slightly damped leaves of the screw-pine. The process of production of other articles is similar to that of umbrella handles, with slight deviations according to the nature of the articles. For instance, colouring of lac is not required, while lacquering a time-piece stand, and so the

(1) Destructive and useful insects—Their habits and control by C. L. Metcalf and W. P. Flint, pages 52–53

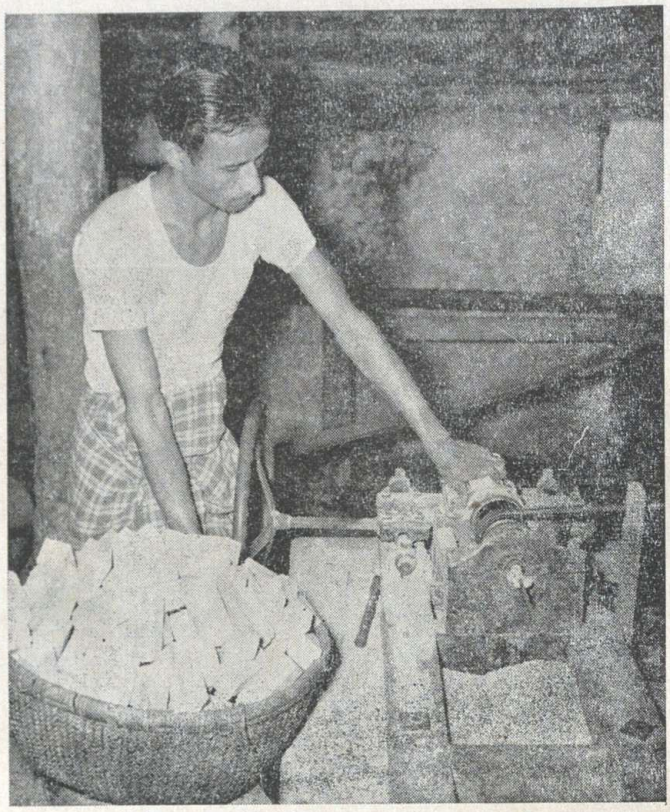


PI. 1. THE LAC INSECT

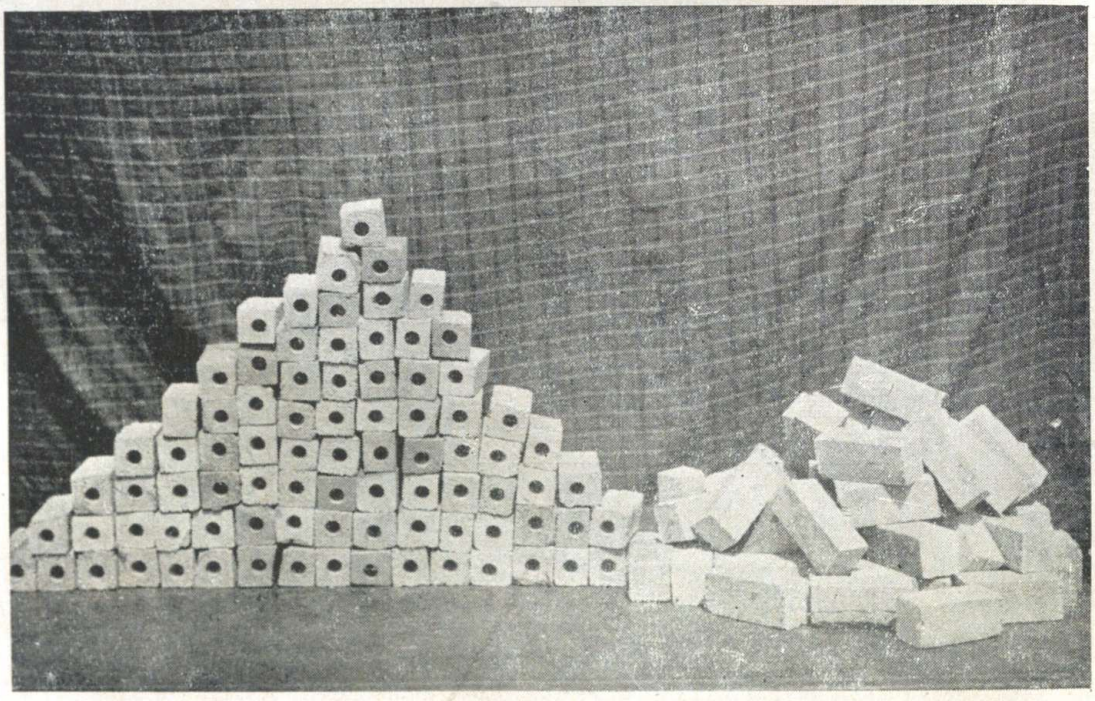
1. A piece of twig thickly encrusted with lac. The part on the right is broken open to show the worm-like lac insects in their cells. Each living insect communicates with the exterior through three small apertures, shown on the surface of the incrustation (about natural size).

2. The young lac insect (first instar nymph or "crawler") greatly enlarged.

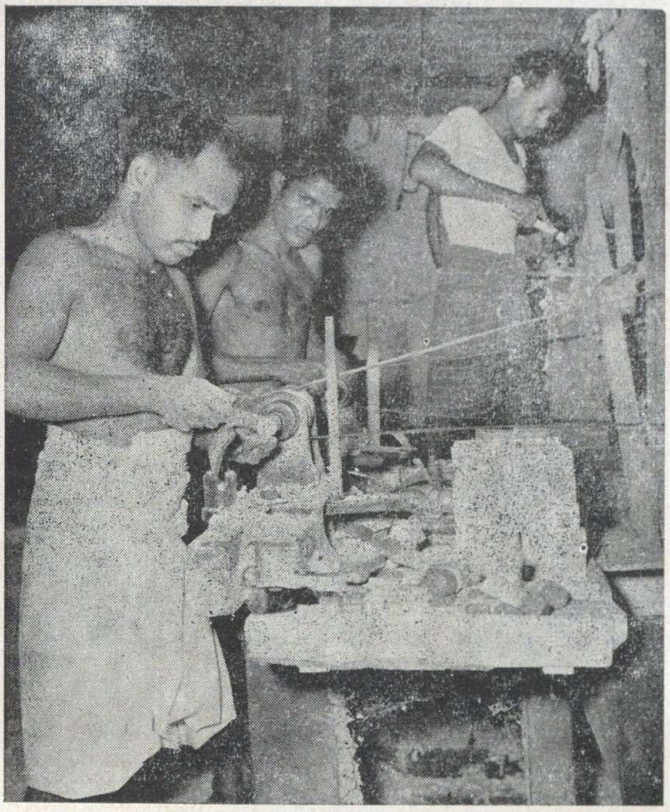
3. The body of an adult female lac insect, freed from its resinous secretions, as seen from the side. At the upper end is the segmented abdominal extremity of the insect, terminating in the fringed anus. At the left is the dorsal spine and overhanging it the two respiratory processes which guard the spiracles. The mouth parts are at the lower extremity and during life, inserted in the bark. About 12 times natural size (After Destructive and Useful Insects—Their Habits and Control by C. L. Metcalf and W. P. Flint).



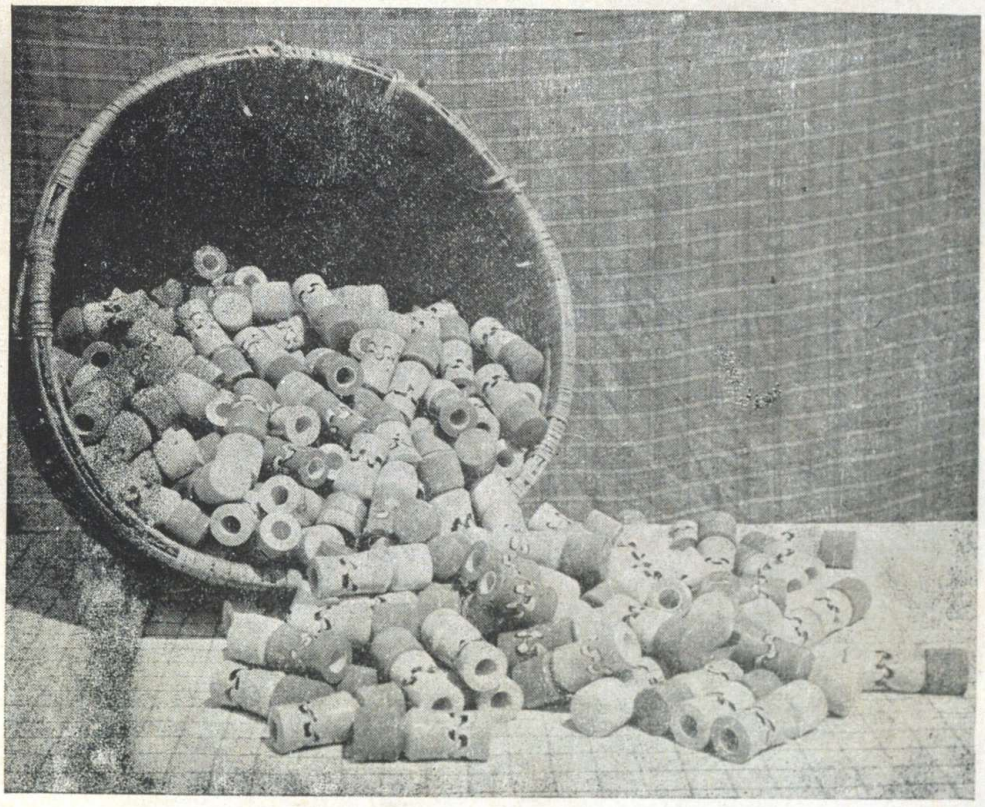
PI. 2. PRODUCTION OF UMBRELLA HANDLES
The rectangular piece of wood is pressed against
a drilling machine to make a hole



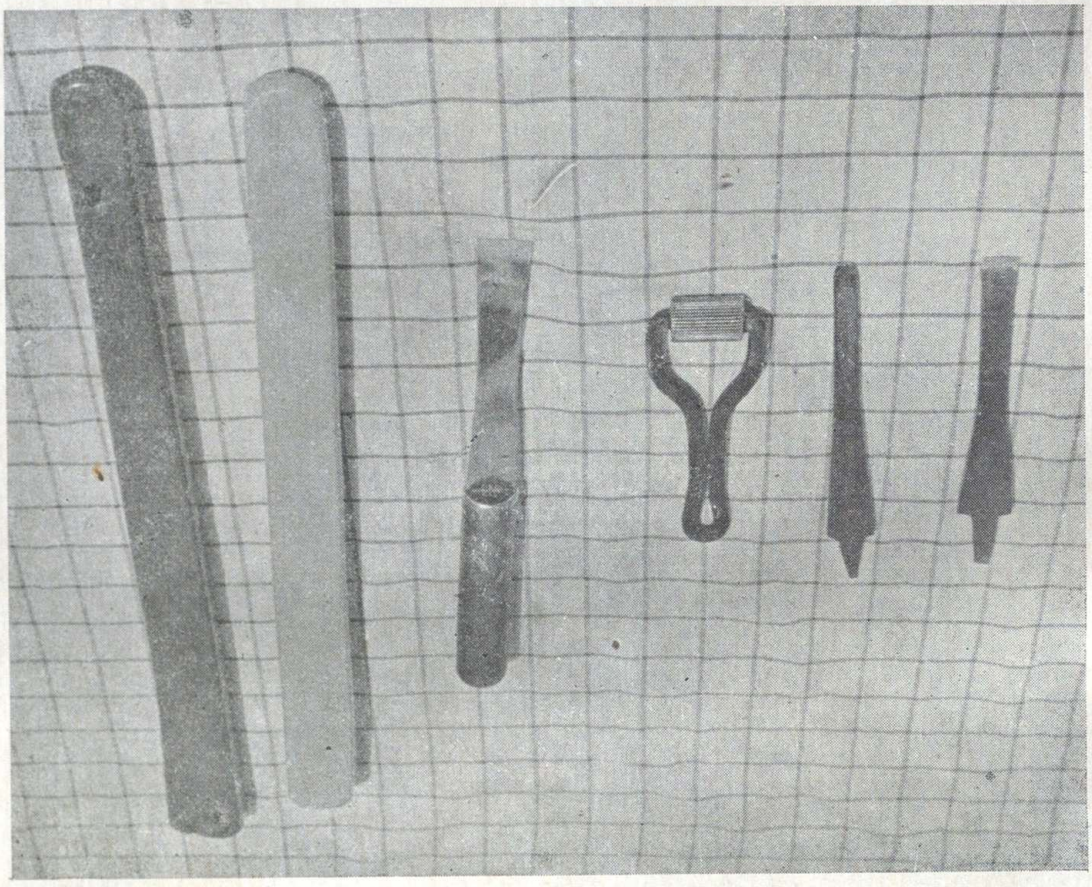
PI. 3. WOODEN PIECES AFTER BORING



PI. 4. THE LAC BAR IS BEING PRESSED AGAINST THE SIDES OF THE ROTATING WOODEN PIECE



PI. 5. LACQUERED WOODEN UMBRELLA HANDLES



Pl. 6. (Left to right) 1 & 2 COLOURED LACQUER BARS 3, 5 & 6 CHISELS 4 - GROOVING CUTTER

chemical dye is not mixed with Titanium oxide. The grooving cutter is also not applied to the surface, as only a plain surface is required in such cases.

Cost of production

11. The cost of production of one gross of umbrella handles is as follows:–

Cost of wood (1 cubic foot) including sawing charges	Rs.	3.50
Drilling charges	Re.	0.25
Cost of lac (18 ounces)	Rs.	1.40
Cost of titanium oxide (6 ounces)	Re.	0.50
Cost of dye (rose colour) (1½ tola)	Rs.	2.60
Wages for lacquering	Rs.	4.50
Total	Rs.	12.75
Sale price of one gross handles	Rs.	14.00

A worker can lacquer about ¾ gross handles per day if he works for eight hours. He can therefore earn Rs. 3.37 per day as wages. Due to the difficulty in investing money on lathe, saw etc. the craft is not attended to as a household industry in the strict sense. The man who has invested money takes a few hired labourers and sometimes he may also work along with them. Out of one gross of umbrella handles, he gets Rs. 1.25 as profit. The finished products are consumed by the umbrella factories in the State. The workers engaged in other types of lacquer work like producing lampstands, toys etc. also earn the same wages as the workers of the umbrella handles. These articles are mainly marketed through co-operative societies.

General

12. The lacquered articles have a very good market and it can be considered as a flourishing craft. But the difficulty in getting the proper light wood is confronting the craft to a considerable extent. If steps are taken to ensure the supply of the required quantity of wood to the craftsmen at reasonable rates, the major lacuna facing the industry can be solved. The cheap and attractive plastic and glass handles are slowly replacing the wooden umbrella handles. Unless the quality and designs of the wooden handles are improved to meet the threat, the future of this work will not be encouraging.

6. LAPIDARY WORK

Introduction

The Indian jewellery has a tradition stretching back to the dawn of human history, when pearls, precious stones, and gold as elements of ornament were well known in the country. References in our early literature in support of this tradition are not rare. "In the *Brahmana* of the old recension of the *yajurveda*, which dates from at least eight centuries before the Christian era, jewellery is recommended to be strung in gold. The word used for jewellery is *Kaca*, which may mean glass, or glass beads, but it would be unreasonable to suppose that those who set glass on gold, did not follow the same procedure with diamonds, rubies and other precious stones, for which they had names and which they knew and prized."[1] Sudraka, in his play *Mrcchakatika*, which has been attributed to the Ist century B. C., describes the courtyard of the house of Vasantasena where the artists are working in gold and precious stones thus:—"The arches set with sapphires look as if they were the home of the rainbow. The jewellers are testing the lapis lazuli, the pearls, the corals, the topazes, the sapphires, the cat's eyes, the rubies, the emeralds, and all the other kinds of gems. Rubies are being set in gold. Golden ornaments are being fashioned. Pearls are being strung on a red cord. Pieces of lapis lazuli are being cleverly polished."[2]

2. Minor antiquities of pre-Mauryan period found at Bhir mound at Taxilla include beads and lathe-turned polished hard stones, terra–cotta reliefs and two polished sandstone discs. 'The antiquities found here and elsewhere prove that glass making had attained a high level before the Maurya period and that the cutting and polishing of hard stones in the fourth and fifth centuries B. C. had reached a level of technical accomplishment which was sustained in the Maurya period, but never afterwards surpassed."[3] According to Herodotus (484 B C.) certain types of semi-precious stones were brought by the Romans from India for making finger rings. Pliny has recorded that Babylonians were very fond of rings of Indian agates.

3. It is only natural that the original jewels or precious stones which the wealthy people alone can afford did not satisfy the common man. The requirements of the society necessitated the production of imitation jewellery and synthetic stones. The use of the synthetic stones must have been as old as the original precious stones. This is evident from a passage in *Mrcchakatika* in which the identity of certain ornaments is being examined in a court of justice. When the mother does not recognise the jewels of her daughter the judge remarks:

'Gems often seem alike in many ways,
when the artist's mind on form and beauty plays;
For craftsmen imitate what they have seen, and skilful hands re-make what once has been'[4]

The Raw Material

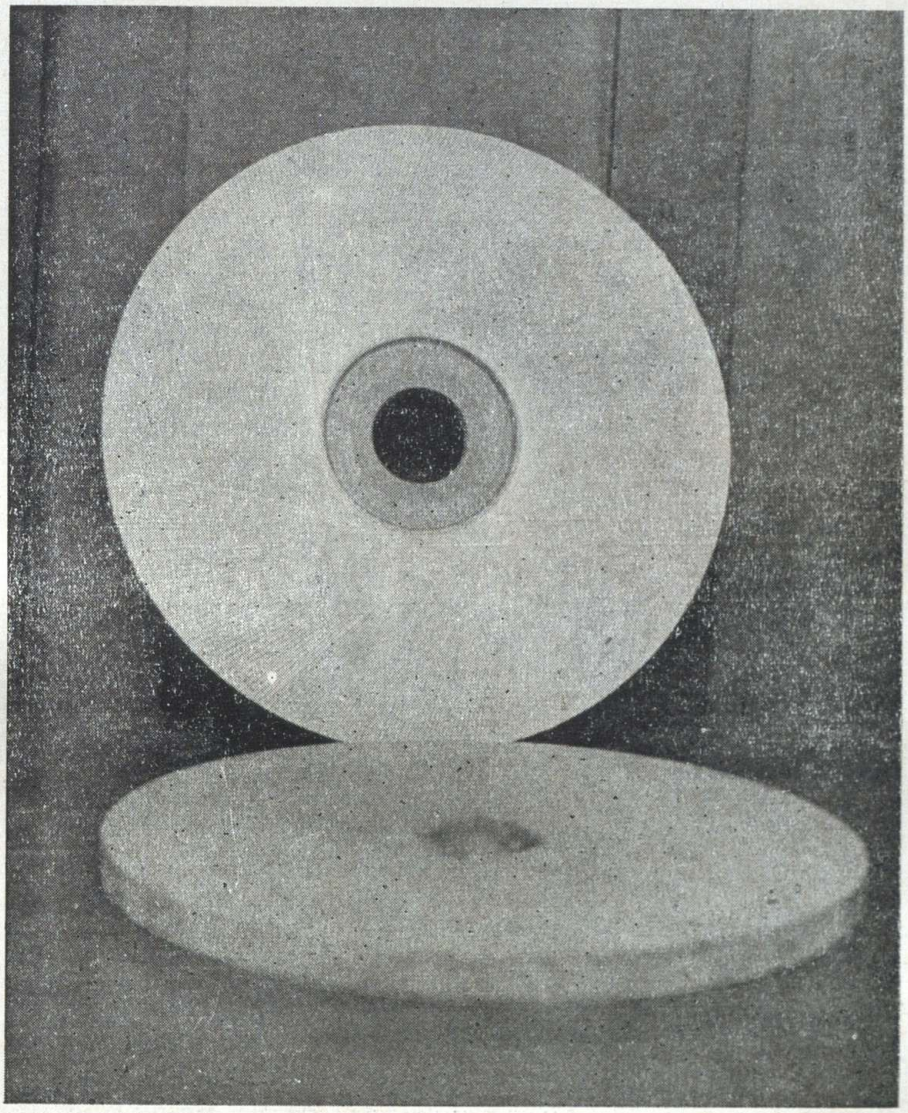
4. The work of polishing the synthetic stones is attended to in many parts of India, but the industry is of recent origin as far as Kerala is concerned. The raw stones are imported from Switzerland. The businessmen at Tiruchirappalli supply the raw stones to the workers in Kerala and pur-

(1) Antiquities of Orissa by R. L. Mitra published in Indian Studies: Past and Present, Vol. II, No. 2, Page 321

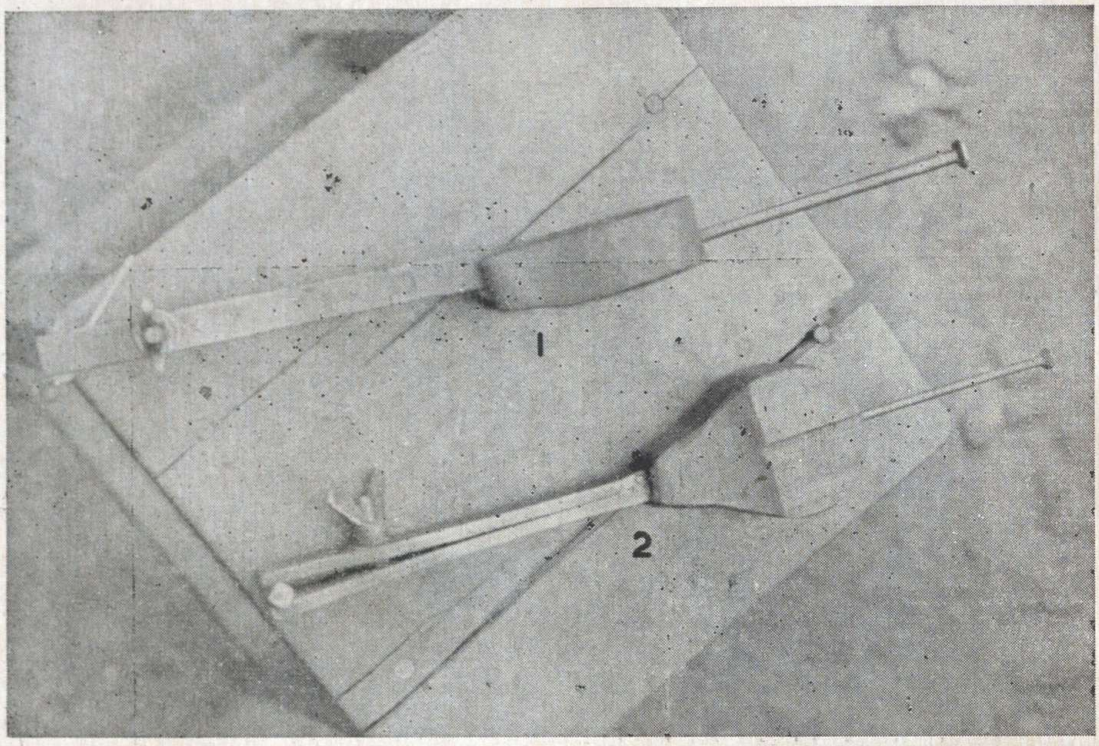
(2) The Little Clay Cart (Mrcchakatika); translated by Arthur William Ryder, Act the Fourth, Page 70.

(3) History of Indian and Indonesian Art by Ananda K. Coomaraswamy, Page 10.

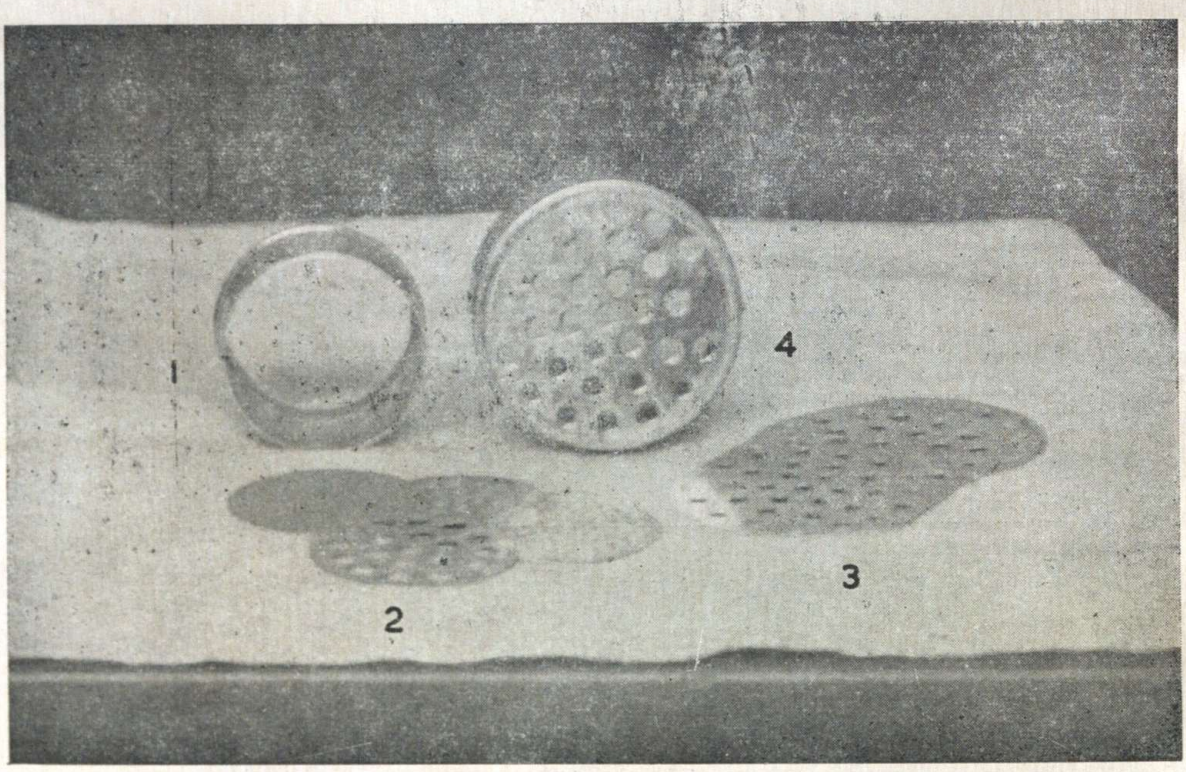
(4) The Little Clay Cart [Mrcchakatika]: Translated by Arthur William Ryder, Act the Ninth Page 149.



