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CENSUS OF INDIA 1961

VOLUME V-PART VII-A

SELECTED CRAFTS OF

GUJARAT

4. IVORY WORK OF MAHUVA
5. PADLOCK MAKING AT SARVA
6. SCALE MAKING OF SAVARKUNDLA
7. PERFUMERY AT PALANPUR
8. CROCHET WORK OF JAMNAGAR

R. K. TRIVEDI

Superintendent of Census Operations, Gujarat

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CENSUS OF INDIA 1961

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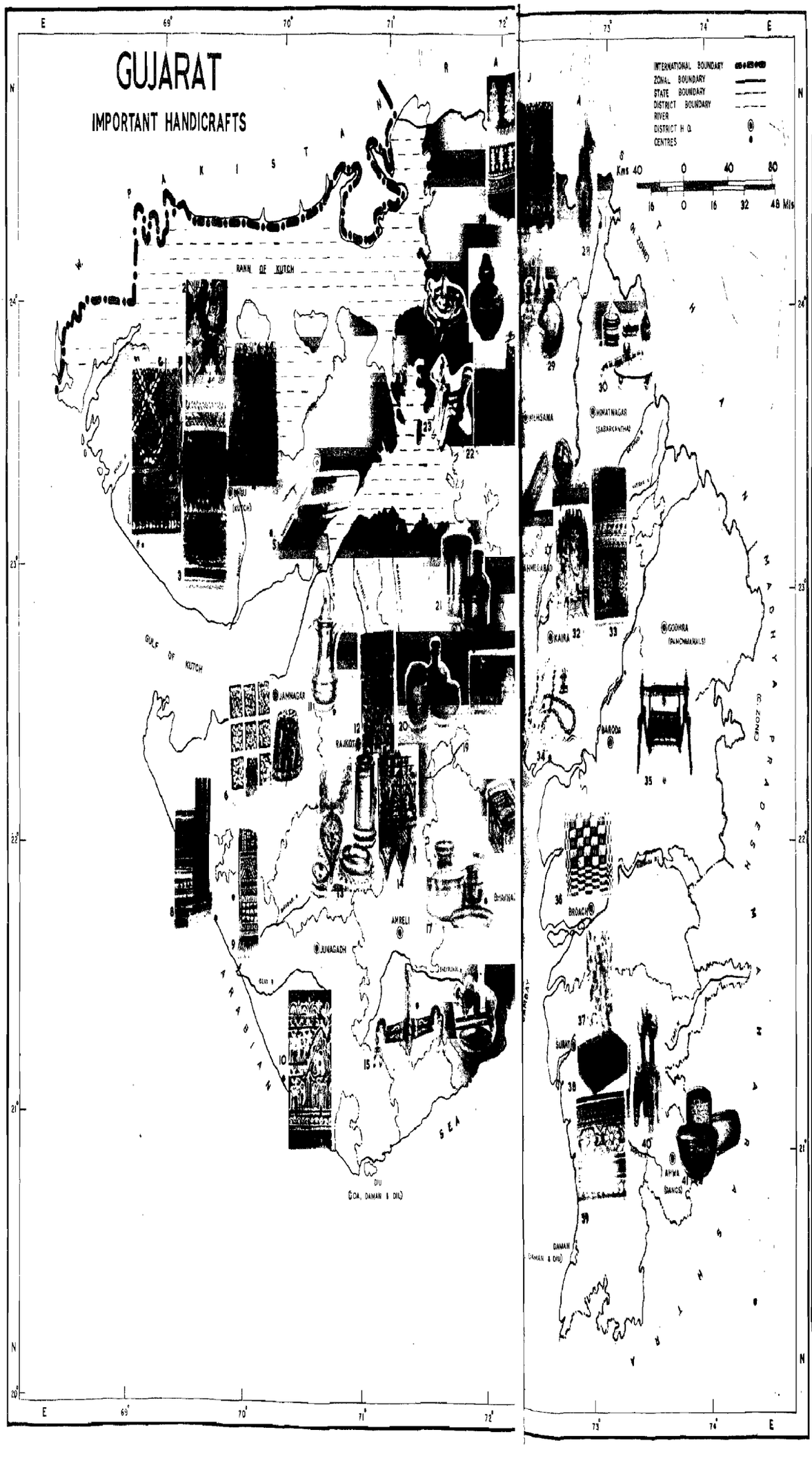
GUJARAT