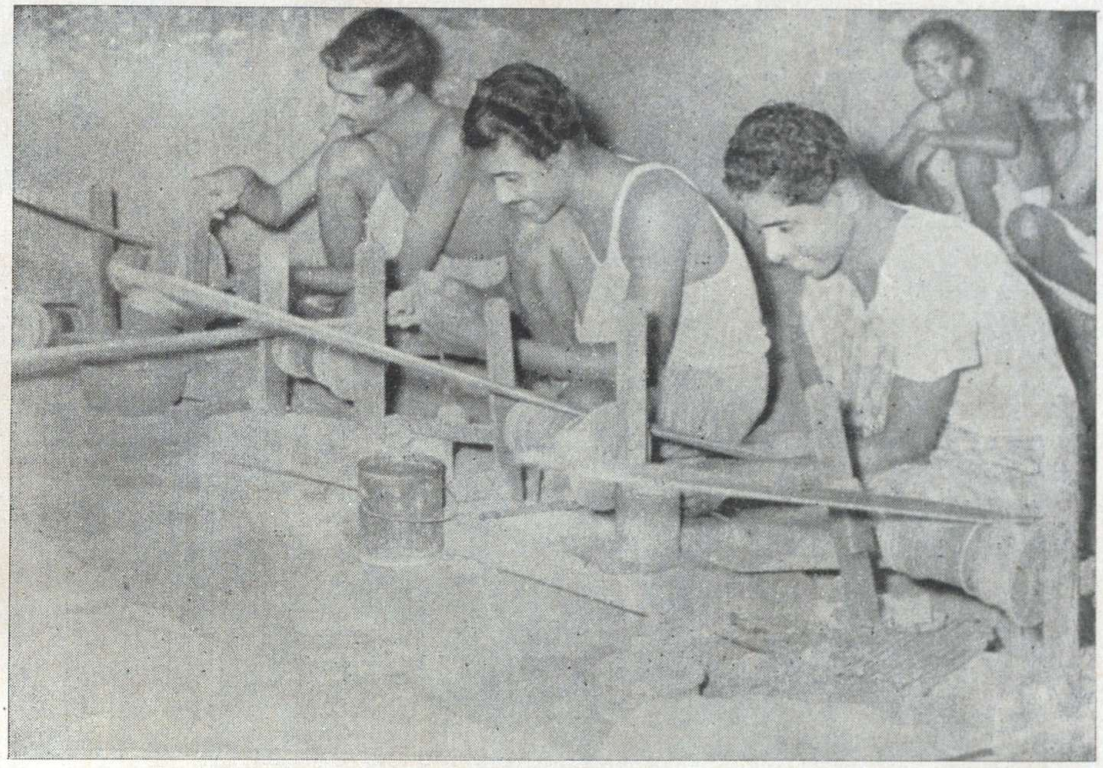
Pl. I. A PAIR OF IRON DISCS OF THE POLISHING TABLE



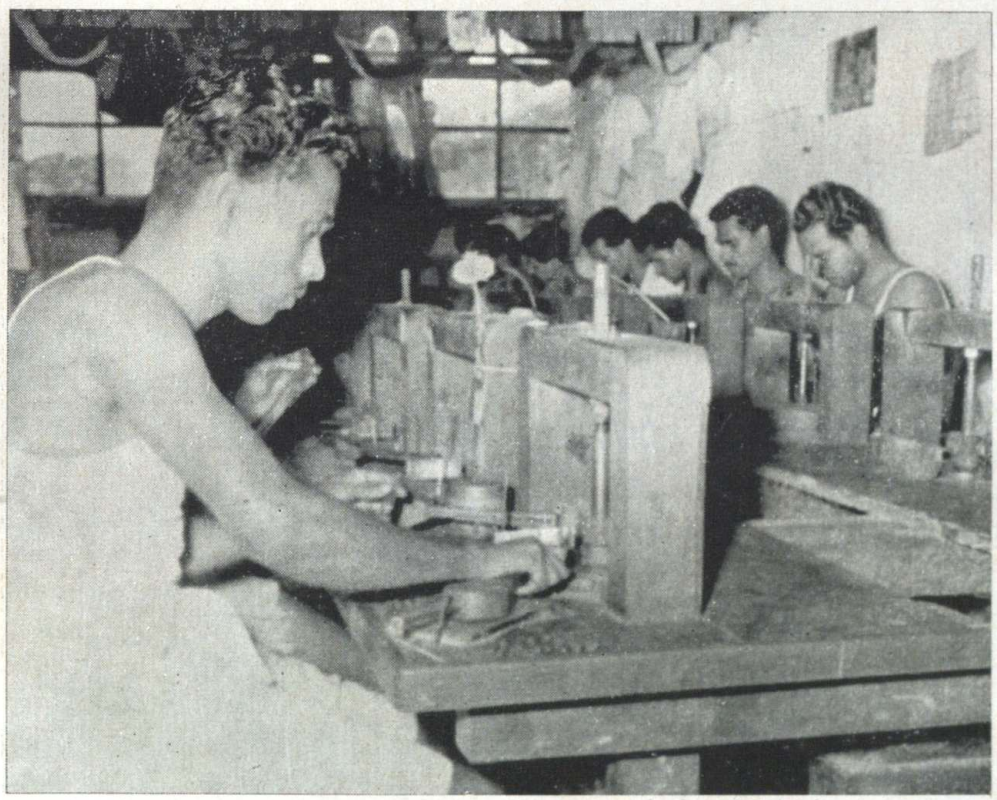
Pl. 2. 1. THE NAIL ON WHICH THE STONE IS FIXED IS HELD WITH PINCERS FOR POLISHING
2. THE STONE GETS THE LUSTRE WHEN IT IS PRESSED AGAINST THE DISC



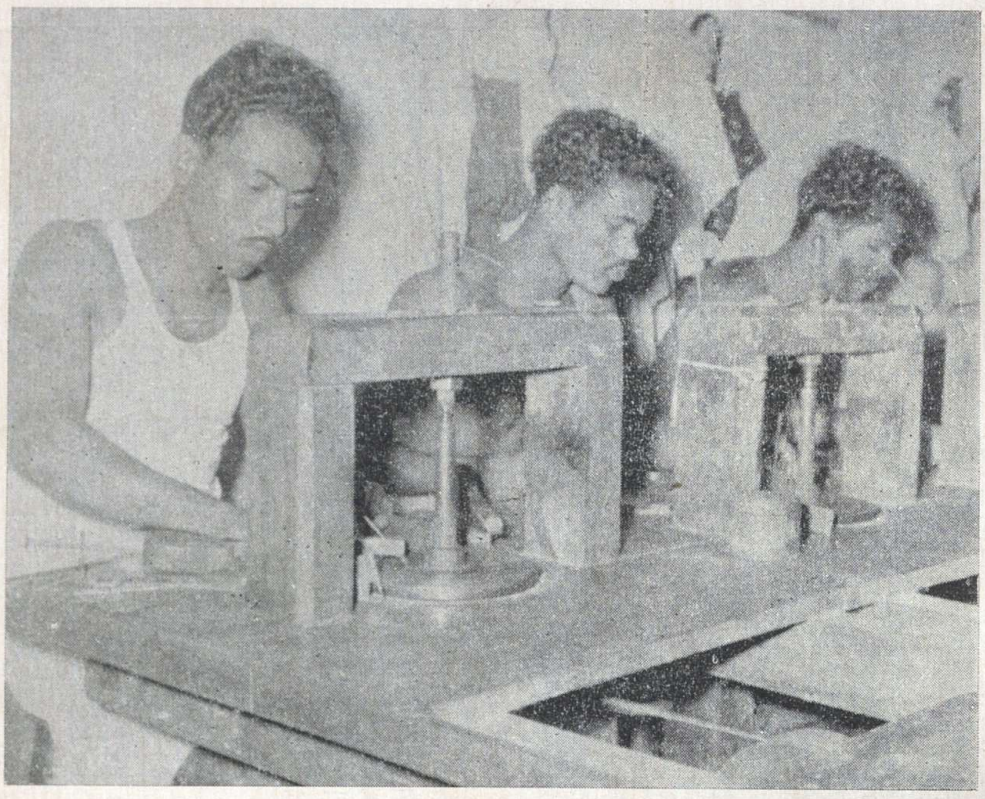
Pl. 3. 1. THE FRAME OF A METAL SIEVE 2 & 3. DISCS OF THE SIEVE WITH HOLES VARYING IN SIZE 4. A METAL SIEVE



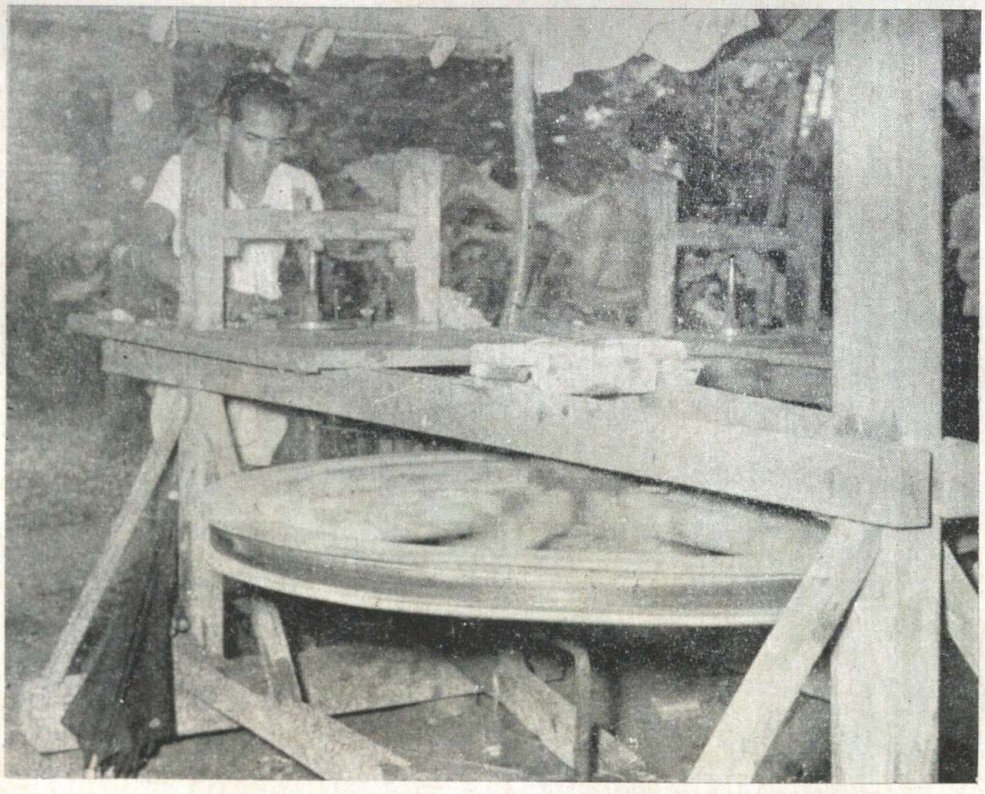
Pl. 4. THE CRAFTSMAN ROTATES THE GRINDING STONE AND THE SIDES OF THE SYNTHETIC STONE ARE CUT BY PRESSING IT ON THE SIDES OF THE GRINDING STONE



Pl. 5. AT THE ELECTRICALLY OPERATED POLISHING TABLE



Pl. 6. THE STONE IS PRESSED AGAINST THE DISC BY HOLDING THE HANDLE OF THE PINCERS



Pl. 7. AT THE FOOT-OPERATED POLISHING TABLE

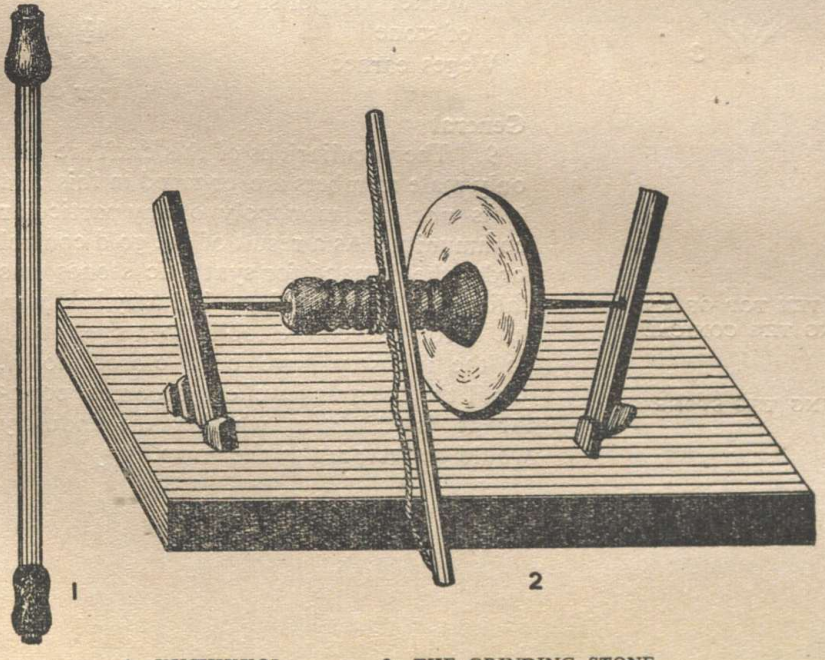
chase the polished stones. Trichur and the surrounding areas are the chief centres of the industry in Kerala.

Process of Production

5. The raw stones obtained from Tiruchirappalli is in the shape of a cube of uneven surface. The polishing of the stone consists of three stages viz, cutting the backside, cutting the face side and polishing. The tools used in the industry are *kaipattara* (grinding stone), *merukupattara* (polishing table) and *kaichavi* (a kind of pincers). The grinding stone is in the shape of a disc fixed on a wooden axle. The axle in turn is attached to a wooden frame and can be freely rotated. A string is coiled round the axle and tied to the ends of a rod of obout 2′ in length. When the rod is moved backward and forward the axle and the grinding stone rotate in the clockwise and courter clockwise directions. There are two kinds of grinding stones. One is used for getting the required shape and the other for cutting the surface of the stone. The first type of grinding stone is produced from a mixture of lac and emery powder whereas the other one is made of lead. The polishing table consists of an iron disc attached to an iron rod fixed on the table. The iron rod is connected by a string to a large wooden wheel. When the wheel is rotated with the help of a pedal operated by leg, the iron rod rotates together with the iron disc. In some areas, electrically operated polishing tables are also used.

6. At the ends of a bamboo or areca stick of about 8″ in length, a little quantity of lac is fixed. After slightly warming the lac, the stone to be polished is pressed into it. This stick is called *kuchikkol*. The craftsman rotates the grinding stone with his right hand by moving the rod forward and backward. Simultaneously he presses the stone on the *kuchikkol* on the side of the disc, with his left hand. By this process the upper portion of the stone is made into the shape of a cone. With the help of the other grinding stone meant for cutting the surface, eight sloping sides converging towards the apex are cut on the stone. The craftsman then warms the lac slightly and removes the stone. He reverses it and fixes it again in the lac. The square surface of the stone is then rounded and made into a circle, and eight flat surfaces are cut on the front side. During the grinding process emery powder is applied occasionally on the disc to increase friction.

7. The next stage is polishing the stone. The stone is fixed to the head of an iron nail with lac and the nail is held with pincers and fixed by the screw. A small quantity of diamond is powdered and



1. KUCHIKKOL 2. THE GRINDING STONE

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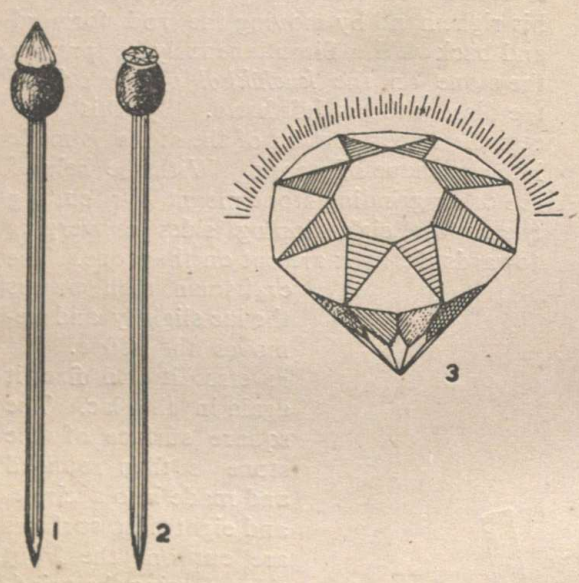
MADRAS

mixed with cocoanut oil in the proportion of one carat diamond in 1/8 ounce of cocoanut oil. About five drops of this solution is applied on the disc of the polishing table. The disc is then rotated by operating the pedal with the leg. When it gains full momentum, the stone is pressed against the disc by holding the handle of the pincers. Every face of the stone is polished in this way, till it gets the lustre of a precious stone. A black paste called *nayavati* is formed by the contact of the stone and the disc. This has to be cleared at interval, as otherwise the stone will not get the desired lustre. This paste is removed by a peculiar device. A piece of diamond is fixed on lead which is held firmly by pincers. The diamond is pressed against the disc and the synthetic stone is polished by contact with this cleared area. The polished stones are sifted through metal sieves, for sorting out the stones of uniform size.



1. THE STONE IS FIXED ON THE TOP OF AN IRON NAIL FOR POLISHING THE CONICAL SIDE

2. THE NAIL AFTER REVERSING THE STONE

3. A POLISHED STONE

Cost of Production

8. Cost of synthetic stone (raw) Rs. 2.50 per tola

Cost of the diamond required for polishing one tola of stone Rs. 2.75

(Diamond of the first quality costs Rs. 100 per carat and second quality Rs. 24 per carat.

The first quality is used for clearing the black paste on the iron disc of the polishing table whereas the second quality is used for preparing the solution with cocoanut oil.)

Polishing wages	Rs. 3.75
Total cost of production	Rs. 9.00
Quantity of polished stone obtained	16 carat
Sale price of 16 carat polished stone	Rs. 9.00
No. of days required for one worker to polish one tola of stone	1½ days
Wages earned	Rs. 2.50 per day

General

9. The peculiarities of this craft are that only male members are engaged in this and it is not the monopoly of any particular community. As a result of the gold control order the demand for synthetic stones has fallen and the lapidary industry has been hit hard. Several establishments engaged in the industry have been closed down. Until the 14 carat jewellery becomes popular it is doubtful whether the industry would be restored to the norm.

7. MARQUETRY WORK IN WOOD

Introduction

The marquetry work in wood is a recent introduction to the minor crafts of Kerala. It is an assembled product made up of wood blocks and adhesives. A number of wood blocks of different colours are glued together in geometrical patterns to produce fancy-cum-utility articles like fruit trays, ash-trays, flower-vases and the like. The difference in the colours of the wood gives a decorative effect to the article for which it is exceedingly valued. Apart from the charm in decorating the objects symmetrically with perfect harmony and distribution of colours, one particular advantage in the marquetry work is that any piece of wood, irrespective of its anatomical defects like twist, malformation etc. can be utilised for this work. It is used in many types of furniture. It does not crack or split due to variations in atmospheric moisture. Some of the plywood factories of the State have developed it into an industrial art and are manufacturing decorative and utility objects of matchless perfection. The process of such work, which involves extra machining operations is not, however, employed by household establishments. Their work is confined to the production of simple articles like fruit trays, ash-trays etc. Due to the difficulty in getting the wood seasoned in order to increase the decorative value of the articles, these establishments use only superior types of wood like teak wood, rose wood and agil (white cedar) wood.

Raw Materials

2. Teak (Tectona grandis) which is one of the outstanding timber yielding trees, is a large, deciduous tree found throughout Kerala. The wood is dark golden yellow when freshly cut, ageing to brown or almost black, moderately hard, oily, scented, strong and extremely durable, takes a beautiful polish and does not corrode in contact with metal. The timber has varied and numerous uses and is highly priced. Rose wood (Dalbergia latifolia) is a large glabrous tree found chiefly in deciduous forests. The wood is handsome, light to dark purple, durable and one of the Indian woods resistant to attacks by white ants. It is one of the finest woods for ornamental veneers and is highly valued for making superior types of furniture, internal decoration and for such other purposes where a superior finish is required. White cedar (Dysoxylum malabaricum), the other wood commonly used in the marquetry work is much used for construction work in Kerala. It is a large tree found in Kerala and Mysore. The wood is light brownish-grey at first, later turning darker, lustrous, sweet scented, very durable and is not attacked by white ants. Different types of adhesives like aerolite glue, 'Movical' etc. are used by the household establishments according to their availability in the market.

Process of Production

3. The technique of production followed by the factories is mechanised and is slightly different from that of the household establishments. Since the factory type of production is outside the scope of this monograph, the method followed by household establishments alone is described here. The wood required for the work is first dried in shade to remove the water contents. On the basis of the size of the article proposed to be produced, the size of the pieces of wood is determined and it is cut accordingly. The pieces are then glued together and polished. For a better understanding of the techniques of production, the process relating to a specific item viz a fruit tray of 8" diameter is described below.

4. The fruit tray is a flat vessel made by joining five equal triangular pieces in

such a manner that the vertex of each triangle meet at the bottom of the vessel. The first process consists of making the templet. For this purpose, a circle is drawn on a piece of paper with a diameter of 8″ which is equal to the diameter of the dish proposed to be made. With the help of a compass the circumference of the circle is divided into five equal parts and the adjacent points are joined together to form a pentagon of equal sides. With the length of the side of the pentagon as radius, another circle is drawn and an equilateral triangle with its two sides as radii is drawn with the compass. This triangle represents one side of the tray, which is again subdivided into three equal triangles. A wooden piece cut to the measurements of this small triangle forms the templet. The craftsmen preserve the templets of various sizes, in order to avoid the necessity of making a templet each time.

5. For the production of a dish of 8″ diameter, a piece of teak of 27″ length, $1\frac{3}{4}$″ width and $\frac{1}{4}$″ thickness is cut with a round saw. On this piece of wood the templet is placed and outlines are marked with a pencil. The triangular piece is cut along the lines by the round saw. Five such triangular pieces are cut from the teak wood. Similarly five triangular pieces of wood are cut each from rose wood and agil wood.

6. A circular wooden disc with sandpaper stuck to it is fixed on a lathe. When the disc rotates, the triangular pieces are pressed against the sandpaper to make the surface smooth. When both sides are smoothened like this, one piece from each variety of wood is taken and they are glued together to form one side of the dish. Either aerolite glue or 'Movical' produced by Hoechst Dyes and Chemicals Ltd., Bombay is generally used. The glue is smeared on the edges of the pieces which then are pressed together. The pieces are then put in a cramp for about twelve hours. The other four sides are also produced symmetrically in the same manner and they are glued together. Sandpaper is applied on the outer and inner surface of the vessel. Then Mansion Hygienic wax polish-white is applied on the surface with a piece of cloth. Three small wooden legs are then glued at the bottom of the vessel.

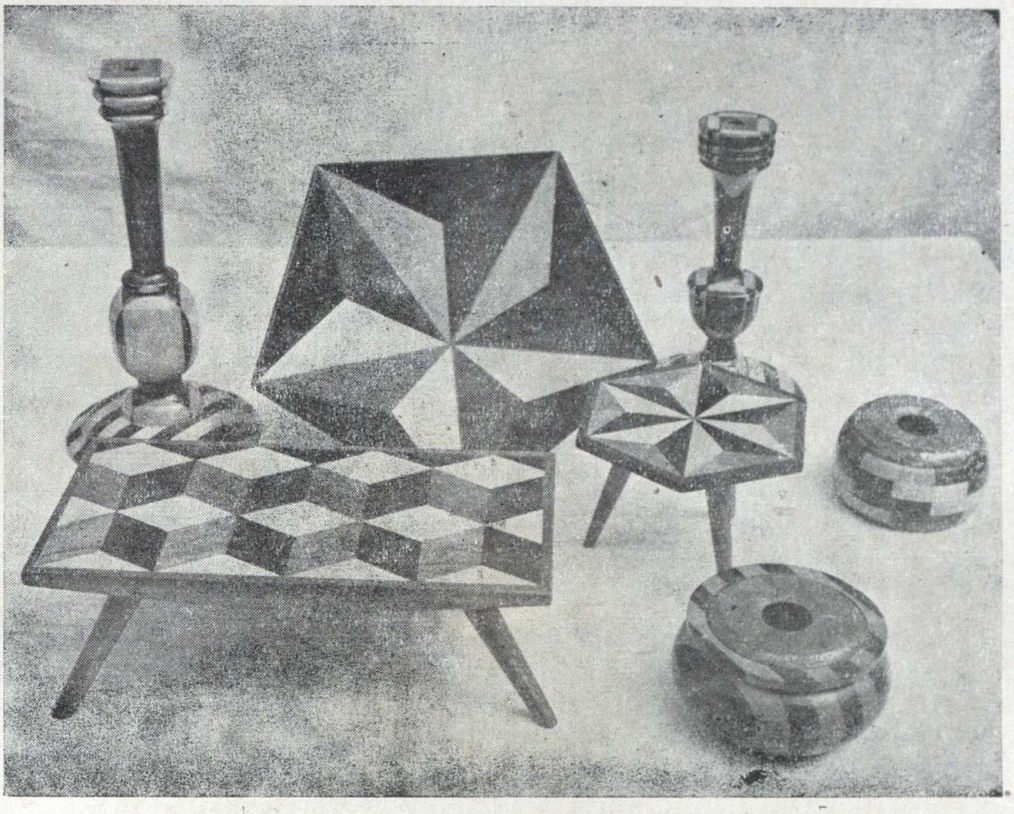
7. In principle, the process of production of an ash-tray is not much different from that of a fruit tray. But coming to the detail, a lot of diversities in the technique can be noticed. On a piece of paper, a circle with diameter more than $\frac{1}{2}$″ of the proposed ash-tray, is drawn. The circumference is then divided into twelve equal parts. A templet of wood with $\frac{1}{2}$″ breadth and 1″ thickness is made with a length equal to 1/12 of the circumference of the circle. The wood pieces are then cut and rings are made by pasting the pieces together taking care to place the pieces of each variety of wood one after another. The ring is then fitted on a lathe operated by electricity. A chisel is pressed against the rotating ring and the surface is smoothened. Sandpaper is then applied and the outer surface is polished. An aluminium cup with a cromium plated brass lid is placed inside the tray. The aluminium cups and the brass plates are purchased by the craftsmen from the market. The brass plates are, however, pressed by them in a die to make the lid. The cromium plating is undertaken by electroplating establishments.

8. In the case of a flower-vase, the sketch is first drawn on a piece of paper and the rings, made by pasting the small pieces, are glued together as in the case of ash-tray.

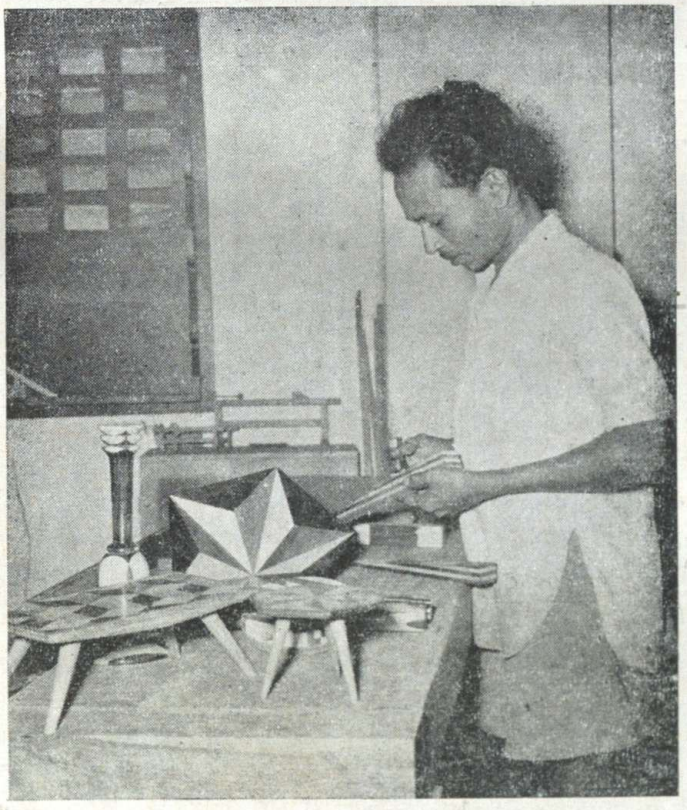
9. Other articles like photo frames, lamp stands, teapoys etc. can also be made by marquetry work in wood in attractive designs without the aid of additional machinery. But the craftsmen seldom make these articles for want of demand.

Cost of Production

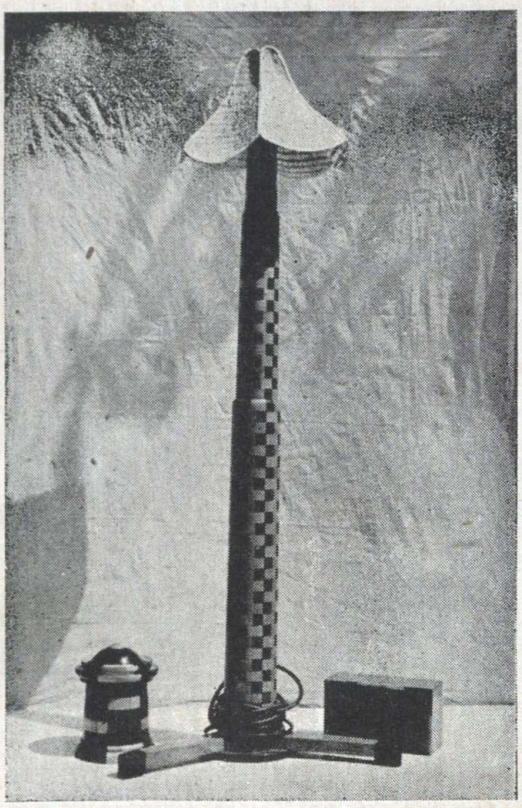
10. The cost of production varies according to the nature of the article depending mainly on its size and design. The cost of



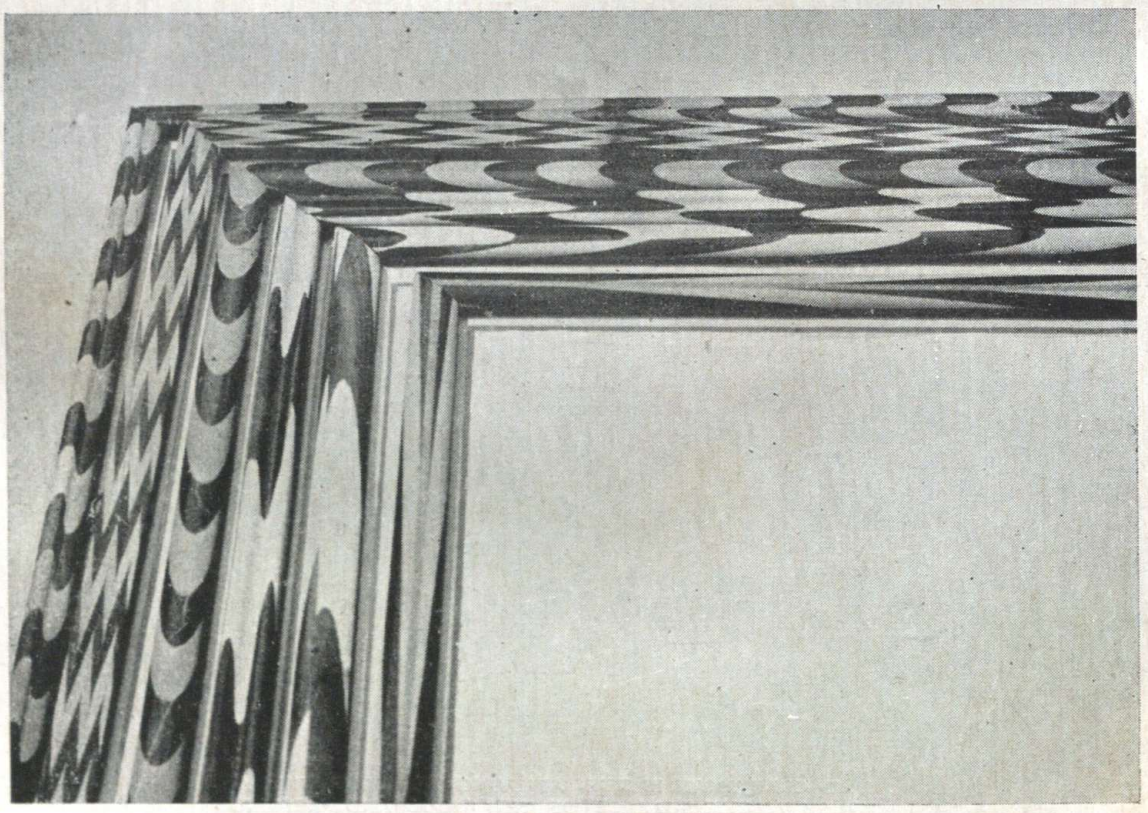
Pl. 1. A FEW PRODUCTS OF MARQUETRY WORK IN WOOD



Pl. 2. CRAFTSMAN IS SEEN APPLYING THE GLUE WITH A BRUSH TO THE SURFACE OF THE WOOD AND PRESSING TWO PIECES TOGETHER



Pl. 3. A TABLE LAMP-STAND OF MARQUETRY WORK IN WOOD



Pl. 4. PHOTO FRAMES OF MARQUETRY WORK IN WOOD

Here are six sets of frames arranged in order. The different colour shades in each frame represent different pieces of wood

production of a fruit tray of 8″ width is as follows.

Cost of teak wood (27″ × 1 ¾″ × ¼″)	= Re. 0.62
Cost of agilwood do.	= Re. 0.62
Cost of rosewood do.	= Re. 0.93
Glue (Movical) (Costs Rs. 10 per kg.)	= Re. 0.15
Sandpaper (2 Nos. one rough and one smooth)	= Re. 0.25
Polish (Mansion white) (costs Rs. 4.50 per tin)	= Re. 0.15
Total	Rs. 2.72
Sale price of one dish	Rs. 4.16
No. of days required by one worker to produce one dish	½ day
Wages earned	Rs. 2.88 per day.

General

11. The only establishment in the State, where the craft is attended to as a household industry and where the work is done throughout the year, is at Kazhakkuttom near Trivandrum. Another establishment, which existed at Parur, is reported to have been closed down. The workers engaged at Kazhakkuttom are Asaris (Carpenters), who form one of the five groups of Kammalas. The articles produced here are mainly marketed through the Sri Mulam Sashtyabdapurthi Memorial Institute, Trivandrum and the Cottage Industries Co-operative Society, Trivandrum. Even though the articles are produced only on a limited scale, much difficulty is being experienced for marketing. When compared to other carpentry work, the remuneration from this craft is very low, as a result of which, the craftsmen seem to be reluctant to stick on to this work. If the sale of articles cannot be pushed through easily, the craft will have to struggle hard for existence. The work can, perhaps, be undertaken successfully only in establishments producing other wooden articles, where suitable cut pieces can be utilised for this craft with advantage. In that case the cost of production can also be reduced to the minimum, which will go a long way in promoting the industry.

8. RATTAN WORK

Introduction

Few plants are more useful to the inhabitants of moist tropical regions than the rattan, the long climbing stems of which constitute the cane of commerce. Rattan is synonymous with cane, is in fact identical, being the Malay word *rotan*.[1] It is extensively used throughout the world in basket work. The rattan is grown in plenty in the forest areas of Kerala and is widely used for the production of many useful articles. Various articles of daily use such as chairs, settees, easy chairs, basket chairs, tea-poys, waste-paper baskets, trays, cradles and shopping bags, to mention but a few, are now produced in the State. In addition to these articles of daily use fancy-cum-utility articles with novel designs are also produced by the skilled craftsmen. The rattan furniture which gives ease and comfort is becoming very popular among the middle and upper class families with whom the furniture was once 'conspicuous chiefly by its absence'.

2. The art of rattan work in India has come down in an unbroken tradition from ancient times. According to Yasodhara the art *Pattika* (Petika)—Vetra-Vana-Vikalpa, referred to by Vatsyayana includes, the making of cane chairs, cane beds etc. The Rajavallabha, quoted in th *Sabda Kalpadruma*, says that the fans made of cane overcome the disturbances of the three humours. The *Agnipurana* while recommending the materials for the construction of Royal umbrellas mentions the cane of three to eight joints in length for the handle. In Kalidasa's *Kumarasambhava*, the sages who went to negotiate the marriage of Uma to lord Siva were received by Himavan and seated them on *Vetrasana* i.e. seats made of plaited cane. The war chariots of the ancient Tamils 'were light cars raised on two low wheels with a railing of stout rattan round the stand, which afforded room for only two men, the charioteer and the warrior'[2]. The existence of this craft in Kerala in former days is substantiated by the reference in the *Vadakkan Pattus* (the ballads of North Malabar) in which Thacholi Othenan, the hero of North Malabar, is being asked to recline on a cot made of cane.

3. The industry is now in existence in all the districts of the state, but the largest number of workers employed in this craft are in the Trivandrum district. "The total number of people engaged in this craft is found to be 707. This excluded workers engaged in plaiting wooden furniture with cane splits. Largest employment is recorded in Trivandrum district even though it is only ranking second according to the number of units located. The sixty workshop establishments together have employed nearly 61 per cent of the total number of workers while only 39 per cent are employed by 107 cottage establishments. Average number of workers employed in a workshop establishment is 7.2 and that of a cottage establishment is only 2.6. Female workers form 17.68 per cent of the total employed; 5.52 per cent in workshop establishments and 12.16 per cent in cottage establishments. Average employment per production unit is found to be 4.2."[3]

Raw Material

4. Cane (Calamus rotang) is a kind of climbing palm with long, thin, solid and many jointed pliable stems. Its leaves are

(1) Derived from '*raut*' which means to peel

(2) Tamils Eighteen Hundred Years Ago by V. Kankasabhai, page 131

(3) Report on Census of Handicrafts, 1960, issued by Directorate of Industries and Commerce, Kerala, Trivandrum, page 92

pinnated and sprout up to 2′ long. The leaflets are very many. The flowers grow directly from its stem. Its fruit is globose and straw-coloured having many small scales in vertical series. The seed is surrounded by a succulent substance. Its tender shoots and seeds are things that are eaten as well. ' Some rattans grow to an immense length, climbing over the highest trees in forests, even as long as 500 or 600 feet'. It is very strong and flexible too. When fresh gathered, the stems are covered with green sheaths. These sheaths are removed while yet in the green stage and the stems are dried up. The uses of cane are very many. 'They are extensively used as props for plants, cables, ropes, wicker work, baskets, chairs, couches etc.' If several cane sticks are twisted together, their strength is so great that they can be used for any strong cable. Sometimes this is used as cordage and cables for country crafts. " In China and Japan they are in great request. Marco Polo refers to their uses in those countries. Talking of a certain place in China, he says, 'They do not employ hempen cordage, excepting for the masts and sails (standing and running rigging). They have canes of the length of fifteen paces such as have been already described, which they split in their whole length, into very thin pieces, and these, by twisting them together, they form into ropes three hundred paces long. So skilfully are they manufactured, that they are equal in strength to cordage made of hemp. With these ropes the vessels are tracked along the rivers, by means of ten or twelve horses to each, as well upwards against the current, as in the opposite direction.' Here he evidently refers to the rattan canes and not to bamboos as supposed by some."[1] " The peculiar type of boats plying on the Megna are built out of the entire cane. The cane is also used for building suspension bridges over rivers and streams, as a substitute for whale bone and for stiffening bonnets."[2]

5. A few pieces of cane and a few iron nails are the only raw materials required for the manufacture of articles in cane. The producers purchase raw cane from the forest contractors or their agents or from the wholesale dealers and bring them to their work spots. Formerly the workers were allowed by the Forest Department to gather cane from the forests on payment of a fixed duty to the department which varied from Re. 1 to Rs. 3 per 100 cane rods according to their size and quality. Now this practice has been stopped and the Forest Department is letting out cane growing forests to big contractors on lease for specified periods. An interesting feature of this industry in the State is that it does not function in those regions where the raw material is locally available but is localised in the urban areas only. This is due to the fact that facilities are available for marketing the finished goods only in urban areas.

6. Raw cane is graded into three classes according to its size and quality. The first grade cane is of the superior quality with the maximum girth, which is used mainly for giving supporting limbs to the chairs, sofa settees, tables and similar other items of furniture. The second grade cane is of the medium quality having lesser thickness of stem than of the first quality and the thinnest variety is supposed to be the third grade. The second and third quality canes are mostly used for plaiting or interlacing the articles.

7. The cane rods set for sale are usually sized into 12′ length, a standard measurement followed by the dealers in this business. The cost of 100 cane rods of 12′ length varies according to their size and quality. At present these are being sold in the market at the following rates.

(1) The Useful Plants of India by Major Heber Drury
(2) The Useful Plants of India and Pakistan by J. F. Dastur

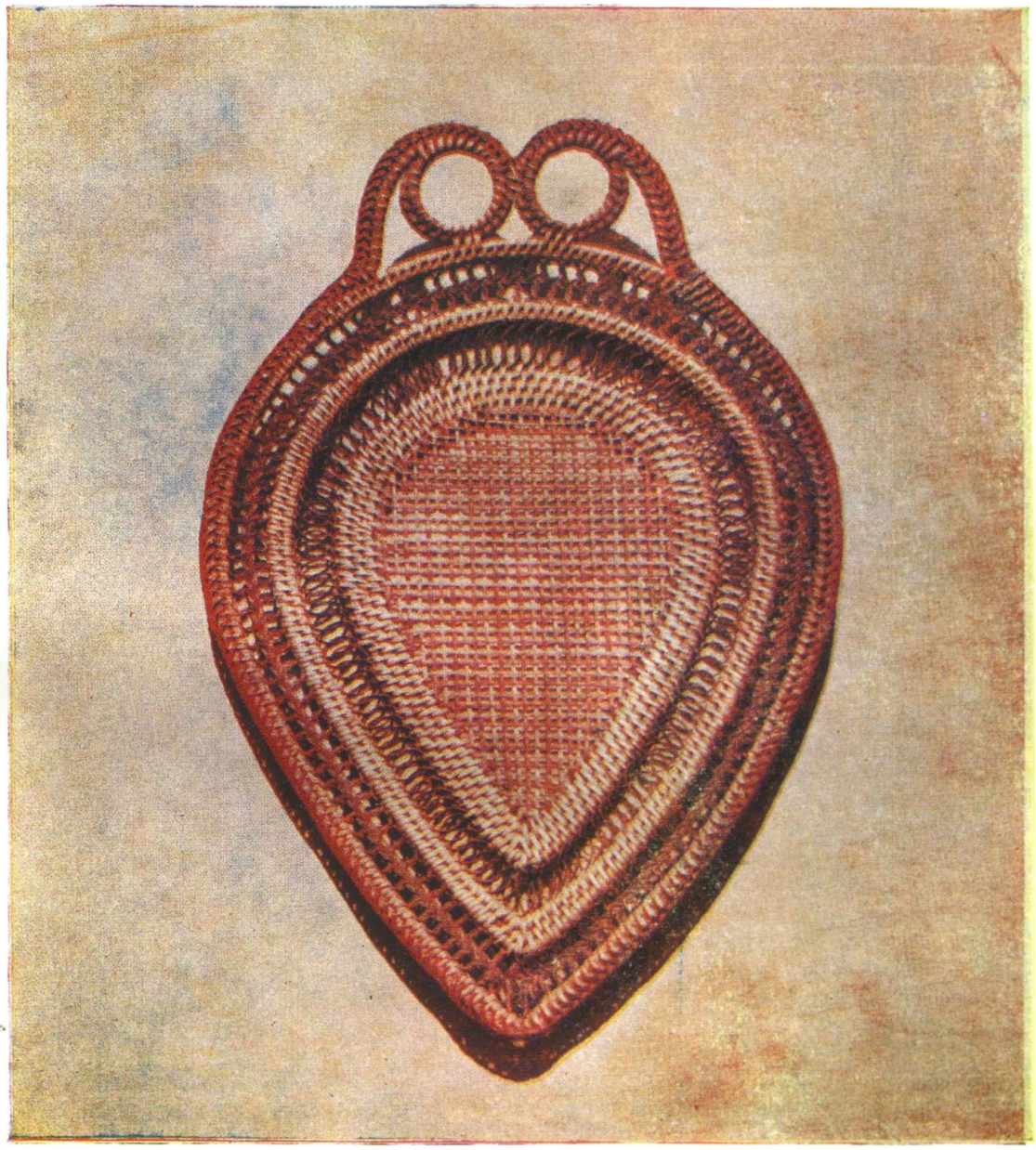
100 cane rods, 12′ length
(first quality) Rs. 40.00
do. (second quality) Rs. 20.00
do. (third quality) Rs. 12.00

These rates are exclusive of transportation and other incidental charges that have to be incurred for bringing the materials to the work spot, and may, however, vary a little from place to place in the State, depending upon the demand and availability, but no considerable variation can be expected in these rates.

The Process of Production

8. The cane and rattan articles are produced purely by hand with the help of a few simple tools. No motive power, either electricity or oil, is employed for this craft in Kerala and no elaborate processes is also involved in the production of these articles. Although the various processes of production of these articles may appear too simple it requires a good deal of skill and experience. The main stages of manufacture of these articles are broadly speaking (1) shaping and assembling the frames, and (2) interlacing the articles with cane splits. The method of preparing the frames and assembling them in the proper form depends upon the article to be produced. The process of the production of an ordinary chair is explained hereunder.

9. Before taking up the production of the article, the cane rods are dried up thoroughly in the sun so as to remove the watery contents in these rods. To begin with, the many nodes on the stem of the cane rods are removed and the surface of the rods is chipped well and smoothened. The frames to be fitted are then sized according to the required length, which depends upon the size of the chair under production. Thick cane rods are very hard and cannot be easily bent or twisted to the desired shapes and unless these rods are pliable and flexible, the workers will find it hard to work upon the material. Therefore, these rods are slightly heated on burning fire for a few seconds. At a certain degree of temperature the cane rods become pliant and delicate when the rods are removed and bent to the desired shapes and angles. Thereafter, two straight cane rods of 24″ length and 2 to 3″ girth each which are to serve as the front legs of the chair are kept in the vertical position and another cane rod slightly curved in the middle is kept horizontally between the two rods at a height of 20″ from the bottom, and having kept them in that position the two joints at either side of the cane sticks are firmly fixed with iron nails. Another cane rod of similar thickness which is already bent into 'U' shape enveloping a surface area of about 4 square feet and placed flatly, is fastened to the two front legs at the already joined frames. This is to serve as the seat of the chair. Thereafter the two hind legs, shaped slightly bending backward in the middle and about 30″ in height, are joined at the back of the 'U' shaped base. This will be about 30″ from the front legs. Now the frame at the reclining portion of the chair will be fitted with the already joined frames. A cane rod in the shape of a horseshoe is then placed on the top of the frames in an upturned position and is fastened with the front and hind legs of the chair. Having ensured the size and shape of the base frames already formed, the intersectional frames which are to serve as supporting limbs to the base frames are set in order and fixed firmly with iron nails in all the joints as found necessary. These joints are again tied up firmly with cane splits to make them doubly strong. Now the frame is ready for interlacing with cane splints. These splints are obtained by splitting the cane rods in sizable forms after removing the pith of the cane. Cane splints of the least thickness and smallest width are the best for interlacing the articles. Interlacing the articles with cane splints is a manual operation. To begin with interlacing the chair, the cane splints are coiled round the front left leg of the chair, beginning from the very tip of it at the bottom side and when the coils reach the joint where the leg and the base frame are fixed



Pl. 1. A CANE TRAY

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the coils are tied to the frame leaving a long stretch of the splints out. Thereafter, several cane splints, bent two-fold, are kept parallel to the base frame, one after the other, and then the splints left at the knots in the joints are interposed between the splints kept parallelly. This process is continued till the entire seat of the chair is fully covered with cane splints. On the completion of this process, the frame at the top of the reclining side of the chair will be interlaced with cane splints. Afterwards, a small cane rod, partly split in the middle, will be fixed along the outer edge of the chair, starting from the tip of one leg and encircling the frame at the reclining portion and ending with the other leg of the chair. The finished chair will be painted in choice colours to give them durability and beauty. The paints are purchased from the local market. Different colours are used for painting the cane articles, but usually white, red, cream, green and blue colours are preferred. It takes about 2 days for a worker to produce an ordinary chair.

The Tools

10. The tools and equipments commonly employed by the craftsmen for their work consist of (1) small hammer, (2) chisels, (3) small hand-saw, (4) mallet, (5) pliers, (6) large mallet (*adathady*), (7) vice, (8) *asu pala*, (9) splitting chisel (*cheevuli*), (10) knife and (11) *kudidwaram*. Of these, items 1, 2, 3, 5, and 10 do not require any description as these tools can be found commonly used everywhere.

11. The vice is a simple equipment used for bending the big cane rods to the desired shapes and angles. This equipment is nothing but a piece of flat wooden log, three or four feet in height, on the top of which is a narrow vertical gap of about 1½" width. This is firmly fixed on the ground. The cane rod is inserted through this gap and one end is bent down to the extent necessary so that it may get the desired shape. The tool is sometimes manipulated by hand without fixing it on the ground.

12. *Adathadi* or Large mallet is a flat wooden piece with which the cane rods and frames are beaten to shape. Likewise mallet is also used for the same purpose.

13. A skeletal frame made up of cane in standard measurement which is permanently secured on a flat wooden piece projecting out its base from the wooden piece is called *asu pala*. The desired shape of the frames to be fitted in the articles is obtained by inserting the cane rods, running along the skeletal frames in the *asu pala*. In this position the inserted cane rods will be retained for a few minutes in the *asu pala* so that the shape of the cane rods into which it is bent will remain unchanged for some time. Though there will be separate *asu palas* for each article, expert craftsmen seldom use this equipment as they are able to bend the cane rods to the desired angles even without it.

14. *Cheevuli* or splitting chisel is a simple equipment used for preparing cane splints. Two or more small chisels are fixed on the top of a wooden log established on the ground close to one another with their sharpened edges on one side. The cane rods are pulled through the sharpened edges of the chisels as a result of which the cane rods are split into the desired number. Simultaneously the pith of the cane is also pushed away from the stem. The desired width and thickness of the cane splints are obtained by adjusting the cane rods according to the required size before they are pushed through this equipment.

15. *Kudidwaram* is an equipment used for bending small cane pieces. This is a conical shaped, flat piece of wood in which one or two holes will be made. The cane stick is inserted through these holes and bent by hand.

16. The tools and implements are available in local markets or the workers get them made by the local blacksmiths or carpenters.

Organisation of the Trade

17. Development of designs of the articles plays an important role in marketing these articles. The traditional designs

and shapes though sparingly adopted for articles do not find favour with the customers. So far as the introduction of new designs is concerned, the producers generally copy out the designs from some of the standard catalogues issued by firms dealing in furniture. At times they also devise novel designs. If a customer has stipulated any particular design for the article he requires, the same will be produced and supplied in the required pattern.

18. Though the rattan articles have good demand in and outside the state it is found that the present marketing facilities available in the state are not enough for further development of this industry. Most of the establishments sell their articles either direct to the customers or through some middlemen. Some units are running their own sales depots. Some establishments produce articles only against specific orders. The co-operative organizations so far as this industry is concerned have not made any strides of progress 'mainly for want of corporate consciousness among the craftsmen'. This industry is mainly functioning in the private sector. According to the Report on the Census of Handicrafts 1960, issued by the Directorate of Industries and Commerce, Kerala, there are only 11 co-operative societies functioning in this industry. Some of these co-operatives undertake either direct production or only marketing of the finished goods purchased from the member craftsmen. Some co-operatives undertake only distribution of the raw materials.

19. An analysis of the cost of production of an ordinary chair is given below:-

Cost of raw materials	Rs. 5.00
Labour charges	Rs. 6.00
	Rs. 11.00
Sale price	Rs. 12.00
Profit	Re. 1.00

When the worker himself sells the chair the profit of Re. 1/- goes to him besides his wages or his wages can be calculated inclusive of it.

Structure of the Industry

20. An overwhelming majority of the production units are household industries. These establishments purchase the raw materials, manufacture the goods and sell them direct to the customers. Though this is the general practice, occasionally they also undertake work on contract basis, the raw materials being supplied by the contractors. Some establishments engage hired workers for all manufacturing processes. On an average, the craftsmen working on daily wages get Rs. 2.50 to Rs. 3.00 per head a day. Some expert craftsmen at times earn Rs. 5.00 a day, depending upon their skill and output. Majority of the establishments engaging hired workers work only for 8 hours a day. But there are some units which work for more hours a day. So far as the business activity is concerned, it cannot be said that this industry is either dull or extremely busy in a year though the activity slackens a little in the monsoon season. In some cases it is common that a separate shed, usually an adjunct to their residences, is set apart for their work. Some establishments which are slightly on a better footing have their individual places of work separately demarcated from their residences.

21. Since the manufacture of these articles is organised widely as cottage industries, the capital invested by the establishments is negligible. As stated above, no machinery is employed for this industry and the articles are produced only by manual operation. Only very few tools are required and they are not very costly. The entire lot of tools possessed by the majority of establishments do not cost more than Rs. 50. The total productive capital invested in the industry by an overwhelming majority of the establishments, for raw materials and tools and other equipments, does not exceed Rs. 500.

The Craftsmen

22. All communities are now engaged in the cane industry. But until recent

times, only Paravas were largely engaged in this industry. There are various traditions regarding the origin of the Parava community. They were originally a fishing community. It is the general belief among the Paravas that their original country was Ayodhya or Oudh; and it appears that, previous to the war of Mahabharata, they inhabited the territory bordering the river Yamuna or Jumna. "At present they are chiefly found in the sea port towns of the Tinnevelly district in the south of India, and also in some of the provinces on the north-west coast of Ceylon."[1] In the Madras Census Report 1901, it has been stated that "there are in reality three castes which answer to the name Paravan, and which speak Tamil, Malayalam, and Canarese respectively. Probably all three have descended from the Tamil Paravans or Paratavans. The Tamil Paravans are fishermen on the sea coast. Their headquarters is Tuticorin and their headman is called Thalavan. They are mostly Native Christians. They claim to be Kshatriyas of the Pandyan line of kings, and will eat only in the house of Brahmans. The Malayalee Paravans are shell collectors, lime burners and gymnasts, and their women act as midwives. Their titles are Kurup, Varakurup, and Nurankurup (nuru, lime). The Canarese Paravas are umbrella-makers and devil dancers." "It has been suggested that the west coast Paravas are the descendants of those who fled from Tinnevelly in order to avoid the oppression of the Muhammadans."[2] Another authority has it that "the Travancore Paravas are really one with the Tamil-speaking Paravas of the east coast. While most of them became converts to Christianity, in Travancore they have tried to preserve their separate existence as they had already spread into the interior of the country before the proselytism of St. Francis Xavier had made its enduring mark on the sea coast villages. There is a curious legend about the settlement of the Chakkas in Central Travancore. Formerly, it would appear, they were Sudras, but, for some social offence committed by them, they were outcasted by the Edappalli Chieftain. They were once great devotees of Shri Krishna, the lord of Tiruvaranmulai[3] in the Tiruvella taluk. The Paravas say further that they have descended from a highcaste women married to an Izhava. The word 'Parava' is accordingly derived from 'para', which in Sanskrit means 'foreign'. The Paravas engage in various occupations, of which the most important in Central Travancore are climbing palm trees, catching fish, and washing cloths for Christians, Muhammadans, and depressed classes of Hindus. In South Travancore they make wicker baskets, rattan chairs and sofas."[4]

23. Another community, belonging to the Scheduled Castes, has also gained considerable skill and efficiency in this craft. They are Parayans. "There are different local traditions about their origin. In Vaikom they are believed to be descendants of a high class Hindu who suffered social degradation for eating meat while in Kunnathunad and Moovattupuzha they are supposed to be the descendants of Pakkanar. Dr. Caldwell derives the word 'Parayan' from 'Parai' meaning drum."[5] Although various communities are engaged in this industry today, the majority of the workers are still Scheduled Castes.

24. The State Government fully aware of the importance of this craft has established industrial training centres in various places in the state under the control of the Harijan Welfare Department where the

(1) Castes and Tribes of Southern India by Edgar Thurston, Vol. VI, page 140
(2) Ibid, page 143
(3) Now in Chengannur Taluk
(4) Castes and Tribes of Southern India by Edgar Thurston, Vol. VI, pages 154–155
(5) Census Report of Travancore 1931, Part 1, page 385; See the short notes on reed mats for more details

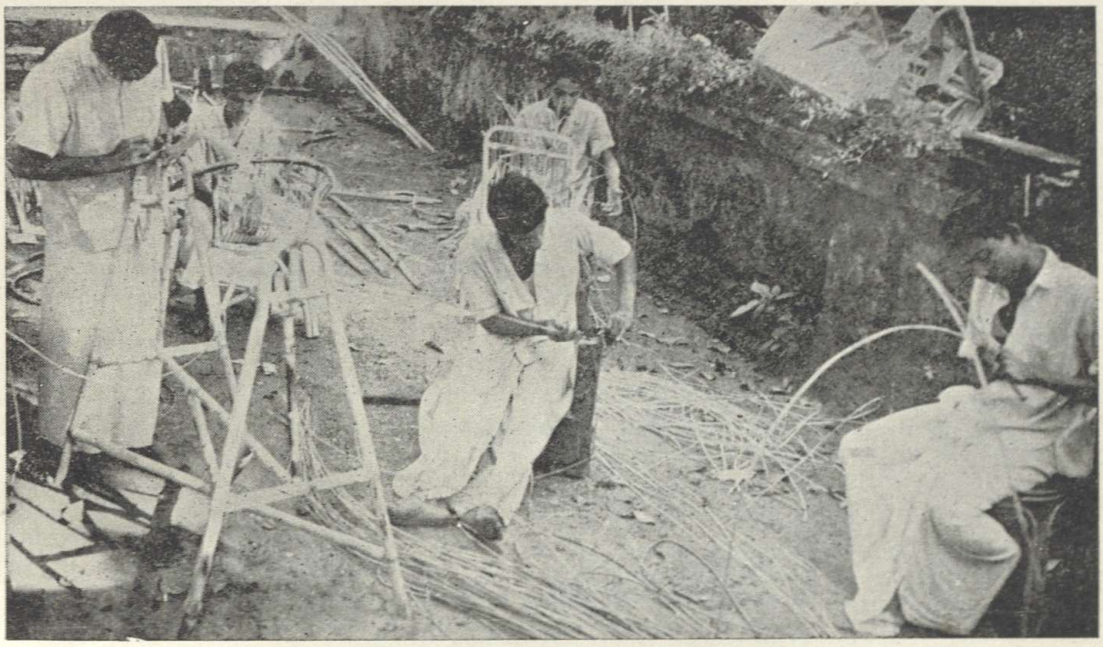
craft is being taught to the students belonging to Scheduled Castes and Scheduled Tribes as a part of Government's programme for the uplift of these backward classes.

Conclusion

25. The cane and rattan industry in Kerala today is beset with many shortcomings and drawbacks. Paucity of finance and lack of adequate marketing facilities are found to be the major obstacles that stand in the way of further expansion of this industry in Kerala. In the rainy seasons the supply of cane often runs short and consequently the business activity slackens followed by unemployment or under-employment to a section of workers. If sufficient quantity of cane is stocked before the commencement of the monsoon season, this difficulty can be easily overcome. But this is not possible for most of the establishments due to want of funds. It is said that there is a shortfall in the availability of expert labour in this craft as some of them do not stick to this job, as they often seek more remunerative occupations elsewhere. This is perhaps due to the fact that this industry is not able to provide perennial work to these craftsmen.

26. The tools and equipments now used by the craftsmen are crude, unrefined and quite antiquated and call for some change in their design and making as to help increase the efficiency of the craftsmen and their productive capacity.

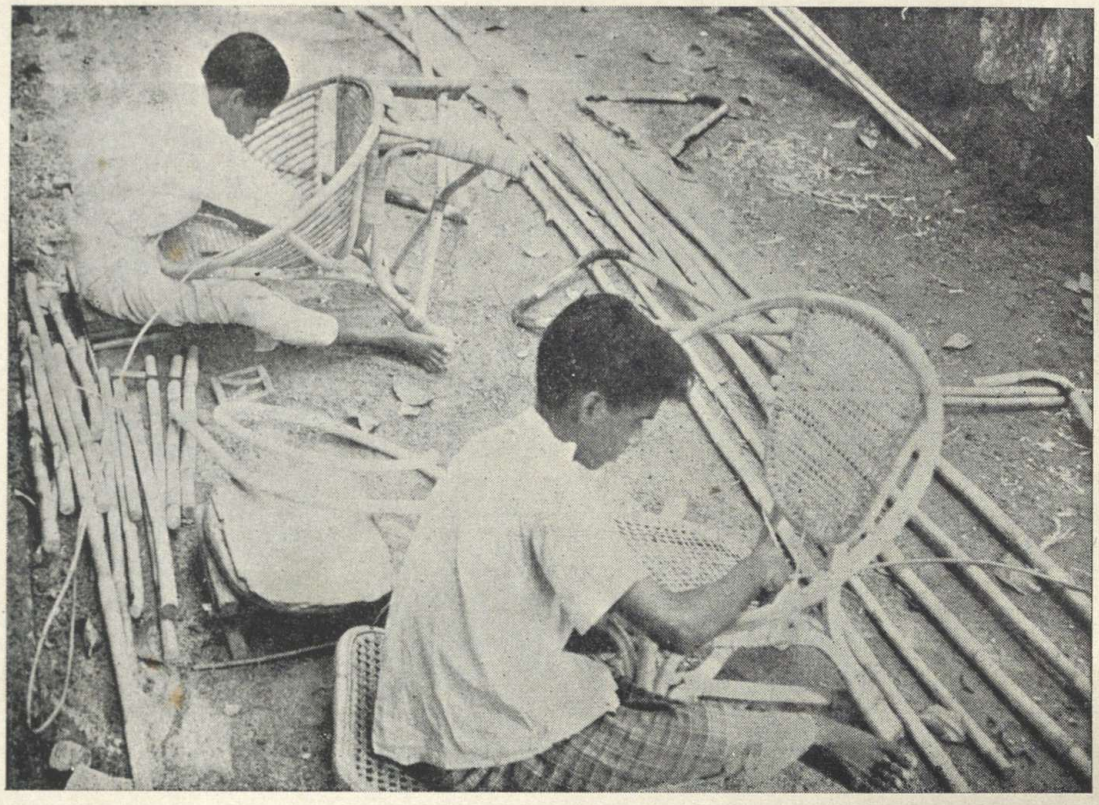
27. In spite of many drawbacks and shortcomings it confronts today, it can be said that the rattan industry is flourishing in Kerala. There is abundant growth of cane in the hilly regions of the state and there is no cause for any apprehension of the raw materials becoming short of the requirement of the industry. However, it will be only to the best advantage of the industry in the state if the supply of cane from Kerala forests to other States is restricted and only finished articles are allowed to be sent to other states. This will, probably, help increasing productive capacity as well as offer greater employment facilities to the craftsmen. The structure of production and marketing of the articles as it stands today needs to be reorganised on sound lines, and healthy conditions conducive to the growth of the industry should be created, ensuring at the same time a better deal to the craftsmen. At present the co-operatives do not play a significant role in this industry in the State. More co-operative institutions, aided with requisite finance and support from the craftsmen, should come to the forefront for undertaking this industry on large commercial basis. Wider publicity in and outside the state should also be given about the articles produced in the state.



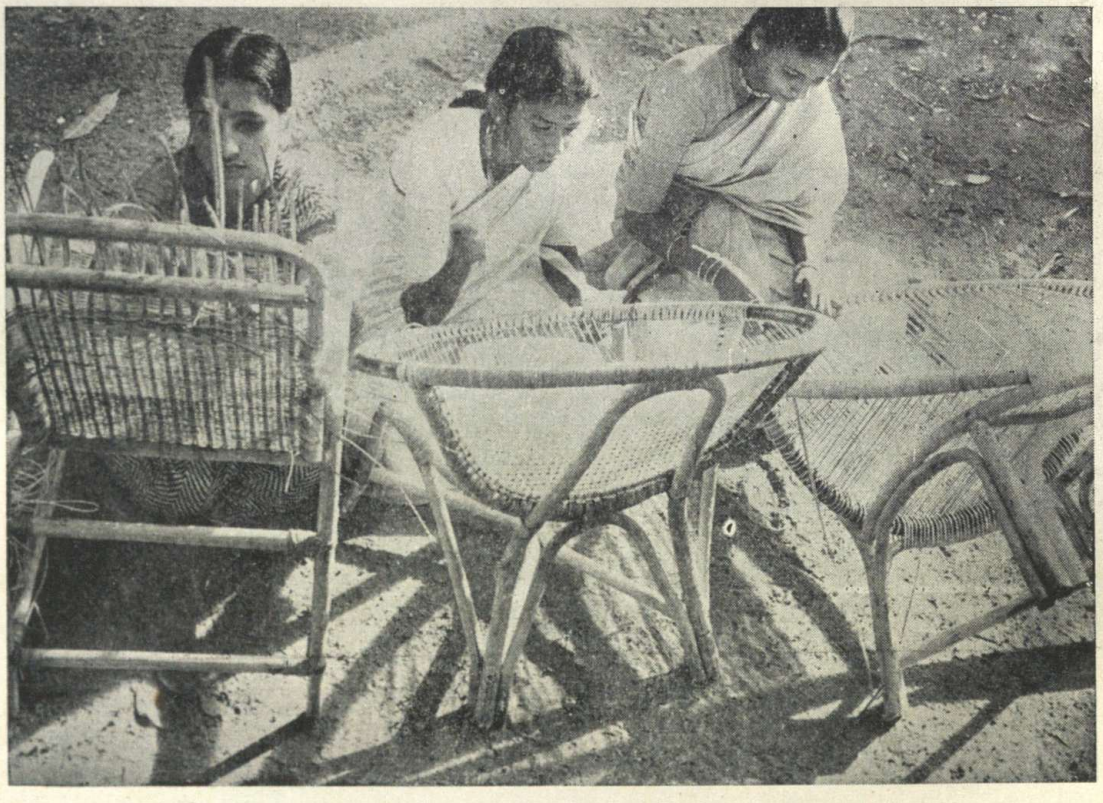
Pl. 2. THE CRAFTSMEN AT WORK



Pl. 3. SHAPING THE FRAMES



Pl. 4. INTERLACING THE CHAIRS WITH CANE SPLINTS



Pl. 5. INTERLACING THE CHAIRS WITH CANE SPLINTS



Pl. 6. FINISHED PRODUCTS READY FOR SALE

9. REED MATS

Introduction

Of all the handicrafts in Kerala, the art of weaving the reed mats, practised widely in the State, is the simplest in form and adaptation to use. It is of the highest antiquity and for generations the same process and manipulation are followed. In the villages, where the main occupation is agriculture the reed mat weavers and the agriculturists cannot exist without mutual help. The mat maker meets the needs of the entire village for reed mats for drying the grains, winnowing fans for separating the chaff and big baskets for storing it. No better or cheaper substitute has ever been thought of and these articles still continue to occupy their position in agricultural operations.

2. Basket-making finds mention in folklore and creation myths in many parts of the world. The Potawatami (Wisconsin) believe that there is an old woman up in the moon making a basket. When it is finished the world will be destroyed; but a dog from time to time ruins her work (an eclipse) and she has to start over again.[1] Reed has been one of the important basketry materials in India from very ancient days. The antiquities found at Mohanjo-daro include fragments of reed matting which may originally have formed part of the roof.[2] There are references in the Vedic literature about reed mats. *Nadvala*, a reed bed, is mentioned in the Vajasaneyi Samhita (XXX. 16) and the Taittiriya Brahmana (iii. 4,12,1). Bhitti in the Satapatha Brahmana denotes a mat made of split reeds. In Kerala, where bamboo and reed are abundant, the craft should have been a popular one from very ancient times. The reference made by Ibn Batuta, the famous traveller, about the bamboo mats used as sails by the Chinese ships at Kozhikode[3] indicates that those in Kerala were familiar with the craft in those days.

Location of establishments and volume of employment

3. In Kerala, reed mat weaving is found to exist in eleven towns and seventeen villages spread over nineteen taluks. The number of households engaging less than five workers in this industry comes to 1129, of which 135 are in urban and 994 in rural areas. The volume of employment in these households consists of 2,431 persons of whom 300 are employed in urban areas and 2,131 in rural areas.

Raw Materials

4. Reed (Ochalandra Travancorica), which from the industrial point of view is very nearly identical with smaller bamboos, is the only raw material used for this homely craft. It is a kind of firm-stemmed grass grown in plenty in the forest areas of the State. It has a hollow stem 2″ to 2½″ in girth growing up to a height of 25 ft. The reeds are put to many uses, the most important of which is the basket and mat weaving. The forest contractors cut down the reeds and transport them to the plains either by lorries or by floating on the rivers. In places, where reed is not easily available, the bamboo which is an arborescent reed, is widely used for the craft in view of their identical features.

Process of Production

5. Mats, baskets, sieves, trays and suitcases are some of the important articles that are produced in the State from reed. Attractive pieces of work with novel designs are largely found in Alwaye taluk in the Ernakulam district.

(1) Encyclopaedia Britannica, 14th Edition, Vol. 3, page 178

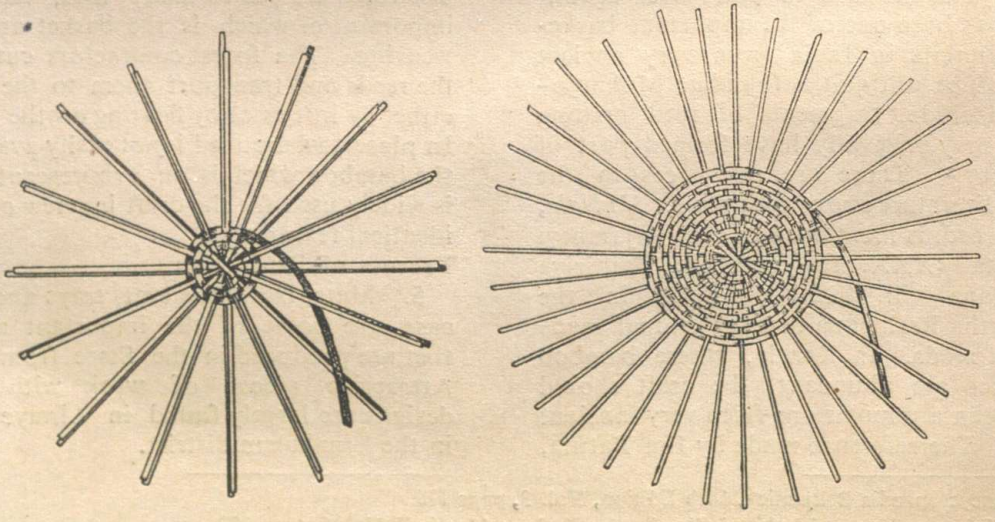
(2) Mohanjo-daro and Indus civilization by Sir John Marshall, Vol. I, page 172

(3) 'Keralam Arunoorukollam Mumbu' by Velayudhan Panickasseri, and N. Abdul Rasheed Moulavi, page 45

6. The techniques of production may slightly vary from place to place according to the pattern of each article, though the main process involved is the plaiting of the reed splinters. However. the process of production relating to two kinds of baskets and a mat which are traditionally produced throughout the State, is described below.

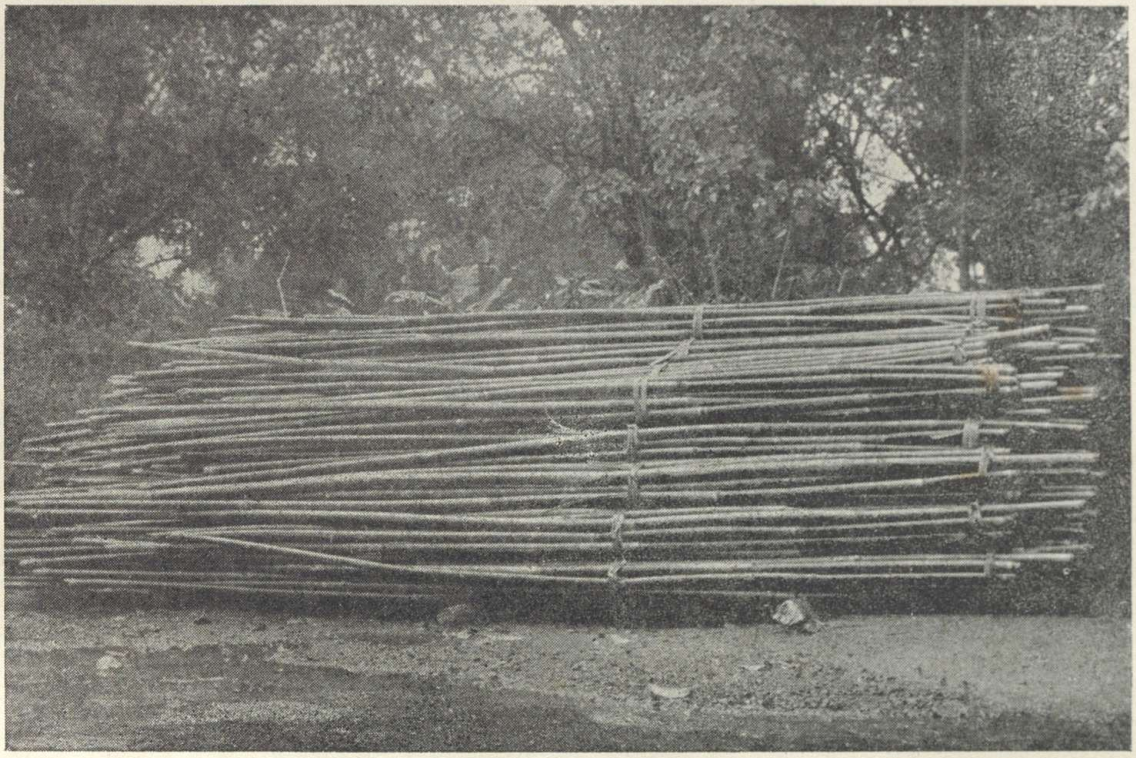
7. The reeds are first divided into a number of pieces by cutting at the nodes. Each piece is then cut into a number of strips of uniform thickness and breadth with the help of a triangular blade and dried in the sun for removing the watery contents. Water is sprinkled on the strips at the time of weaving, if they are fully dried. For the production of a cylindrical basket, two strips are arranged parallelly on the ground and one end of each strip is held under the toes of the worker. Two other strips are then crossed at right angles and plaited at the middle. Again, another strip is placed lengthwise and one more is inserted crosswise interlacing the lengthwise strips as in an ordinary weave. The process is repeated until the bottom or foundation on which the superstructure is to be raised is finished. The strips projecting round the bottom are then turned up in the direction of the sides. The weaving process is continued till the basket is raised to the intended height. The butts of the strips are then cut away. The edge or border is finished by turning down the ends of the strips, now standing up, and inserting firmly on the sides of the basket. In the case of big baskets, a thin rod of reed is tied on either side of the edge to make it stronger.

8. Thick and narrow reed splinters are used as ribs for the production of hemispherical baskets. Sixteen splinters are ranged in pairs and placed criss-cross leaving equal space between them. One toe of the worker is placed on the point where the splinters cross each other and a thin reed strip is woven firmly around the point, by passing it over and under the splinters. When three or four such rows are completed, the strip is taken between the pairs of splinters, as a result of which they are spread out. One more splinter is forced between the hoops to fill up the gap between the spread out ribs. The weaving is continued till the foundation of the basket is completed. Then the ribs are turned up one by one and strips are woven in and out between each of them till the required height is obtained. The edge is then



A HEMISPHERICAL BASKET UNDER PRODUCTION

(Left) Setting the splinters (Right) When the weaving has progressed



Pl. 1. REED BUNDLES



Pl. 2. SPLITTING THE REEDS



Pl. 3. WEAVING THE BASKET



Pl. 4. WEAVING THE MAT



Pl. 5. BUNDLES OF MATS READY FOR TRANSPORT



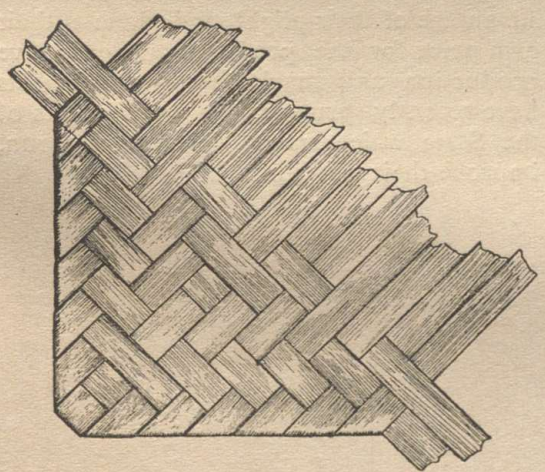
Pl. 6. BASKET



Pl. 7. BASKET

finished as in the case of a cylindrical basket.

9. Mats, which form a link between basket work and weaving, belong to the twilled variety in which the weft passes over and then under two warps. In the case of mats, the work is started at one corner and the plaiting is done diagonally. To begin with, a long strip of the reed is folded at the middle and another strip is inserted crosswise. Then the ends of the crosswise strip are folded and put straight along the lengthwise strip and another piece is inserted crosswise. The process is continued. The creases of the crosswise strips form the edges of the mat. New strips are inserted whenever necessary to get sufficient length to the lengthwise strips. When one side reaches sufficient breadth, the weaving is continued from that corner so as to get sufficient length. The woven mats are then dried in the sun.



A PIECE OF MAT IN THE MAKING

10. In some areas, where there is concentration of the production of fancy articles, coloured strips are used for weaving certain designs. The chemical dyes, usually green, red and blue, are dissolved in cold water and the strips are immersed in this solution and heated well. The strips are then taken out and dried in the sun.

Cost of Production

11. The cost of production is directly proportional to the labour involved and to the size of the article which is again related to the quantity of the reed consumed. The cost of 100 reeds, each of 20 ft. in length, out of which 50 mats of 8′×6′ can be woven, varies from Rs. 10 to Rs 15. The number of man-days required for splitting the reeds and weaving the mats roughly comes to 20. The mats produced will fetch Rs. 37.50 i.e. at a selling price of 75 P. per mat. Deducting the cost of raw material (Rs. 15) the producer gets Rs.22.50 as his labour charge for 20 days which works out to Rs. 1.12 a day for a worker. The details of the cost of production of a cylindrical basket with a capacity of about ten cubic feet are furnished below:—

Quantity of reed required – 2 pieces of 20′ in length
Cost of the reed pieces – Re. 0.30
Sale price of the basket – Rs. 2.50
Wages earned by the worker for producing one basket – Rs. 2.20

One worker can produce on an average one basket a day if he works exclusively at it. His remuneration from the craft, therefore comes to Rs. 2.20 a day. Basket making is generally attended to by males whereas the mat weaving is done by females.

The Craftsmen

12. Members belonging to different communities including scheduled tribes are seen engaged in the craft. In the Ernakulam and Trichur districts, a good number of the craftsmen are Christians. But the traditional workers are Parayas who form one of the Scheduled Castes. Generally, the work is attended to by the family members at their residences. It is the main occupation in respect of a good number, whereas others take it as a subsidiary occupation during their leisure hours. The proportion of females engaged in the craft is a little more than the males[1], probably because it is more suited to them as they can take it up during their leisure hours in their own

(1) Report on Census of Handicrafts 1960, issued by Director of Industries and Commerce, Kerala, Trivandrum

houses. It is said that with few exceptions, all the Paraya women are basket-makers or netters. In Keralotpathi they are classed as one of the sixteen hill tribes. One theory of their origin is that they were formerly one with the Pulayas from whom they separated on account of their eating beef. The following tradition is current concerning their origin. "They were originally Brahmans, but, on certain coparceners partitioning the common inheritance, the carcass of a cow, which was one of the articles to be partitioned, was burnt as being useless. A drop of oil fell from the burning animal on to one of the parties, and he licked it up with his tongue. For this act he was cast out of society, and his descendants, under the name of Paraiyas, became cow-eaters. Pakkanar is said to have been born a Paraiyan, though subsequent tradition honours him with Brahmanical parentage."[1] According to L.K. Ananthakrishna Iyer, "The Parayans may, very probably, have been the very early settlers in the land, and the representatives of the ancient Dravidian population, and that they must have been brought to this State of degradation by the conquest of some civilized race".[2]

General

13. Apart from using in connection with agricultural operations the reed mats are put to various uses like putting up ceilings, walling up temporary sheds etc., and the articles have a wide demand locally as well as from other States. The demand for the fancy articles is less when compared to other items probably because they are not strong enough for constant use. A large percentage of the finished products are sold directly to the consumers. The inter-state business is mainly in the hands of the middlemen who purchase the articles from the producers and arrange marketing. Though the products have an attractive market, the producer is not benefited much, as the wages he earns is hardly sufficient for subsistence. Most of the craftsmen are too poor to postpone the sale of their products for even a day without the fear of starvation and the consumers and the middlemen take advantage of their plight and dictate their own price for the products. Co-operative production and marketing establishments have recently sprung up in many parts of the State which might, in the long run, improve their position.

(1) Castes and Tribes of Southern India by Edgar Thurston, Vol. VI, pages 131–132
(2) The Cochin Tribes and Castes by L. K. Ananthakrishna Iyer, Vol. I, page 70

10. SCREW-PINE MATS

Introduction

Screw-pine mat weaving is one of the oldest cottage industries in the State. Thazhava, a place in Central Travancore is famous for the screw-pine articles. It is said that the place Thazhava came to be known by that name on account of the unique position it held in producing *Thazhappai*. However, the fact remains that Thazhava is keeping up its tradition even today and the best screw-pine articles come from that locality. It is said that Kadappakkada, a place near Quilon, derived its name from the roaring business in *Kadalpai* (sailmat) which existed there in olden days. The foreign ships which sailed to Kerala coast in early periods had palmyra mats as sails. They learned from the navigators of Kerala the advantages of using screw-pine mats as sails and began to buy large quantities of mats for this purpose. This theory has its own set-backs. Ibn Batuta, the famous traveller who visited Kerala in the first half of the fourteenth century has recorded that the Chinese ships found at Kozhikode had sails made of bamboo mats. This becomes all the more significant when we know that China is producing screw-pine mats from very ancient days.

Raw Materials

2. The screw-pine (Pandanus tectorius) is a gregarious shrub growing in abundance, on the sides of rivers and streams. The plant has its leaves arranged spirally. The stem is rarely erect and it rests on strong aerial roots. It is surrounded by leaves which are sword-shaped and spiny on edges and midrib. The plant has long yellow flowers with sweet fragrance.

3. Three varieties of screw-pine plant grow in Kerala. One is known as *Kadakkaitha*. The plant grows to a height of two to three feet and the leaves will be of about three feet in length. This variety is largely found in Central Travancore. The leaves of *Kadakkaitha* can easily be bleached and dyed.

4. The second variety is called *Ankaitha* (male screwpine). It grows taller than *Kadakkaitha* and has thick leaves of four to six feet length. The leaves cannot be bleached and they are, therefore, used only for making large mats for drying grains.

5. The third variety is known as *Pookkaitha* (Pandanus odoratissimus). It grows to a height of twelve to fifteen feet. The leaves are used only very rarely for making mats. The pleasing fragrance of the flowers excels the smell of the flowers of other varieties which account for the name *Pookkaitha* (flower screw-pine). The roots descending from the branches are used as an Ayurvedic medicine.

6. In Kerala, the screw-pine grows in abundance on the sides of rivers and streams. In Travancore area, it is also planted as a soil binder. The antiquity of this shrub is borne out by Raghuvamsa of Kalidasa, which narrates that the pollen of the screw-pine flowers, scattered by the wind blowing over the Murala river (a river of Kerala) scented the dress of the soldiers of Raghu (fourth chapter).

7. The brazil-wood (Caesalpinia sappan) known as *Sappangam* is the colouring material used in the craft. The name brazil or brazilian is derived from braise (red coals) and thus originally unconnected with the country of that name. In fact the name was given long prior to the discovery of Brazil[1]. The source of colouring matter in brazil-wood is brazilin ($C_{16}H_{14}O_5$) soluble in water and alcohol. The leaves of iron-wood tree (Memecylon edule) locally called as *Kasavu* are employed with brazil-wood

(1) The Commercial Products of India by Sir George Watt, page 194

as an adjunct.[1]



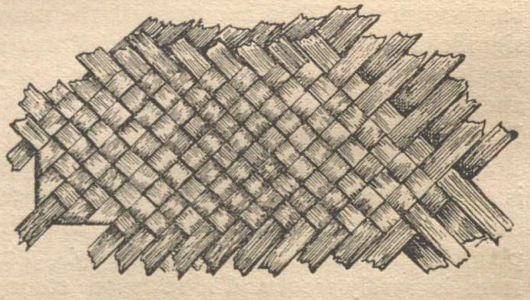
CAESALPINIA SAPPAN
(After a picture in the Wealth of India)

Process of Production

8. For preparing the strips required for weaving, the spines on the two edges and midrib of each leaf have to be first removed. For this purpose, loops are made at the ends of a long, thick cocoanut fibre and one loop is put on the thumb and the other on the forefinger of the right hand. The fibre is then glided along the edges and midrib thereby removing the portion covered with thorns. The leaf is split into two halves when the thorns along the middle row are removed. In the same way, each half is then split into narrow strips with the help of another fine cocoanut fibre. The width of the strips varies according to the nature of the mat proposed to be woven. For fine variety of mats it may be as narrow as 1/12" whereas for the coarse variety it may be 1/5". These strips are bundled and boiled in water for about an hour. They are then taken out and kept for some time. When completely cooled, they are put in cold water for about twelve hours. The strips are then dried in the sun when they will get a cream colour. It is said that for the production of costly mats, the strips are boiled in milk to give them the white colour and brightness.

9. The strips are coloured for working the ornamental designs and also for hemming the sides of the fine variety of mats locally known as *Methapai*. A few pieces of brazil-wood and the leaves of iron-wood tree are boiled together in water for about half an hour. The screw-pine strips are then immersed in the solution and boiled for two to four hours. When the liquid cools down, the colour of the strips becomes pink. They are then dried in a shady place. The introduction of chemical dyes has facilitated the use of other colours also. The required dyes are dissolved in hot water and the strips are boiled in it for about half an hour, after which they are dried in shade.

10. For weaving the fine variety of mats, one long strip is placed crosswise under the big toe facing the inner side upwards and another strip is placed lengthwise. Then one more strip is placed parallel to the first one and the ends of the first strip are folded and put straight along the lengthwise strip. Another strip is then placed crosswise and



A PIECE OF THE FINE VARIETY OF MAT IN THE MAKING

the process is repeated. New strips are added lengthwise and crosswise and interlacing continues until the required dimensions are obtained. The weaving is done with the

(1) See also the monograph on Kora Grass Mats



Pl. I. SCREW-PINE PLANT

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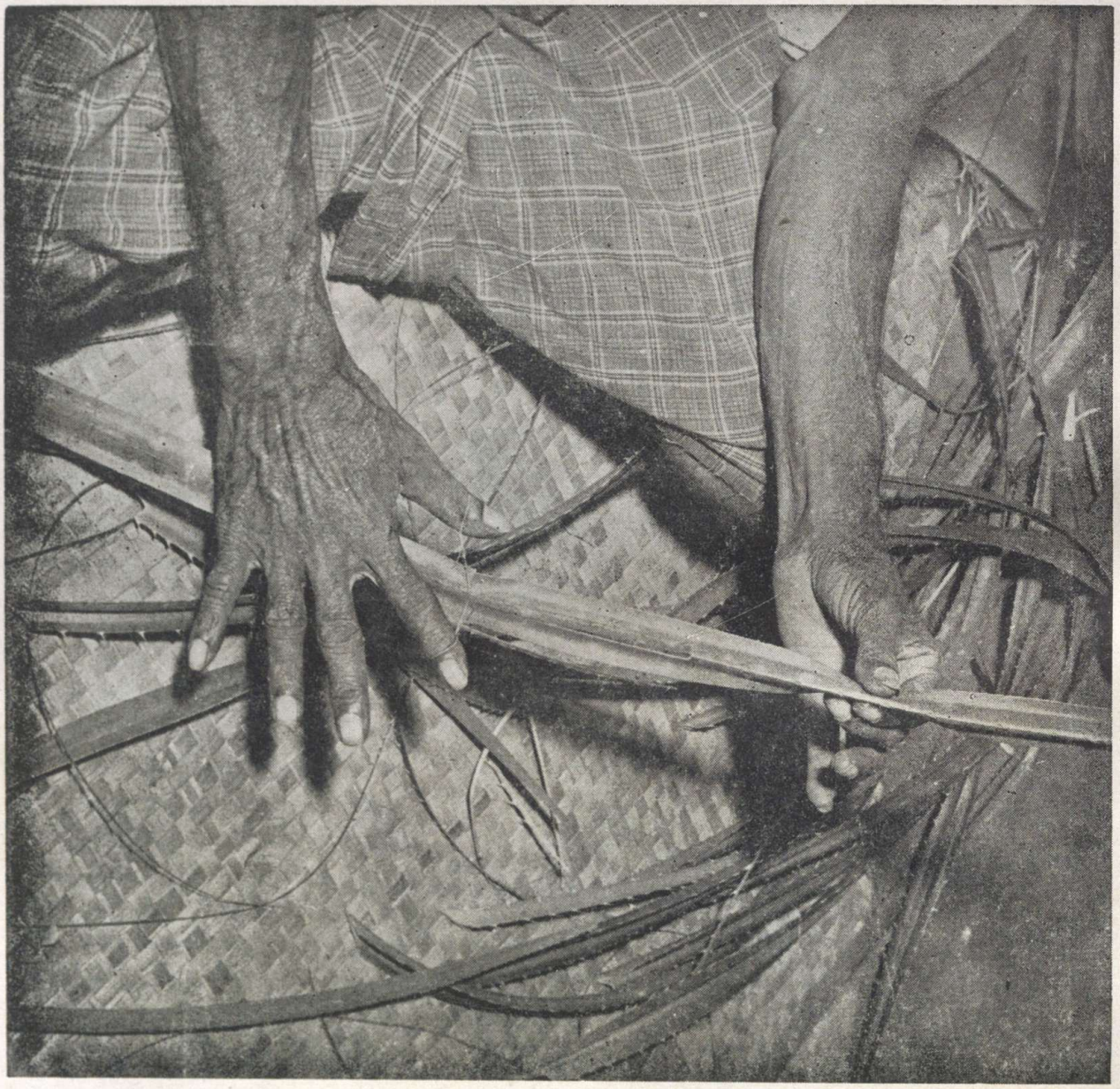
Pl. 2. COLLECTING THE SCREW-PINE LEAVES



Pl. 3. A HEAD LOAD OF SCREW-PINE LEAVES FOR SALE



Pl. 4. REMOVING THE THORN OF THE SCREW-PINE LEAVES



Pl. 5. SPLITTING THE LEAVES INTO NARROW STRIPS

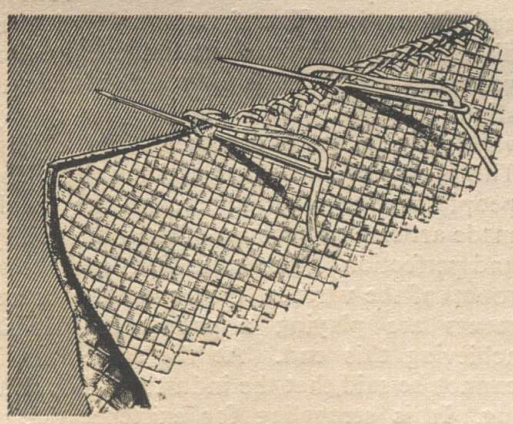


Pl. 6. DRYING THE STRIPS FOR COARSE VARIETY OF MATS



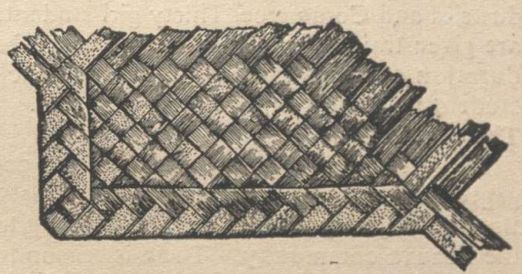
Pl. 7. DRYING OF BOILED STRIPS FOR FINE VARIETY OF MATS

inner side of the strips facing upwards so that the outerside of the strips which is comparatively smoother may form the outer surface of the mat. The edges of the mat are then cut. Two such mats are placed together with their inner surfaces facing each other and the edges are folded inwards. The edges are then tied together at intervals with thread and hemmed with narrow screw-pine strips. This is then overcast with pink coloured strips of screw-pine. Most of the mat weavers sell the mats without hemming as all the craftsmen are not well versed in this work. The hemming is started from one end of the mat by holding the material in the left hand. The needle is inserted into the edge of the fold from the upper layer and brought out on the other side. It is then taken over to the upper layer. Skipping about four threads, it is again inserted and brought out. Taking to the upper layer, it is inserted through the first hole, when the stitches cross each other at the edge. Then skipping about eight threads, the needle is inserted from the upper layer. The process is continued till the entire edge is hemmed. It is then overcast with coloured strips in the same manner.



HEMMING THE MATS

11. The process of weaving the coarse variety of mats is slightly different, as the edges have also to be woven simultaneously. In this case, the weaving is started with double strips. As the weaving proceeds, the crosswise strips are folded and plaited with inner strips of the neighbouring lengthwise strips to form the edges, which look like plaited hair. When the corner has been completed and the edges have been formed, the weaving is continued with single strips. New strips are added only crosswise as the lengthwise strips are formed while folding the cross-wise strips. Two sides are simultaneously woven and when one side reaches sufficient breadth the weaving is continued on the other side so as to reach sufficient length.



WEAVING THE COARSE VARIETY OF MAT

12. With the fine variety mats, fancy articles like cushions, vanity-bags, pillow-covers etc., are made. Though only on a limited scale, hats, purses, lemon plates and many other articles are also produced. Embroidery work is also sometimes done on fancy articles. The required design is drawn in a tracing paper and it is pinned on the article. The design is worked along the outlines and the paper is torn out when the work is completed.

Cost of Production

13. The cost of raw materials is as follows:—

Cost of one head load of screw-pine leaves weighing about 1 cwt.	–	Rs. 4
Cost of dyes	–	Rs. 6
Total	–	Rs. 10

Out of 1 cwt. of screw-pine leaves, about ten single mats can be produced. A worker

has to work for about 20 days for making ten single mats. The usual sale price of these ten mats is approximately Rs. 30. The weaver, therefore, gets Re. 1 a day as wages. The rate applies only to an ordinary craftsman. Others who are capable of producing finer varieties will get better wages as the sale price of the articles is much higher than the ordinary articles. The cost of a fine double sleeping mat varies from Rs. 5 to Rs. 100 according to quality.

Training Centre

14. The State Government has started a screw-pine production-cum-training centre at Thazhava under the Director of Industries and Commerce. Thirty girl students are given training in this institution. The duration of the training is 1½ years. Each student is given a stipend of Rs. 20 p.m.

The Craftsmen

15. Almost all the communities are engaged in the production of screw-pine mats. But the majority of the workers belong to the Ezhuva community. There is reason to believe that the members of the Scheduled Castes and Scheduled Tribes were the originators of this craft and the Ezhuvas subsequently took up the work and developed it into its present form. The fact that the members of the Scheduled Castes and Scheduled Tribes are producing some variety of rough screw-pine mats for their own use even today, is an indication in this direction. The weaving is done mainly by the women and in the case of double mats the edging is done by men. They make the mats during their leisure hours and it is a source of additional income to the earnings. The products are sold out in the local markets. The raw materials are obtained at a comparatively cheaper rate and the investment for the industry is negligible.

Conclusion

16. In the 1931 Census Report, the screw-pine mat weaving industry has been described as declining. The causes for the decline are summarised as follows:—

(i) Absence of transport facilities in localities where the industry is carried on

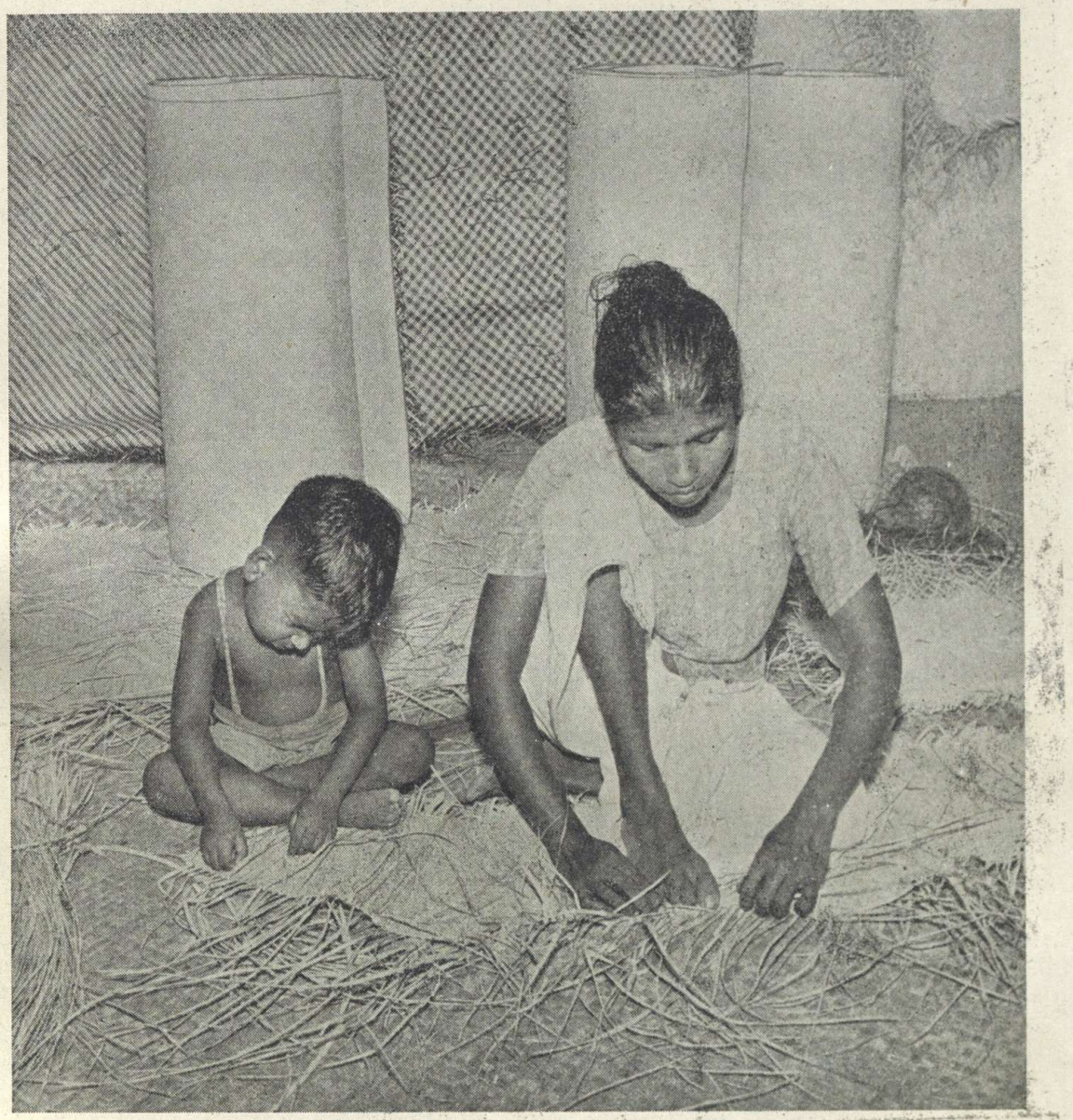
(ii) The existence of a large number of middlemen who swallow the major portion of the profits.

(iii) The importation of cheaper and more attractive and handy articles like *jamkals*, carpets, printed mats and rugs and the consequent decrease in demand for screw-pine articles.

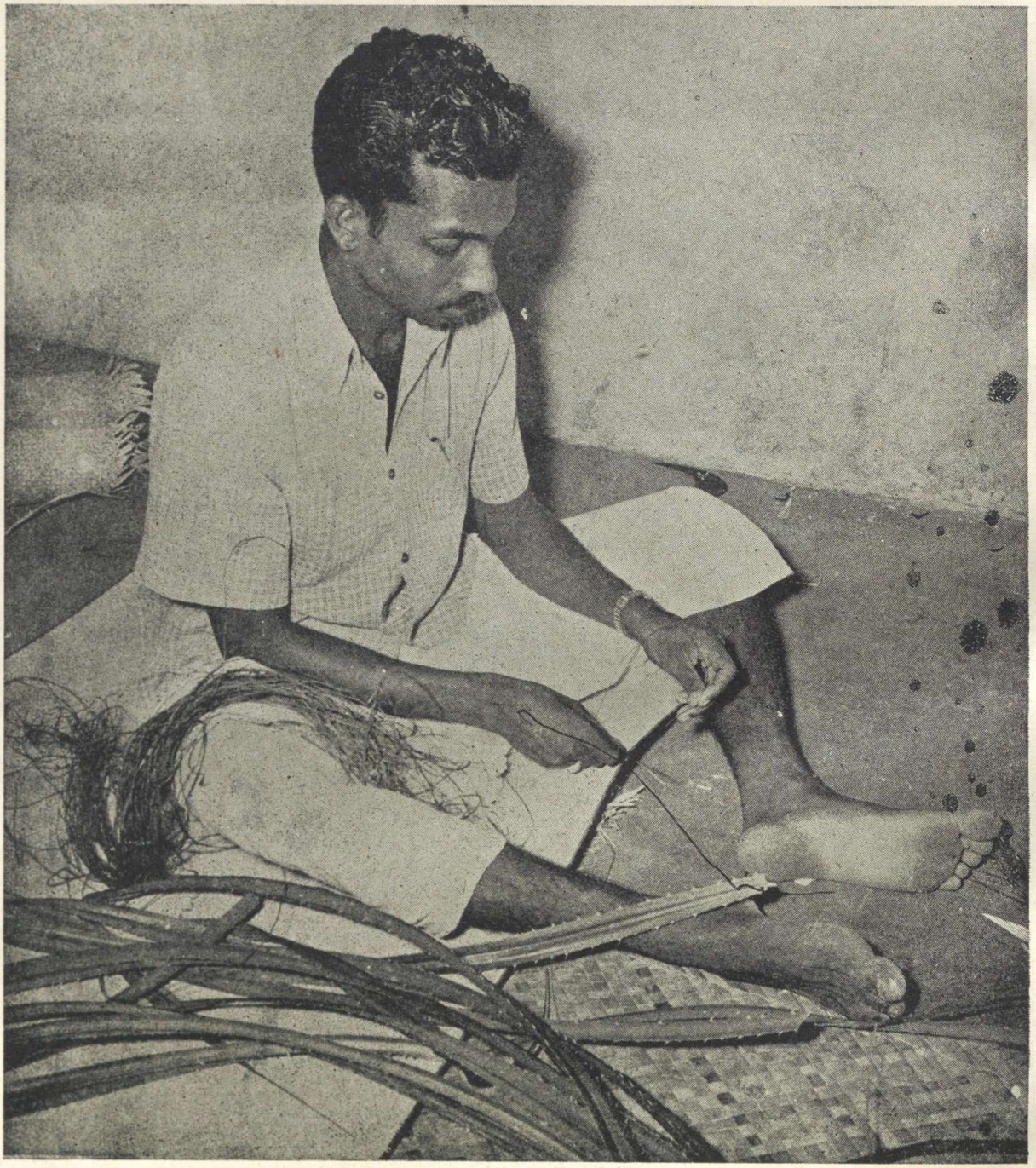
(iv) The change in the taste of the public. Modern articles of furniture have replaced the time honoured screw-pine mats and cushions. Till about fifty years ago, they were used in almost all public offices of the State instead of chairs and benches.

(v) Lack of organisation among the producers and the traders.

17. The position has changed by 1961 and most of the causes for the decline have been successfully dealt with. As a result of the Five Year Plans, the transport facilities of the state have considerably improved. The organisation of co-operative societies has been effective in eliminating the middlemen. It is true that the modern furniture has replaced the time honoured screw-pine mats. But, the Malayalees still prefer screw-pine sleeping mats in hot season to *jamkals* and other comfortable beds. The cycle of fashion moves backward and forward. The fashion of today is discarded tomorrow as outmoded but often yesterday's fashion is accepted with some slight changes. This tendency is clearly visible in the case of ornaments and cloths. This is true of screw-pine articles also. The people have begun to appreciate the handmade articles on account of their durability and perfection. The exhibitions and showrooms of the various Government departments are playing a prominent role in achieving this end. At the same time, it cannot be said that the industry is flourishing. It is struggling for existence due to the competition of cheaper articles in the market. The prohibitive cost of the screw-pine articles is a direct result of the labour involved in the production. The entire process is done by hand and no



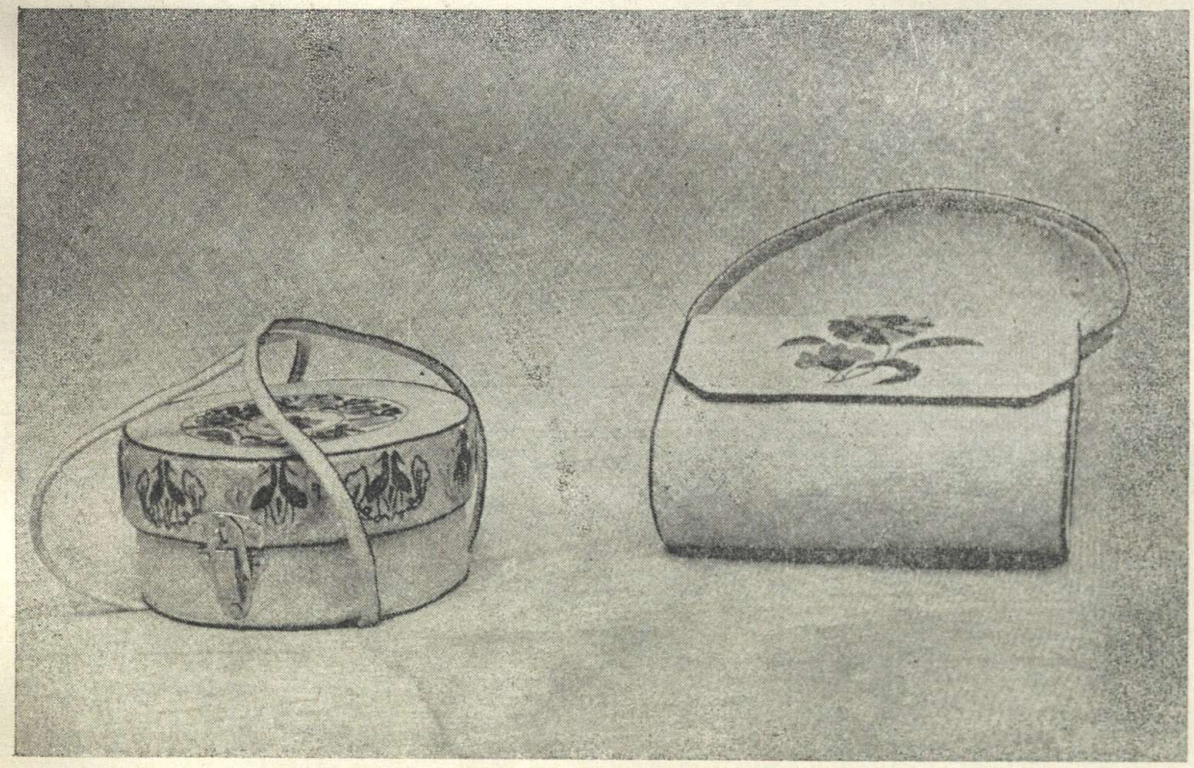
PI. 8. THE MAT WEAVING



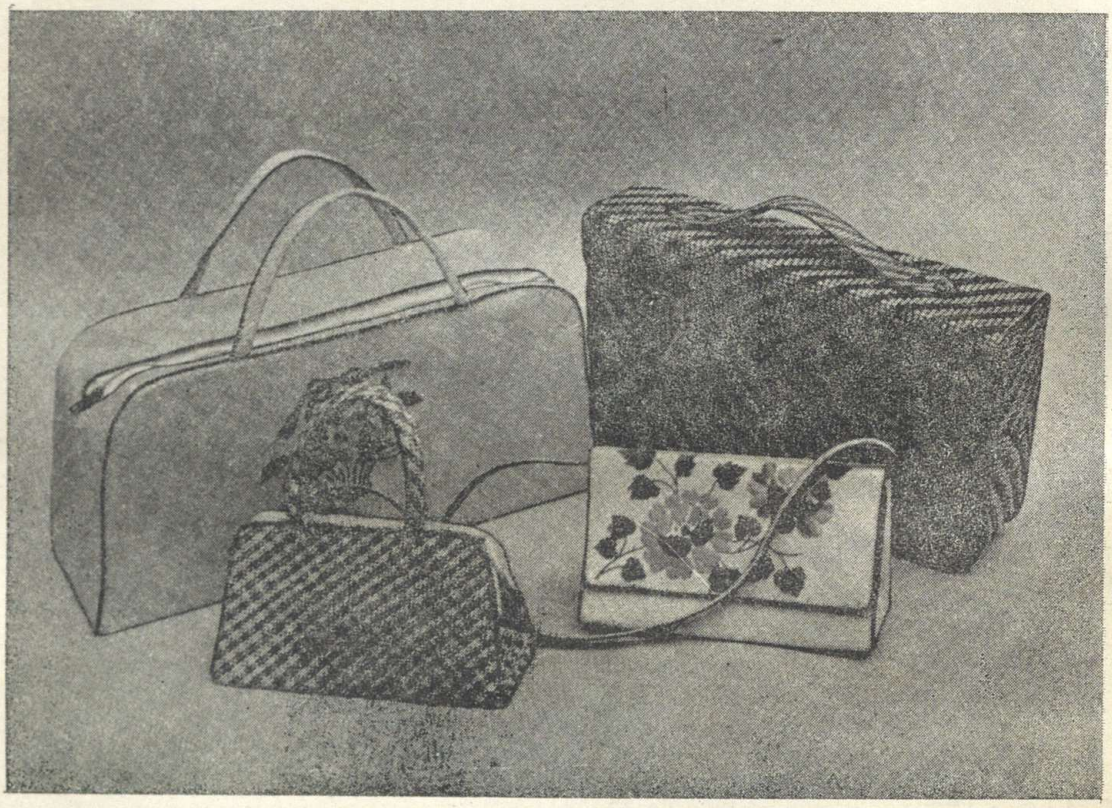
Pl. 9. HEMMING THE MATS



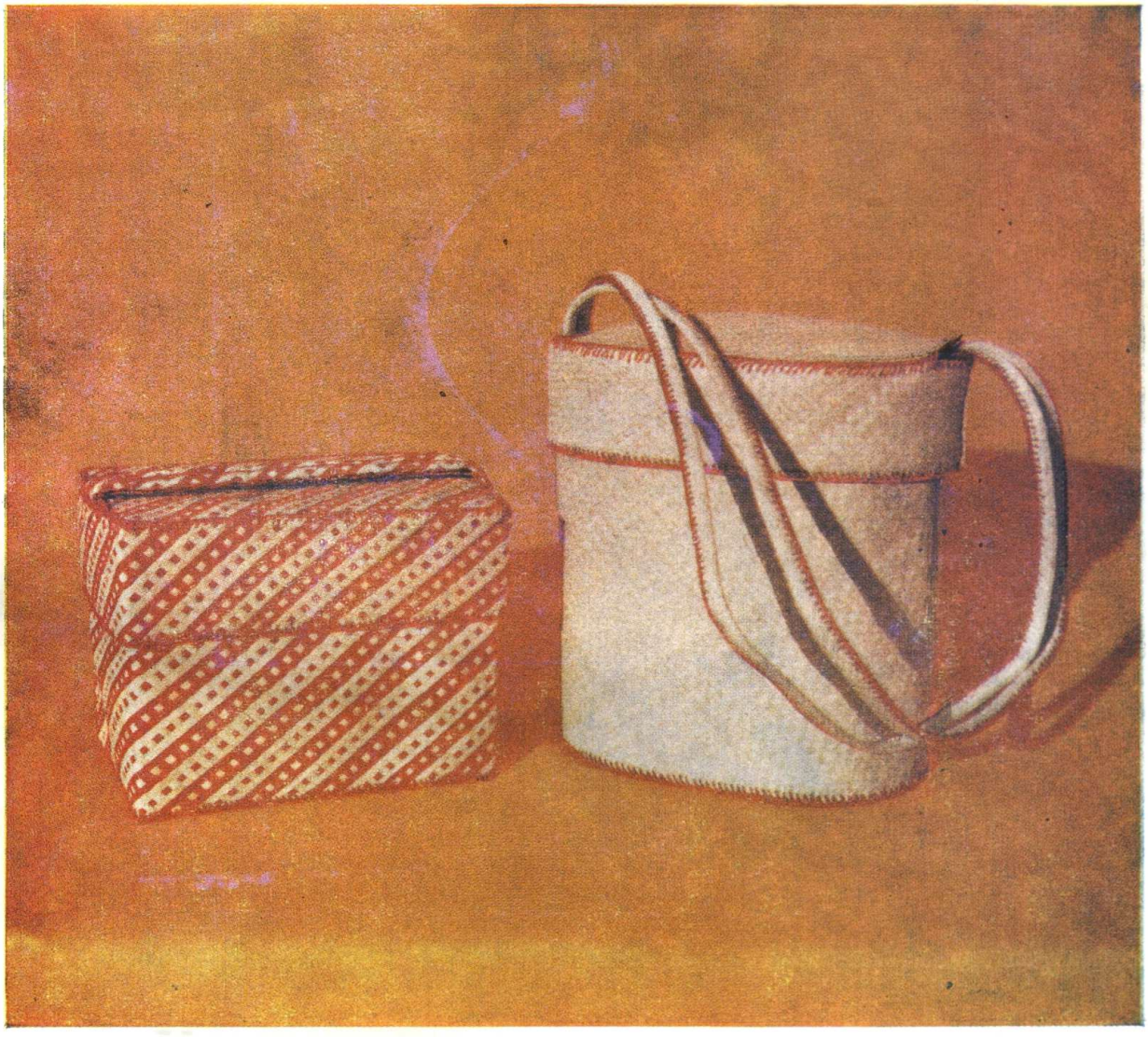
Pl. 10. SALE OF UNFINISHED MATS—BARGAINING IN THE MARKET



Pl. 11. SCREW-PINE BAGS



Pl. 12. SCREW-PINE BAGS



PI. 13. SCREW-PINE BAGS

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attempt has been made so far to minimise the labour. If something could be done in this direction, it will be a great boon to the industry. It is also necessary to explore the possibilities of making use of the screw-pine for other commercial enterprises. For example, from the stem of the screw-pine, fibres can be extracted which can be used for brush making and other purposes. Keora oil which is of great value to perfumers and which has got medicinal uses, can be obtained from the flowers. The industry, if suitably reorientated has a good future. If the marketing problem is successfully tackled, there is no reason why this industry, which requires practically no investment, should decline when there is plenty of raw materials and cheap labour. Indonesia, China and Japan are producing screw-pine articles in large quantities. If this industry could thrive in these countries there is no reason why it should fail in Kerala.

11. STRAW PICTURES

Introduction

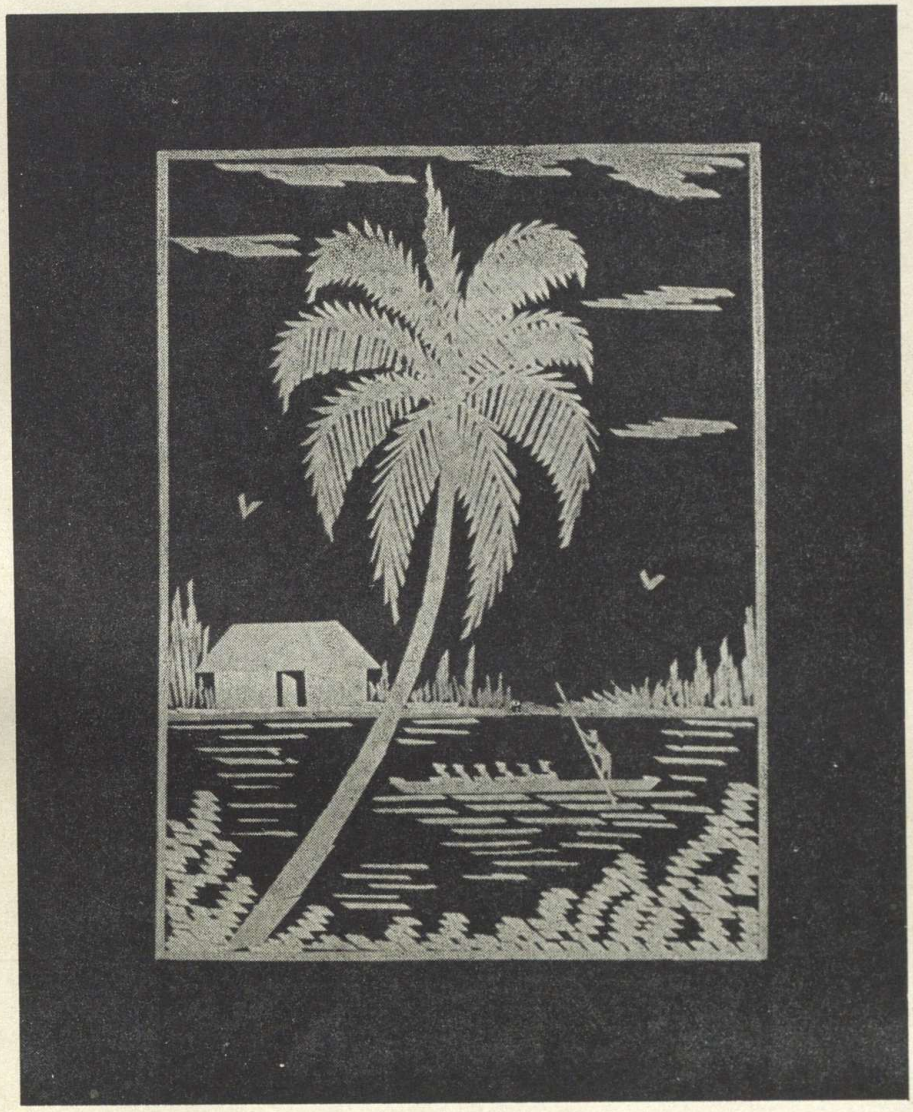
"Culturally contemporaneous history of every country offers clear and abundant evidence that man has always aspired to the attainment of concrete vividness of visual presentation of the real and the ideal, depending on the peculiar evolutional stage of his civilization at a particular period of time. With the earliest dawn of consciousness, his endeavour in this direction appears to have led him to invent various forms of expression."[1] 'The symmetrical representation of natural objects in ornamentation and their alternation' seems to have become intuitive in Indians through long habit. 'The great secret of his mastery' says Birdwood, 'is the almost intuitive habit of the natives of India of representing natural objects in decoration in a strictly conventional manner that is to say, symmetrically, and without shadow'.[2] The spirit of the representational arts latent in Kerala, is identical with that of the rest of India. But painting has been an integral part of the every day existence of the Keralites right through the centuries. Apart from the various mural paintings, the figures drawn with the help of coloured powders in connection with the Kali worship and serpent worship in Kerala, establish the traditional talents of the people in painting. The craft of making pictures by pasting pieces of straw on a black background which is a novel addition to the numerous art-crafts of Kerala, is a complementary craft to painting. It was originated by a talented artist at Perinad, near Quilon during this decade. Following his footsteps, a few craftsmen are now engaged in this work here and there. Natural scenery and portraits are the usual themes represented in these pictures.

Raw Materials

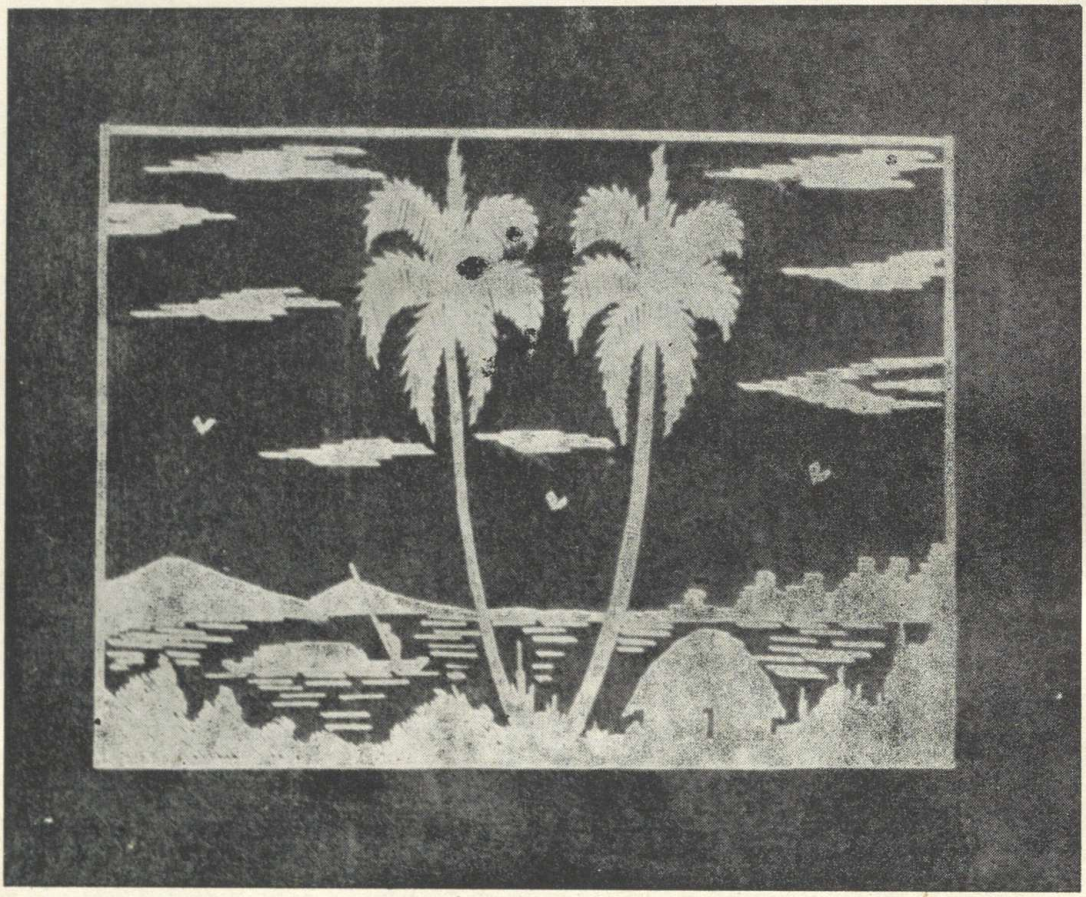
2. The straw of the common rice plant (Oryza sativa) is the main raw material with which the pictures are formed. Being the staple food, rice is cultivated extensively in the State. The rice stalks are cut and the grain is thrashed out either by manual labour or by the help of cattle.

3. *Kunthurukam* (resin of Boswellia thurifera) is the material with which the gum for fixing the straw pieces is prepared. The incense tree, from which the resin is obtained, is a moderate-sized, deciduous tree found in the forests of India. Its bark is greenish-ash coloured and leaves are crowded near the ends of branches. The wood is yellowish-brown to dark greenish brown, moderately hard and fairly durable. The tree is best known for the gum-oleo-resin that exudes from the stem and branches. It is the olibanum or frankincense of the ancients. It consists of an essential oil, rosin etc. The oil can serve as a substitute for the American pine turpentine, and the rosin for the low grade pine rosin. The oil is used in the preparation of quick drying varnishes and paints. The resin is also used for making varnishes. The pungent balsamic gum-resin sold in the bazaars is burnt as incense. There are two varieties, one of which is far inferior to the other. The best is found in pieces as large as a walnut, of a high yellowish colour, inclining to red or brown, covered on the outside with a red powder, the whole becoming a whitish powder when pounded. It burns with a clear and steady light and diffuses a pleasant fragrance. Black silk, spirit, cardboard, blue vitriol (copper sulphate) and *maida* flour are the other raw materials used for the production of the pictures.

(1) The Arts and Crafts of India and Pakistan by Shanti Swarup, page 15
(2) The Industrial Arts of India by George C. M. Birdwood, page 303



Pl. 1. STRAW PICTURE—BACKWATER SCENERY



Pl. 2. ANOTHER BACKWATER SCENERY

Process of Production

4. A cardboard piece is first cut according to the size or the picture proposed to be made and a piece of black silk slightly bigger in size than the cardboard is pasted over it. The portion of the cloth projecting on the sides of the cardboard is folded and pasted on the backside of the board. The gum required for pasting the silk is prepared with *maida* flour by adding water to it and boiling it thoroughly. A small quantity of blue vitriol (copper sulphate) is also added to the gum to protect the cloth and board from insects. It is on this black cloth the picture is made.

5. The golden coloured straw is dried in the sun. It is then stretched on a plank and the outer side is pressed with the limbs of pincers, which gives a shining colour to the surface. A paste, made by mixing *Kunthurukkam* and spirit, is smeared on the inner side of the straw. One end of the straw is then placed in the position where the picture has to be made. A small piece of the straw is cut with a blade and along with the cutting, the blade is slightly slanted to the right side and given a pressing. The piece thus gets pasted on the silk cloth. The process is continued until the required picture is finished. One peculiarity in the process of production is that no sketch or outline is drawn before pasting the pieces. The design conceived by the artist is transformed directly into the finished product without any preliminary delineation.

Cost of Production

6. The cost of raw materials used for the production of straw pictures is as follows :–

Silk cloth	– Rs. 4.00 per yard
Spirit	– Rs. 1.50 per 24 oz. bottle
Kunthurukkam	– Rs. 1.50 per lb.
Cardboard	– Re. 1.00 ,,
Maida flour	– Re. 0.40 ,,
Blue vitriol	– Rs. 1.12 ,,
Straw	– Rs. 6.00 per head-load

Barring the cloth, the cost of meterials required for the production of one picture is only less than Re. 0.25. One yard of cloth is sufficient to make four pictures. A craftsman has to work on a picture for about a day. The cost of each picture varies according to the workmanship; but normally the sale price of one picture is Rs. 4.25. The craftsman therefore earns Rs. 3 per day as wages.

General

7. As the craft is not a traditional one, it cannot be attributed to any particular community. The originator of this craft was, however, a member of the caste of Izhavathi, which is a sub-division of Ezhuvas. The Izhavathis are the priests and barbers of the Izhuvas and the customs and manners of these two communities are almost identical. The numerous traditions in vogue about the origin of the Izhuva community are associated with Ceylon. The word 'Izhuvan' signifies one who belongs to Izham, which is an old name for Ceylon. It is said that they are the discendants of Shannar colonists from Ceylon and that they brought with them the cocoanut and palmyra palms, the cultivation of which is even now their chief occupation.

8. There is good demand for the straw pictures throughout the country. The articles are mainly marketed through the Sree Mulam Sashtyabdapoorthi Memorial Institute and the District Cottage Industries Co-operative Society, Trivandrum. Attempt should be made to increase the production in order to cope up with the increasing demand from other States. The low cost of production and the availability of raw materials, are two advantageous factors which would help to increase the production of pictures. Even though in the matter of employment it is doubtful whether this craft could claim much importance, it deserves encouragement and can rightly claim a place among the other representational arts.

Table I

UNITS OF HOUSEHOLD INDUSTRY IN BELL-METAL ENGAGING LESS THAN FIVE WORKERS, 1961

State/District/Taluk/ Village/Town			No. of units	No. of persons
1			2	3
KERALA STATE		**T**	**264**	**552**
		R	**160**	**348**
		U	**104**	**204**
CANNANORE DISTRICT		**T**	**41**	**97**
		R	**36**	**90**
		U	**5**	**7**
Taliparamba taluk		T	8	18
		R	8	18
		U	..	..
Payyannur	(R)		8	18
Cannanore taluk		T	26	68
		R	26	68
		U	..	..
Kunhimangalam	(R)		24	64
Cheruthazham	(R)		2	4
Tellicherry taluk		T	7	11
		R	2	4
		U	5	7
Eranholi	(R)		1	3
Kolavallur	(R)		1	1
Tellicherry Municipal	(U)		5	7
KOZHIKODE DISTRICT		**T**	**28**	**59**
		R	**17**	**35**
		U	**11**	**24**
Quilandy taluk		T	5	11
		R	5	11
		U	..	..
Viyyur	(R)		5	11
Kozhikode taluk		T	9	20
		R	1	2
		U	8	18
Patinhattumuri	(R)		1	2
Calicut Municipal	(U)		8	18
Tirur taluk		T	11	23
		R	8	17
		U	3	6
Kattipparuthi	(R)		4	8
Irimbliyam	(R)		4	9
Trikkandiyur	(U)		3	6
South Vynad taluk		T	3	5
		R	3	5
		U	..	..
Muttil	(R)		1	2
Vengappally	(R)		1	1
Nenmani	(R)		1	2
PALGHAT DISTRICT		**T**	**37**	**89**
		R	**12**	**30**
		U	**25**	**59**
Perintalmanna taluk		T	2	5
		R	2	5
		U	..	..
Angadipuram	(R)		2	5
Ponnani taluk		T	1	2
		R	1	2
		U	..	..
Mezhathur	(R)		1	2
Ottapalam taluk		T	6	15
		R	6	15
		U	..	..
Karimpuzha	(R)		1	2
Eledathmadamba	(R)		2	6
Kanniambrom	(R)		1	3
Vaniamkulam	(R)		1	2
Kulapully	(R)		1	2
Palghat taluk		T	20	44
		R	2	6
		U	18	38

T—Total R—Rural U—Urban

TABLE I-*contd.*

State/District/Taluk/ Village/Town			No. of units	No. of persons
1			2	3
Mankurussi	(R)		2	6
Palghat Municipal	(U)		18	38
Alathur taluk		T	1	2
		R	1	2
		U	..	..
Chittilencherry	(R)		1	2
Chittur taluk		T	7	21
		R	..	..
		U	7	21
Chittur-Thathamangalam Municipal	(U)		7	21
TRICHUR DISTRICT		**T**	**44**	**89**
		R	**29**	**60**
		U	**15**	**29**
Talappilly taluk		T	9	25
		R	6	15
		U	3	10
Thiruvilwamala	(R)		1	2
Mullurkara	(R)		1	1
Thonurkara	(R)		1	4
Enkakad	(R)		3	8
Kunnamkulam Municipal	(U)		3	10
Trichur taluk		T	25	45
		R	16	30
		U	9	15
Kolazhi	(R)		2	3
Ayyanthole	(R)		2	3
Kozhukully	(R)		1	2
Kanimangalam	(R)		3	6
Manalur	(R)		1	1
Padiyam	(R)		1	2
Chevoor	(R)		4	7
Kainoor	(R)		1	2
Pattikad range	(R)		1	4
Trichur Municipal	(U)		9	15
Chowghat taluk		T	5	10
		R	4	9
		U	1	1
Brahmakulam	(R)		4	9
Chowghat	(U)		1	1
Cranganore taluk		T	1	2
		R	1	2
		U	..	..
Lokamaleswaram	(R)		1	2
Mukundapuram taluk		T	4	7
		R	2	4
		U	2	3
Irinjalakuda	(R)		1	3
Varantharapally	(R)		1	1
Chalakudy	(U)		2	3
ERNAKULAM DISTRICT		**T**	**39**	**87**
		R	**28**	**64**
		U	**11**	**23**
Parur taluk		T	6	10
		R	6	10
		U	..	..
Chennamangalam	(R)		3	6
Varapuzha	(R)		3	4
Alwaye taluk		T	1	4
		R	1	4
		U	..	..
Chengamanad	(R)		1	4
Kunnathunad taluk		T	11	21
		R	8	13
		U	3	8
Cheranalloor	(R)		3	4
Kizhakkambalam	(R)		2	2
Chemmanad	(R)		3	7
Perumbavoor Municipal	(U)		3	8
Kanayannur taluk		T	11	33
		R	8	27
		U	3	6
Poonithura	(R)		1	4
Edakkattuvayal	(R)		7	23
Ernakulam Municipal	(U)		3	6
Muvattupuzha taluk		T	9	18
		R	4	9
		U	5	9
Kottapady	(R)		1	2
Kothamangalam	(R)		3	7
Muvattupuzha Municipal	(U)		5	9

TABLE I-*contd.*

State/District/Taluk/ Village/Town			No. of units	No. of persons
1			2	3
Thodupuzha taluk		T	1	1
		R	1	1
		U	..	..
Kodikulam	(R)		1	1
KOTTAYAM DISTRICT		**T**	**34**	**59**
		R	**12**	**20**
		U	**22**	**39**
Meenachil taluk		T	6	10
		R	6	10
		U	..	..
Uzhavoor	(R)		2	4
Vallichira	(R)		1	2
Kidangoor	(R)		2	3
Meenachil	(R)		1	1
Vaikom taluk		T	1	4
		R	..	..
		U	1	4
Vaikom Municipal	(U)		1	4
Kottayam taluk		T	4	6
		R	..	..
		U	4	6
Ettumanoor	(U)		2	3
Kottayam Municipal	(U)		2	3
Changanacherry taluk		T	22	37
		R	5	8
		U	17	29
Vakathanam	(R)		3	3
Karukachal	(R)		1	2
Vazhoor	(R)		1	3
Changanacherry Municipal	(U)		17	29
Kanjirappally taluk		T	1	2
		R	1	2
		U	..	..
Cheruvally	(R)		1	2
ALLEPPEY DISTRICT		**T**	**32**	**56**
		R	**22**	**41**
		U	**10**	**15**
Shertalai taluk		T	7	13
		R	2	3
		U	5	10
Vayalar Meeku	(R)		1	1
Thannirmukkom Vadakku	(R)		1	2
Shertalai Municipal	(U)		5	10
Thiruvalla taluk		T	10	13
		R	5	8
		U	5	5
Mallappally	(R)		2	3
Kadapra	(R)		3	5
Thiruvalla Municipal	(U)		5	5
Chengannur taluk		T	5	12
		R	5	12
		U	..	..
Mannar	(R)		3	7
Mezhuveli	(R)		2	5
Karthigapally Taluk		T	4	7
		R	4	7
		U	..	..
Kumarapuram	(R)		1	2
Muthukulam	(R)		3	5
Mavelikkara taluk		T	6	11
		R	6	11
		U	..	..
Palamel	(R)		6	11
QUILON DISTRICT		**T**	**5**	**9**
		R	**4**	**8**
		U	**1**	**1**
Pathanamthitta taluk		T	1	3
		R	1	3
		U	..	..
Ranni	(R)		1	3
Kunnathur taluk		T	1	1
		R	1	1
		U	..	..
Adoor	(R)		1	1
Karunagapally taluk		T	1	1
		R	1	1
		U	..	..
Perunad	(R)		1	1

TABLE I-*concld.*

State/District/Taluk/ Village/Town			No. of units	No. of persons
1			2	3
Quilon taluk		T	1	1
		R	..	..
		U	1	1
Quilon Municipal	(U)		1	1
Kottarakara taluk		T	1	3
		R	1	3
		U	..	..
Kottarakara	(R)		1	3
TRIVANDRUM DISTRICT		T	4	7
		R	..	..
		U	4	7
Chirayinkil taluk		T	3	6
		R	..	..
		U	3	6
Attingal Municipal	(U)		3	6
Trivandrum taluk		T	1	1
		R	..	..
		U	1	1
Trivandrum Corporation	(U)		1	1

Table II

UNITS OF HOUSEHOLD INDUSTRY IN COIR ENGAGING LESS THAN FIVE WORKERS, 1961

State/District/Taluk/ Village/Town			No. of units	No. of persons
1			2	3
KERALA STATE		**T**	**48,319**	**85,092**
		R	**42,442**	**75,136**
		U	**5,877**	**9,956**
CANNANORE DISTRICT		**T**	**140**	**225**
		R	**73**	**133**
		U	**67**	**92**
Hosdrug taluk		T	16	27
		R	16	27
		U	..	..
Padne	(R)		16	27
Taliparamba taluk		T	14	27
		R	14	27
		U	..	..
Ramanthali	(R)		14	27
Cannanore taluk		T	95	143
		R	28	51
		U	67	92
Madai	(R)		4	9
Kannapuram	(R)		19	35
Kalliasseri	(R)		2	2
Cannanore Karar	(R)		3	5
Azhikode	(U)		67	92
Tellicherry taluk		T	15	28
		R	15	28
		U	..	..
Pinarayi	(R)		4	9
Dharmadom	(R)		4	6
Eruvatti	(R)		7	13
KOZHIKODE DISTRICT		**T**	**3,518**	**5,803**
		R	**2,592**	**4,309**
		U	**926**	**1,494**
Badagara taluk		T	40	102
		R	5	7
		U	35	95
Azhiyoor	(R)		5	7
Badagara Municipal	(U)		35	95
Quilandy taluk		T	808	1,353
		R	775	1,288
		U	33	65
Vilayathur	(R)		1	2
Viyyur	(R)		260	428
Melur	(R)		103	193
Velur	(R)		411	665
Pantalayini	(U)		33	65
Kozhikode taluk		T	1,000	1,541
		R	491	759
		U	509	782
Elathur	(R)		1	1
Thalakolathur	(R)		196	329
Nanminda	(R)		110	160
Kuruvasseri	(R)		116	162
Chevayur	(R)		51	80
Vallicode	(R)		17	27
Elathur	(U)		17	25
Kommeri	(U)		7	13
Nellikode	(U)		44	67
Beypore	(U)		144	224
Calicut Municipal	(U)		297	453
Tirur taluk		T	1,502	2,549
		R	1,153	1,997
		U	349	552
Velipram	(R)		6	14
Mannur	(R)		139	188
Vallikunnu	(R)		204	295
Ariallur	(R)		384	639
Thenhipalam	(R)		109	164
Velimukku	(R)		205	491
Pachattiri	(R)		30	51
Mangalam	(R)		5	10
Chennora	(R)		17	28
Purathur	(R)		54	117

TABLE II-*contd.*

State/District/Taluk/ Village/Town			No. of units	No. of persons
1			2	3
Kadalundi	(U)		167	253
Feroke	(U)		126	202
Parappanangadi	(U)		56	97
Ernad taluk		T	168	258
		R	168	258
		U	..	..
Chelembra	(R)		144	221
Nediyiruppu	(R)		24	37
PALGHAT DISTRICT		**T**	**212**	**390**
		R	**164**	**307**
		U	**48**	**83**
Ponnani taluk		T	212	390
		R	164	307
		U	48	83
Easwaramangalam	(R)		1	1
Ezhuvathuruthi	(R)		65	113
Porang	(R)		63	113
Kadavanad	(R)		31	72
Ayirur	(R)		4	8
Ponnani	(U)		48	83
TRICHUR DISTRICT		**T**	**1,317**	**2,315**
		R	**1,302**	**2,287**
		U	**15**	**28**
Trichur taluk		T	48	88
		R	48	88
		U	..	..
Manalur	(R)		15	32
Karamucku	(R)		29	47
Vadakkumuri	(R)		4	9
Chowghat taluk		T	887	1,538
		R	872	1,510
		U	15	28
Chowghat	(R)		52	74
Orumanayur	(R)		90	137
Kadapram	(R)		19	35
Venmenad	(R)		66	131
Kundazhiyur	(R)		224	388
Thalikulam	(R)		37	71
Nattika	(R)		13	23
Cha-Pallipram	(R)		50	76
Kaipamangalam	(R)		161	282
Perinhanam	(R)		80	147
Pappinivattam	(R)		6	9
Padinhare Vemballur	(R)		12	17
Panangad	(R)		15	26
Ala	(R)		47	94
Chowghat	(U)		15	28
Cranganore taluk		T	285	517
		R	285	517
		U	..	..
Edavilanga	(R)		49	82
Eriyad	(R)		11	20
Lokamaleswaram	(R)		102	184
Azhikode	(R)		11	20
Methala	(R)		110	204
Poyya	(R)		2	7
Mukundapuram taluk		T	97	172
		R	97	172
		U	..	..
Edathirinji	(R)		41	74
Padiyur	(R)		26	51
Vallivattam	(R)		23	36
Puthenchira	(R)		3	4
Karumathara	(R)		4	7
ERNAKULAM DISTRICT		**T**	**2,259**	**4,464**
		R	**2,118**	**4,231**
		U	**141**	**233**
Parur taluk		T	525	1,080
		R	492	1,027
		U	33	53
Vadakkekara	(R)		235	565
Chennamangalam	(R)		62	103
Parur	(R)		127	223
Kottuvally	(R)		49	106
Varapuzha	(R)		19	30
Parur Municipal	(U)		33	53
Kanayannur taluk		T	1,454	2,754
		R	1,403	2,673
		U	51	81
Marada	(R)		507	898
Kumbalam	(R)		340	714
Manakunnam	(R)		556	1,061
Ernakulam Municipal	(U)		51	81
Cochin taluk		T	280	630
		R	223	531
		U	57	99

TABLE II-*contd.*

State/District/Taluk/ Village/Town			No. of units	No. of persons
1			2	3
Pallipuram	(R)		4	11
Kuzhupilly	(R)		17	34
Edavanakad	(R)		14	25
Elangunnapuzha	(R)		20	30
Rameswaram	(R)		47	105
Palluruthy	(R)		62	137
Kumbalanghy	(R)		59	189
Njrakkal	(U)		39	58
Fort Cochin Municipal	(U)		1	2
Mattancherry Municipal	(U)		17	39
KOTTAYAM DISTRICT		**T**	**1,749**	**3,258**
		R	**1,547**	**2,908**
		U	**202**	**350**
Vaikom taluk		T	1,521	2,774
		R	1,319	2,424
		U	202	350
Chempu	(R)		408	775
Vaikom	(R)		263	575
Vechoor	(R)		488	811
Thalayazham	(R)		160	263
Vaikom Municipal	(U)		202	350
Kottayam taluk		T	228	484
		R	228	484
		U	..	..
Kumarakam	(R)		216	463
Thiruvarppu	(R)		11	19
Kottayam	(R)		1	2
ALLEPPEY DISTRICT		**T**	**30,573**	**52,529**
		R	**26,193**	**45,152**
		U	**4,380**	**7,377**
Shertalai taluk		T	20,095	34,300
		R	17,348	29,407
		U	2,747	4,893
Aroor	(R)		1,387	2,629
Thuravur Vadakku	(R)		1,484	2,279
Thuravur Thekku	(R)		1,061	1,747
Vayalar Mekku	(R)		3,264	5,699
Shertalai North	(R)		952	1,201
Kokkothamangalam	(R)		679	1,268
Shertalai South	(R)		2,006	3,203
Mararikkulam Vadakku	(R)		2,465	4,359
Thannermukkam Thekku	(R)		2,049	3,562
Thannermukkam Vadakku	(R)		2,001	3,460
Shertalai Municipal	(U)		2,747	4,893
Ambalapuzha taluk		T	7,078	10,991
		R	5,620	8,829
		U	1,458	2.162
Mararikulam South	(R)		1,902	2,804
Aryad North	(R)		1,739	2,812
Aryad South	(R)		809	1,232
Punnapra	(R)		936	1,520
Ambalapuzha	(R)		234	461
Alleppey Municipal	(U)		1,458	2,162
Thiruvalla taluk		T	4	5
		R	4	5
		U	..	..
Kaviyoor	(R)		1	1
Peringara	(R)		3	4
Chengannur taluk		T	38	75
		R	38	75
		U	..	..
Aranmula	(R)		3	3
Mulakuzha	(R)		1	1
Kurattisseri	(R)		3	4
Mannar	(R)		16	32
Venmoni	(R)		3	7
Kulanada	(R)		12	28
Karthigapally taluk		T	3,346	7,133
		R	3,171	6,811
		U	175	322
Karuvatta	(R)		52	116
Trikkunnapuzha	(R)		460	1,224
Kumarapuram	(R)		308	711
Karthigapally	(R)		323	787
Arattupuzha	(R)		405	902
Chengoli	(R)		14	35
Kandalloor	(R)		511	961
Keerikad	(R)		15	29
Puthupally	(R)		1,001	1,844
Muthukulam	(R)		82	202
Kayamkulam Municipal	(U)		175	322
Mavelikkara taluk		T	12	25
		R	12	25
		U	..	..

TABLE II-*concld.*

State/District/Taluk/ Village/Town			No. of units	No. of persons
1			2	3
Triperumthura	(R)		5	10
Chennithala	(R)		7	15
QUILON DISTRICT		**T**	**8,006**	**14,663**
		R	**7,963**	**14,553**
		U	**43**	**110**
Kunnathur taluk		T	42	82
		R	42	82
		U	..	..
Poruvazhi	(R)		16	25
West Kallada	(R)		26	57
Karunagappally taluk		T	7,462	13,232
		R	7,462	13,232
		U	..	..
Perunad	(R)		1,595	2,836
Krishnapuram	(R)		54	91
Thodiyur	(R)		132	175
Kulasekharapuram	(R)		1,408	2,464
Karunagapally	(R)		1,775	3,122
Panmana	(R)		1,121	1,732
Chavara	(R)		707	1,354
Thekkumbhagom	(R)		375	979
Thevalakara	(R)		282	460
Mynagapally	(R)		13	19
Quilon taluk		T	490	1,334
		R	447	1,224
		U	43	110
Munro Island	(R)		54	167
East Kallada	(R)		38	98
Kottamkara	(R)		1	4
Perinad	(R)		80	230
Thrikkaruva	(R)		50	158
Thrikadavoor	(R)		47	131
Quilon	(R)		152	392
Poothakkulam	(R)		25	44
Kilikollur	(U)		21	53
Quilon Municipal	(U)		22	57
Kottarakara taluk		T	12	15
		R	12	15
		U	..	..
Ezhukone	(R)		9	9
Ittiva	(R)		3	6
TRIVANDRUM DISTRICT		**T**	**545**	**1,445**
		R	**490**	**1,256**
		U	**55**	**189**
Chirayinkil taluk		T	179	467
		R	179	467
		U	..	..
Varkala	(R)		9	17
Vettoor-Cherunniyoor	(R)		70	185
Kadakkavoor	(R)		77	191
Azhoor	(R)		23	74
Trivandrum taluk		T	212	613
		R	157	424
		U	55	189
Veiloor	(R)		8	16
Thiruvallam	(R)		149	408
Kadinamkulam	(U)		29	98
Muttathura	(U)		26	91
Neyyattinkara taluk		T	154	365
		R	154	365
		U	..	..
Kottukal	(R)		154	365

Table III

UNITS OF HOUSEHOLD INDUSTRY IN IVORY CARVING ENGAGING LESS THAN FIVE WORKERS, 1961

State/District/Taluk/ Village/Town		No. of units	No. of persons
1		2	3
KERALA STATE	**T**	**51**	**82**
	R	**1**	**1**
	U	**50**	**81**
TRICHUR DISTRICT	**T**	**3**	**5**
	R	..	..
	U	**3**	**5**
Trichur taluk	T	3	5
	R	..	..
	U	3	5
Trichur Municipal (U)		3	5
ERNAKULAM DISTRICT	**T**	**2**	**4**
	R	..	..
	U	**2**	**4**
Kanayannur Taluk	T	2	4
	R	..	..
	U	2	4
Ernakulam Municipal (U)		2	4
ALLEPPEY DISTRICT	**T**	**1**	**1**
	R	**1**	**1**
	U	..	..
Shertalai taluk	T	1	1
	R	1	1
	U	..	..
Vayalar mekku (R)		1	1
TRIVANDRUM DISTRICT	**T**	**45**	**72**
	R	..	..
	U	**45**	**72**
Trivandrum taluk	T	45	72
	R	..	..
	U	45	72
Katakampally (U)		3	7
Trivandrum Corporation (U)		42	65

Table IV

UNITS OF HOUSEHOLD INDUSTRY IN KORA GRASS MATS ENGAGING LESS THAN FIVE WORKERS, 1961

State/District/Taluk/ Village/Town			No. of units	No. of persons
1			2	3
KERALA STATE		T	**242**	**477**
		R	**183**	**375**
		U	**59**	**102**
PALGHAT DISTRICT		T	**235**	**458**
		R	**176**	**356**
		U	**59**	**102**
Ottapalam taluk		T	33	66
		R	33	66
		U	..	..
Karimpuzha	(R)		33	66
Palghat taluk		T	35	52
		R	5	12
		U	30	40
Peruvemba	(R)		5	12
Palghat Municipal	(U)		30	40
Chittur taluk		T	167	340
		R	138	278
		U	29	62
Kozhinjampara	(R)		39	72
Vadavannur	(R)		52	109
Muthalamada	(R)		45	93
Pattancherry	(R)		2	4
Chittur-Thathamangalam Municipal	(U)		29	62
TRICHUR DISTRICT		T	**7**	**19**
		R	**7**	**19**
		U	..	..
Talapilly taluk		T	7	19
		R	7	19
		U	..	..
Killimangalam	(R)		7	19

Table V

UNITS OF HOUSEHOLD INDUSTRY IN COCOANUT SHELL WARES ENGAGING LESS THAN FIVE WORKERS, 1961

State/District/Taluk/ Village/Town		No. of units	No. of persons
1		2	3
KERALA STATE	**T**	**1**	**4**
	R	..	..
	U	**1**	**4**
ERNAKULAM DISTRICT	**T**	**1**	**4**
	R	..	..
	U	**1**	**4**
Parur taluk	T	1	4
	R	..	..
	U	1	4
Parur Municipal	(U)	1	4

Table VI

UNITS OF HOUSEHOLD INDUSTRY IN LAPIDARY WORK ENGAGING LESS THAN FIVE WORKERS, 1961

State/District/Taluk/ Village/Town		No. of units	No. of persons
1		2	3
KERALA STATE	**T**	**364**	**538**
	R	**330**	**491**
	U	**34**	**47**
TRICHUR DISTRICT	**T**	**364**	**538**
	R	**330**	**491**
	U	**34**	**47**
Trichur taluk	T	281	409
	R	247	362
	U	34	47
Avanur	(R)	8	13
Kilannur	(R)	3	3
Viyyur	(R)	4	9
Ayyanthole	(R)	2	5
Koorkanchery	(R)	10	16
Chiyyaram	(R)	23	42
Ollur	(R)	58	97
Nadathara	(R)	42	48
Nettissery	(R)	3	3
Ollukkara	(R)	22	27
Kanimangalam	(R)	33	46
Manakodi	(R)	1	1
Kodannur	(R)	3	4
Venginisseri	(R)	7	10
Oorakam	(R)	2	2
Vallachira	(R)	5	8
Marathakara	(R)	21	28
Trichur Municipal	(U)	34	47
Mukundapuram taluk	T	83	129
	R	83	129
	U	..	..
Nenmanikara	(R)	3	4
Thoravu	(R)	76	118
Kodakara	(R)	4	7

Table VII

UNITS OF HOUSEHOLD INDUSTRY IN RATTAN WORKS ENGAGING LESS THAN FIVE WORKERS, 1961

State/District/Taluk/ Village/Town		No. of units	No. of persons
1		2	3
KERALA STATE	**T**	**68**	**129**
	R	**27**	**50**
	U	**41**	**79**
CANNANORE DISTRICT	**T**	**2**	**3**
	R	..	..
	U	**2**	**3**
Tellicherry taluk	T	2	3
	R	..	..
	U	2	3
Tellicherry Municipal (U)		2	3
TRICHUR DISTRICT	**T**	**3**	**6**
	R	..	..
	U	**3**	**6**
Mukundapuram taluk	T	3	6
	R	..	..
	U	3	6
Chalakudy (U)		3	6
ERNAKULAM DISTRICT	**T**	**3**	**3**
	R	**2**	**2**
	U	**1**	**1**
Kanayannur taluk	T	1	1
	R	..	..
	U	1	1
Ernakulam Municipal (U)		1	1
Thodupuzha taluk	T	2	2
	R	2	2
	U	..	..
Thodupuzha (R)		2	2
KOTTAYAM DISTRICT	**T**	**9**	**11**
	R	**3**	**5**
	U	**6**	**6**
Kottayam taluk	T	4	6
	R	2	4
	U	2	2
Panachikad (R)		2	4
Kottayam Municipal (U)		2	2
Changanacherry taluk	T	4	4
	R	..	..
	U	4	4
Changanacherry Municipal (U)		4	4
Kanjirappally taluk	T	1	1
	R	1	1
	U	..	..
Chirakadavu (R)		1	1
ALLEPPEY DISTRICT	**T**	**24**	**63**
	R	**6**	**13**
	U	**18**	**50**
Ambalapuzha taluk	T	16	44
	R	..	..
	U	16	44
Alleppey Municipal (U)		16	44
Thiruvalla taluk	T	2	4
	R	1	2
	U	1	2
Koipuram (R)		1	2
Thiruvalla Municipal (U)		1	2
Chengannur taluk	T	1	4
	R	..	..
	U	1	4
Chengannur (U)		1	4
Mavelikara taluk	T	5	11
	R	5	11
	U	..	..
Kannamangalam (R)		5	11
QUILON DISTRICT	**T**	**14**	**26**
	R	**13**	**24**
	U	**1**	**2**

TABLE VII–*concld.*

State/District/Taluk/ Village/Town			No. of units	No. of persons
1			2	3
Pathanamthitta taluk		T	1	2
		R	1	2
		U	..	..
Ranni	(R)		1	2
Quilon taluk		T	1	2
		R	..	..
		U	1	2
Quilon Municipal	(U)		1	2
Kottarakara taluk		T	8	11
		R	8	11
		U	..	..
Ittiva	(R)		8	11
Pathanapuram taluk		T	4	11
		R	4	11
		U	..	..
Kulathupuzha	(R)		2	8
Yeroor	(R)		2	3
TRIVANDRUM DISTRICT		**T**	**13**	**17**
		R	**3**	**6**
		U	**10**	**11**
Chirayinkil taluk		T	2	4
		R	1	3
		U	1	1
Varkala	(R)		1	3
Attingal Municipal	(U)		1	1
Trivandrum taluk		T	11	13
		R	2	3
		U	9	10
Pallipuram	(R)		1	1
Kazhakuttom Menamkulam	(R)		1	2
Trivandrum Corporation	(U)		9	10

Table VIII

UNITS OF HOUSEHOLD INDUSTRY IN REED MATS ENGAGING LESS THAN FIVE WORKERS, 1961

State/District/Taluk/ Village/Town			No. of units	No. of persons
1			2	3
KERALA STATE		**T**	**1,129**	**2,431**
		R	**994**	**2,131**
		U	**135**	**300**
CANNANORE DISTRICT		**T**	**18**	**35**
		R	**2**	**6**
		U	**16**	**29**
Hosdrug taluk		T	4	9
		R	..	..
		U	4	9
Nileshwar II	(U)		4	9
Taliparamba taluk		T	1	1
		R	..	..
		U	1	1
Taliparamba	(U)		1	1
Cannanore taluk		T	11	19
		R	..	..
		U	11	19
Cannanore Municipal	(U)		11	19
North Wynad taluk		T	2	6
		R	2	6
		U	..	..
Vemom	(R)		2	6
KOZHIKODE DISTRICT		**T**	**15**	**41**
		R	**15**	**41**
		U	..	..
Ernad taluk		T	15	41
		R	15	41
		U	..	..
Wandur	(R)		15	41
PALGHAT DISTRICT		**T**	**14**	**41**
		R	**14**	**41**
		U	..	..

TABLE VIII-*concld.*

State/District/Taluk/ Village/Town			No. of units	No. of persons
1			2	3
Palghat taluk		T	3	10
		R	3	10
		U	..	..
Peruvemba	(R)		3	10
Alathur taluk		T	11	31
		R	11	31
		U	..	..
Manhapra	(R)		11	31
TRICHUR DISTRICT		**T**	**77**	**188**
		R	**14**	**25**
		U	**63**	**163**
Talappilly taluk		T	33	89
		R	..	..
		U	33	89
Wadakkancherry	(U)		33	89
Mukundapuram taluk		T	44	99
		R	14	25
		U	30	74
Chalakudy	(U)		30	74
Muringur Thekkumuri	(R)		14	25
ERNAKULAM DISTRICT		**T**	**555**	**1,259**
		R	**542**	**1,228**
		U	**13**	**31**
Alwaye taluk		T	555	1,259
		R	542	1,228
		U	13	31
Kothakulangara South	(R)		542	1,228
Alwaye Municipal	(U)		13	31
KOTTAYAM DISTRICT		**T**	**34**	**49**
		R	**16**	**21**
		U	**18**	**28**
Kottayam taluk		T	16	19
		R	3	3
		U	13	16
Panachikad	(R)		3	3
Kottayam Municipal	(U)		13	16
Kanjirappally taluk		T	18	30
		R	13	18
		U	5	12
Chirakkadavu	(R)		13	18
Mundakkayam	(U)		5	12
ALLEPPEY DISTRICT		**T**	**62**	**110**
		R	**37**	**61**
		U	**25**	**49**
Ambalapuzha taluk		T	14	25
		R	..	..
		U	14	25
Alleppey Municipal	(U)		14	25
Thiruvalla taluk		T	11	23
		R	7	14
		U	4	9
Koipuram	(R)		7	14
Thiruvalla Municipal	(U)		4	9
Chengannur taluk		T	37	62
		R	30	47
		U	7	15
Puliyoor	(R)		27	41
Pandanad	(R)		3	6
Chengannur	(U)		7	15
QUILON DISTRICT		**T**	**53**	**94**
		R	**53**	**94**
		U	..	..
Kottarakara taluk		T	5	11
		R	5	11
		U	..	..
Kottarakara	(R)		2	2
Veliyam	(R)		3	9
Pathanapuram taluk		T	48	83
		R	48	83
		U	..	..
Punalur	(R)		48	83
TRIVANDRUM DISTRICT		**T**	**301**	**614**
		R	**301**	**614**
		U	..	..
Neyyattinkara taluk		T	241	492
		R	241	492
		U	..	..
Kulathummal	(R)		138	284
Ottasekharamangalam	(R)		103	208
Nedumangad taluk		T	60	122
		R	60	122
		U	..	..
Nedumangad	(R)		60	122

Table IX

UNITS OF HOUSEHOLD INDUSTRY IN SCREW-PINE MATS ENGAGING LESS THAN FIVE WORKERS, 1961

State/District/Taluk/ Village/Town			No. of units	No. of persons
1			2	3
KERALA STATE		T	**1,830**	**3,102**
		R	**1,830**	**3,102**
		U	..	..
TRICHUR DISTRICT		T	**577**	**1,031**
		R	**577**	**1,031**
		U	..	..
Chowghat taluk		T	30	47
		R	30	47
		U	..	..
Thalikulam	(R)		30	47
Cranganore taluk		T	547	984
		R	547	984
		U	..	..
Lokamaleswaram	(R)		439	706
Azhikode	(R)		89	257
Methala	(R)		16	17
Poyya	(R)		3	4
ALLEPPEY DISTRICT		T	**348**	**667**
		R	**348**	**667**
		U	..	..
Mavelikkara taluk		T	348	667
		R	348	667
		U	..	..
Vallikunnam	(R)		348	667
QUILON DISTRICT		T	**905**	**1,404**
		R	**905**	**1,404**
		U	..	..
Karunagappally taluk		T	905	1,404
		R	905	1,404
		U	..	..
Perunad	(R)		47	73
Thazhava	(R)		858	1,331

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GLOSSARY

Agamas — A *tantra* or work inculcating the mystical worship of Siva and Sakti

Agnipurana — One of the eighteen *Puranas*. A *Purana* is a work which treats of five topics, viz, (1) the creation of the universe, (2) its destruction and renovation, (3) the genealogy of the gods and patriarchs, (4) the reigns of the Manus, forming the periods called Manwantaras and (5) the history of the Solar and Lunar dynasties. In the *Puranas*, the formless and fleeting religious conceptions of the Vedas are reduced to a fixed body of definite mythology

Amarasimha — The author of Amarakosa, a Sanskrit dictionary

Angula — A finger's breadth, a measure equal to eight barley corns

Arakkillam — The lac house constructed at the instance of the Kauravas with a view to destroying their rivals, the Pandavas

Aranyakas — A subdivision of the Vedas

Archana — The worship of images

Ardhapadmasana — A pose in meditation

Arjuna — *Terminalia arjuna*, a tree

Asana — *Terminalia tomentosa*, a tree

Ashtamangalyam — This consists of eight articles symbolical of marriage or *mangalyam*, carried usually on a large metal plate during marriages or offerings to Goddess Bhagavathi in the temples. These articles are rice, paddy, the tender leaves of the cocoanut tree, an arrow, a looking glass (metal mirror), a well washed cloth, burning fire (usually a small cocoanut oil or ghee light) and a small round wooden box called *cheppu* made in a particular form

Asoka Vana — A grove of Asoka trees (*Jonesia asoka*)

Asuras — The demons; the enemies of the gods

Athachamayam — A celebration in Cochin and Kozhikode held on the asterism *Atham* in the month of *Chingom* (Aug.–Sept.). The main feature of the celebration is the procession of the Rajahs with all their paraphernalia.

Atharva Veda — The term Veda is defined as 'knowledge' or (sacred) 'lore' embracing a body of writings the origin of which is ascribed to divine revelation. These sacred canons are divided into four coordinate collections likewise called Vedas. These

	are (1) The Rig Veda, the lore of hymns (2) The Yajur Veda, tha lore of prayer (3) The Sama Veda, the lore of chants (4) The Atharava Veda or the lore of Atharvan who was appointed by Brahma to protect inferior beings
Bali–beras	The movable images employed in relation to the daily services for the purpose of offering *bali* to the *parivaras*
Bharathanatya	A type of classical dance
Bhodisattvas	The word in earlier times was synonymous with *Sangha* or the Holy Order and every Buddhist of the *Mahayana* faith was entitled to be called a *Bodhisattva*. But later only the great savants of the *Mahayana* faith went by that name.
Brahmanas	The *Brahmanas* are parts of the Vedas written in prose and are devoted to pure teaching of the religion by describing the customs, sacrifices and ceremonies to the people.
Brihat Samhita	An astrological work by Varaha-mihira
Chakyar	A man of the *Ambalavasi* caste whose duty is to recite stories from the *Puranas* to large gatherings, especially during temple festivals in Kerala
Chakyar Koothu	The recitation of puranic stories by the *Chakyar* during temple festivals
Chegos	A corruption of Sevaka, i.e. *Chogans* or *Chovans* (Izhuvas)
Cheria Uli	Small chisel
Chogans	See *Chegos* supra
Cholas	A South Indian dynasty
Chuvappu Uthariyam	Red scarf worn by *Kathakali* characters
Cire–perdue	Lost wax. cire—(French) Bees wax, Perdue—lost (from perdre (Fr)—to lose)
Darbha grass	A kind of long grass used by the Brahmans in all religious rites
Davani	Half–sari
Devas	The gods of the Hindus
Dhruva–beras	The immovable images are commonly known as the *Dhruva–beras* and are generally made of stone and permanently fixed in the central shrine
Dhyanamudra	A pose in meditation
Gada	Club
Gajahasta pose	A pose of the hand in which the arm and hand are thrown forward and held straight like the trunk of an elephant
Gopa ladies	The milkmaids of a pastoral locality, Gokulam, on the banks of the Yamuna near Mathura, with whom Lord Krishna had sported while he was a youth
Himavan	The great Himalayas
Jatamakuta	Twists of matted hair done into the form of a tall cap
Kadi–sarkara	A paste made of molasses,

	mustard etc. of which images are made
Kamandalu	Water-pot of devotees. This is an ordinary vessel to hold water and is of different shapes. It has, in some cases, a spout
Kamasutra	A treatise on art of love by Vatsyayana
Kautuka–beras	The movable images that are meant for *archana*
Kataka pose	The pose of the hand wherein the tips of the fingers are loosely applied to the thumb so as to form a ring or to resemble a lion's ear
Kayal porombokes	Backwater area belonging to Government
Kettukalyanam	A ceremony of tying the *tali* (marriage badge) on a girl before she attained puberty, but which did not amount to real marriage. This custom was prevailing in certain Hindu communities
Kiritamakuta	Conical cap
Kootiyattam	Sanskrit dramas staged in temples by *Chakyars*, Nambiars and Nangiars. (The females of the Nambiar community are called Nangiars)
Krishnanattam	A pantomime originated by one of the Zamorins of Kozhikode. Eight stories pertaining to the life of Lord Krishna are enacted in this dance drama. The only troupe maintained by the Zamorin was handed over to the Guruvayur temple some time back.
Krishnasila	The black stones
Lunki	A checkered cloth used aslo in cloth
Mahabhagavatha	One of the *Puranas* which dwells on the stories of Vishnu
Mahabharata	The great epic written by Vyasa
Makarakundala	Ear ornaments made in the form of mythical *makara* (capricornus)
Matsya Purana	One of the eighteen *Puranas*
Mridangam	Tabor
Mutiyeru	A ritualistic folk-play staged to propitiate Goddess Kali. The theme of the drama is the killing of the demon Darika by Kali and it is staged by the members of a community called Kuruppu. In certain parts of South Kerala, it is known by the name *Mutiyetuppu.*
Onam	The popular festival of Kerala celebrated in the month of *Chingom* (August–September), the season for the chief harvest, commemorating the golden age of Mahabali, a legendary ruler of Kerala who is supposed to revisit Kerala on that day
Panasa	*Artocarpus integrifolia*
Panthi	A row, especially of feast-guests
Parsadas	Attendants
Pralaya	The great Deluge
Raga	Tune in music

Ratt	A spinning wheel
Rig Veda	See Atharva Veda supra
Rupee weight	Ten grams
Samavarthanam	The ceremony performed at the close of the student period of the Brahman, when the *Brahmachari* or student gives up his austerities of a bachelor's life
Sama Veda	See Atharva Veda supra
Samhitas	A collection of Vedic hymns forming a subdivision of the Vedas
Sarala	A species of pine tree *(Pinus longifolia)*
Sinsapa	The tree *Dalbergia sissoo*
Snapaka beras	The movable images employed in relation to the daily services for bathing
Soman	A silk or cotton cloth of 4½ yards worn by certain Hindus like Brahmans on religious occasions
Sreevatsa	A mark on the breast of Vishnu
Stupa	Pinnacle
Sudarsana	The fiery discus of Vishnu
Sutra	Principles of grammar, philosophy and other allied subjects treated in a very condensed form in Sanskrit
Tali	Marriage badge tied round the neck of the girl
Tamasik	Vicious
Thaikottaram	The first building
Thakli	Spindle
Thazhappai	Screw-pine mat
Thola	11.664 grams
Thondu	A cocoanut husk
Thripundra	A sectarial mark on the forehead
Thuttu	A loop of 105 yards of cotton
Tirayattam	A ritualistic folk-play of North Malabar in which the members of certain communities like Malayan, Vannan etc. dress like deities (mostly low-cast deities like Kuttichathan, Chamundi etc.) and perform dance
Tiyattu	A ritualistic folk-play staged to propitiate God Sastha and Goddess Kali. The *Tiyattu* pertaining to Sastha is called Ayyappan *Tiyattu* whereas the one performed in honour of Kali is called Kali *Tiyattu*
Upanayanam	Literally means "to lead near". The ceremony of wearing the sacred thread by the Brahmans
Upanishads	The *Upanishads* (literally, something that underlies) are portions of the Vedas that are argumentative and philosophical in their nature. They form the basis of all the subsequent philosophical speculations of the Hindus.
Ushnisha	Top-knot
Utsava beras	The movable images that are taken out on festive occasions in procession
Valmiki Ramayana	The great epic written by Valmiki
Varikka	The jack tree can be broadly classified into *Varikka* and *Pazham*, the

	fruit of the latter having soft and flabby pippins and the former with less flaby but sweeter pippins
Vattezhuthu	An archaic script once prevalent in South India
Veena	A stringed musical instrument
Veeralipai	A fine variety of coloured Kora grass mat
Yaga	A Hindu religious sacrifice
Yajurveda	See Atharva Veda supra
Yakshi	An inferior divinity worshipped by people of the lower order
Yali	Unicorn, a fabulous animal, represented as a lion with the trunk of an elephant
Yathrakali	A kind of entertainment, once popular with the Nambuthiris
Yavanan	A Greek or other foreigner
Yogadandu	The staff of Hindu ascetics

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KARUR—Shri V. Nagaraja Rao, 26, Srinivasapuram .. .. (Rest.)

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KOLHAPUR—Maharashtra Granth Bhandar, Mahadwar Road (Rest.)

KOTA—Kota Book Depot .. .. (Rest.)

KUMTA—S. V. Kamat, Booksellers & Stationers (N. Kanara) (Reg.)

LUCKNOW—
1 Soochna Sahitya Depot (State Book Depot)
2 Balkrishna Book Co. Ltd., Hazratganj.. .. .. .. (Reg.)
3 British Book Depot, 84, Hazratganj .. .. .. (Reg.)
4 Ram Advani, Hazratganj, P, B. 154 .. .. .. (Reg.)
5 Universal Publishers (P.) L d., Hazratganj .. .. .. (Reg.)

Eastern Book Co., Lalbagh Road .. .. .. (Reg.)
7 Civil & Military Educational Stores, 106/B Sadar Bazar .. (Rest.)
8 Acquarium Supply Co., 213, Faizabad Road .. .. (Rest.)
9 Law Book Mart, Amin-Ud-Daula Park .. .. .. (Rest.)

LUDHIANA—

1 Lyall Book Depot, Chaura Bazar .. .. (Reg.)
2 Mohindra Brothers, Katcheri Road .. .. .. (Rest.)
3 Nanda Stationery Bhandar, Pustak Bazar .. .. (Rest.)
4 The Pharmacy News, Pindi Street .. .. .. (Rest.)

MADRAS—

1 Supdt., Govt. Press, Mount Road
2 Account Test Institute, P. O. 760 Egmore .. .. (Reg.)
3 C. Subbiah Chetty & Co., Triplicane .. .. .. (Reg.)
4 K. Krishnamurty, Post Box 384 .. .. (Reg.)
5 Presidency Book Supplies, 8, Pycrofts Road, Triplicane .. (Reg.)
6 P. Vardhachary & Co., 8, Linghi Chetty Street .. .. (Reg.)
7 Palani Parchuram, 3, Pycrofts Road, Triplicane .. .. (Reg.)
8 NCBH Private Ltd., 199, Mount Road .. .. .. (Rest.)
9 V. Sadanand, The Personal Bookshop, 10, Congress Building, 111, Mount Road .. .. (Rest.)

MADURAI—

1 Oriental Book House, 258, West Masi Street .. .. (Reg.)
2 Vivekananda Press, 48, West Masi Street .. .. (Reg.)

MANDYA SUGAR TOWN—K. N. Narimhe Gowda & Sons .. (Rest.)

MANGALORE—U. R. Shenoye Sons, Car Street, P. Box 128 .. (Reg.)

MANJESHWAR—Mukenda Krishna Nayak .. .. .. (Rest.)

MATHURA—Rath & Co., Tilohi Building, Bengali Ghat .. (Rest.)

MEERUT—

1 Prakash Educational Stores, Subhas Bazar .. .. (Reg.)
2 Hind Chitra Press, West Kutchery Road .. .. (Reg.)
3 Loyal Book Depot, Chhipi Tank .. .. (Reg.)
4 Bharat Educational Stores, Chhippi Tank .. .. (Rest.)
5 Universal Book Depot, Booksellers & News Agents .. (Rest.)

MONGHYR—Anusandhan, Minerva Press Building .. .. (Rest.)

MUSSOORIE—

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2 Hind Traders .. .. (Rest.)

MUZAFFARNAGAR—

1 Mittal & Co., 85-C, New Mandi .. .. (Rest.)
2 B. S. Jain & Co., 71, Abupura .. .. (Rest.)

MUZAFFARPUR—

1 Scientific & Educational Supply Syndicate .. .. (Reg.)
2 Legal Corner, Tikmanio House, Amgola Road .. .. (Rest.)
3 Tirhut Book Depot .. .. (Rest.)

MYSORE—

1 H. Venkataramiah & Sons, New Statue Circle .. .. (Reg.)
2 Peoples Book House, Opp. Jagan Mohan Palace .. (Reg.)
3 Geeta Book House, Booksellers & Publishers Krishnamurthi-puram .. .. (Rest.)
4 News Paper House, Lansdowne Building .. .. (Rest.)
5 Indian Mercentile Corporation, Toy Palace, Ramvilas .. (Rest.)

NADIAD—R. S. Desay, Station Road .. .. .. (Rest.)

NAGPUR—

1 Supdt., Govt. Press & Book Depot
2 Western Book Depot, Residency Road .. .. .. (Reg.)
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NAINITAL—Coural Book Depot, Bara Bazar .. .. (Rest.)

NANDED—

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2 Hindustan General Stores, Paper & Stationery Merchants P. B. No. 51 .. .. (Rest.)
3 Sanjoy Book Agency, Vazirabad .. .. (Rest.)

NEW DELHI—

1 Amrit Book Co., Connaught Circus .. .. .. (Reg.)
2 Bhawani & Sons, 8 F, Connaught Place .. .. .. (Reg.)
3 Central News Agency, 23/90, Connaught Circus .. (Reg.)
4 Empire Book Depot, 278, Aliganj .. .. .. (Reg.)
5 English Book Stores, 7-L, Connaught Circus P. O. B. 328 .. (Reg.)
6 Faqir Chand & Sons, 15-A Khan Market .. .. (Reg.)
7 Jain Book Agency, C-9, Prem House, Connaught Place .. (Reg.)
8 Oxford Book & Stationery Co., Scindia House .. .. (Reg.)
9 Ram Krishna & Sons (of Lahore) 16/B, Connaught Place (Reg.)
10 Sikh Publishing House, 7-C, Connaught Place .. .. (Reg.)
11 Suneja Book Centre, 24/90, Connaught Circus .. .. (Reg.)
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13 Jayana Book Depot, Chhaparwala Kuan, Karol Bagh .. (Reg.)
14 Navayug Traders, Desh Bandhu Gupta Road, Dev Nagar (Reg.)
15 Saraswati Book Depot, 15, Lady Harding Road .. .. (Reg.)
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20 Hindi Book House, 82, Janpath .. .. (Rest.)
21 People Publishing House (P:) Ltd., Rani Jhansi Road .. (Reg.)
22 R. K. Publishers, 23, Beadon Pura, Karol Bagh .. .. (Rest.)
23 Sharma Bros, 17, New Market, Moti Nagar .. .. (Reg.)
24 Aapki Dukan, 5/5777, Dev Nagar .. .. .. (Rest.)
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30 Sant Ram Booksellers, 16, New Municipal Market Lody Colony .. .. (Rest.)

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1 Singhals Book House P. O. B. 70 Near the Church .. (Rest.)
2 Sagoon Gaydev Dhoud, Bookesllers, 5-7 Rua, 3 Idc Jameria (Rest.)

PATHANKOT—The Krishna Book Depot, Main Bazar .. (Rest.)

PATIALA—

1 Supdt., Bhupendra State Press
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PATNA—

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2 J. N. P. Agarwal & Co., Padri-Ki-Haveli Raghunath Bhawan (Reg.)
3 Luxmi Trading Co., Padri-ki-Haveli .. .. .. (Reg.)
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SECUNDERABAD—Hindustan Diary Publishers, Market Street (Reg.)

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SIMLA—

1 Supdt., Himachal Pradesh Govt.
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3 The New Book Depot, 79, The Mall .. .. .. (Reg.)

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2 Chapla Bookstall, P. B. No. 1 .. .. .. (Rest.)

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SURAT—Shri Gajanan Pustakalaya, Tower Road .. .. (Reg.)

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2 S. Krishnaswami & Co., 35, Subhash Chander Bose Road (Reg.)
3 Palaniappa Bros. .. .. (Rest.)

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1 International Book Depot, Main Road .. .. (Reg.)
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UDAIPUR—

1 Jagdish & Co., Inside Surajapole .. .. (Rest.)
2 Book Centre, Maharana, Bhopal Consumers, Co-op. Society Ltd. .. .. (Rest.)

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2 Gahlot Bros., K. E. M. Road, Bikaner
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1 S/S. Education Enterprise Private Ltd., Kathumandu (Nepal)
2 S/S. Aktie Bologat, C. E. Fritzes Kungl, Hovobokhandel, Fredsgation-2 Box 1656, Stockholm-16 (Sweden)
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