IMPORTANT HANDICRAFTS



LEGEND

NO.	CRAFT	CENTRE	DISTRICT
1	2	3	4
1	TIE AND DYE BANDANI (SARI)	BHUJ	KUTCH
2	EMBROIDERED ATLAS SILK SKIRT	BHUJ	KUTCH
3	EMBROIDERED COTTON SKIRT	DHANETI	KUTCH
4	EMBROIDERED COVER	KUTCH	KUTCH
5	PENKNIVES, NUTCRACKERS AND SCISSORS	ANJAR	KUTCH
6	TIED AND DYED *GHARCHOLA* (WEDDING SARI)	JAMNAGAR	JAMNAGAR
7	CROCHET WORK (BORA CAP)	JAMNAGAR	JAMNAGAR
8	WOOLLEN BLANKET	PORBANDER	JUNAGADH
9	WOVEN WOOLLEN TIED AND DYED *CAMBAL*	RANAVAV	JUNAGADH
10	SHISHADHAR MIRRORED EMBROIDERED SKIRT	CHORVAD	JUNAGADH
11	CHASED SILVER PITCHER	RAJKOT	RAJKOT
12	BEAD WORK—*CHAKLA*	RAJKOT	RAJKOT
13	SILVER ORNAMENTS	RAJKOT	RAJKOT
14	EMBROIDERED *TORAN*	RAJKOT	RAJKOT
15	IRON SCALES	SAVARKUNDLA	BHAVNAGAR
16	LACQUERED TOYS	MAHUVA	BHAVNAGAR
17	BRASS AND COPPERWARES	SIHOR	BHAVNAGAR
18	WOODEN CHEST (*PATARA*)	BHAVNAGAR	BHAVNAGAR
19	WOOLLEN SHAWL CALLED *RAM-RAJ*	SHIANI	SURENDRA-NAGAR
20	POTTERY	THANGADH	SURENDRA-NAGAR
21	BRASS AND COPPERWARES	WADHWAN—JORAVARNAGAR	SURENDRA-NAGAR
22	*PATOLA*, DOUBLE *IKAT* WOVEN SILK SARI	PATAN	MEHSANA
23-24	*TERRA—COTTA* TOYS	PATAN	MEHSANA
25	BLACK, MOULD-MADE CLAY *SURAHI*	PATAN	MEHSANA
26	MUD RESIST DESIGN, BLOCK PRINTED ON COTTON FABRIC	DEESA	BANASKANTA
27	EMBROIDERED AND TIED AND DYED COTTONWALL HANGING	RAJPUR—DEESA	BANASKANTA
28	*TERRA—COTTA* HORSE AND RIDER	POSHINA	SABARKANTA
29	PERFUMERY	PALANPUR	BANASKANTA
30	LACQUERED WOODEN TOYS	IDAR	SABARKANTA
31	WOOD BLOCKS	PETHAPUR	MEHSANA
32	TEMPLE CLOTH	AHMEDABAD	AHMEDABAD
33	TRADITIONAL MORDANT DYED BLOCK PRINTED *ODHANI*	AHMEDABAD	AHMEDABAD
34	AKIK OR AGATE ARTICLES (HAND TURNED)	CAMBAY	KAIRA
35	LATHE-TURNED LACQUERED CRADLE	SANKHEDA	BARODA
36	HANDLOOM WOVEN (*SUJANI*)	BROACH	BROACH
37	SILK BROCADE OR *TANCHHOI*	SURAT	SURAT
38	MARQUETRY BOX	SURAT	SURAT
39	ZARI SARI BORDER	SURAT	SURAT
40	*TERRA—COTTA* HORSE	VALOD	SURAT
41	CANE AND BAMBOO	KUDIKAS	DANGS

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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 poineer 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 Cooperative 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 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 cooperative activity among them, the extent of dependence upon employers and of wage of 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' purse-strings. Inquiries were to be made about the operation of middlemen and of cooperative 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 enable 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 cooperative 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 scrap the work based on the original short schedule 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 architectual 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 grateful thanks to my colleagues.

NEW DELHI,
JULY 30, 1964.

ASOK MITRA,
Registrar General, India.

PREFACE

Handicrafts have always played a significant role in the life of the people of this land. India is essentially a land of villages where the entire economic structure is based primarily on agriculture supplemented by crafts either as whole or part time activity. Besides producing articles of utility, handicrafts in India have acquired great fame and popularity for their artistic excellence. And Gujarat has been well-known in the country and abroad for its crafts since ages. A special study, therefore, of the selected crafts in this region along with the 1961 Census offered a good scope of finding out what they were in the past and are capable of in present times.

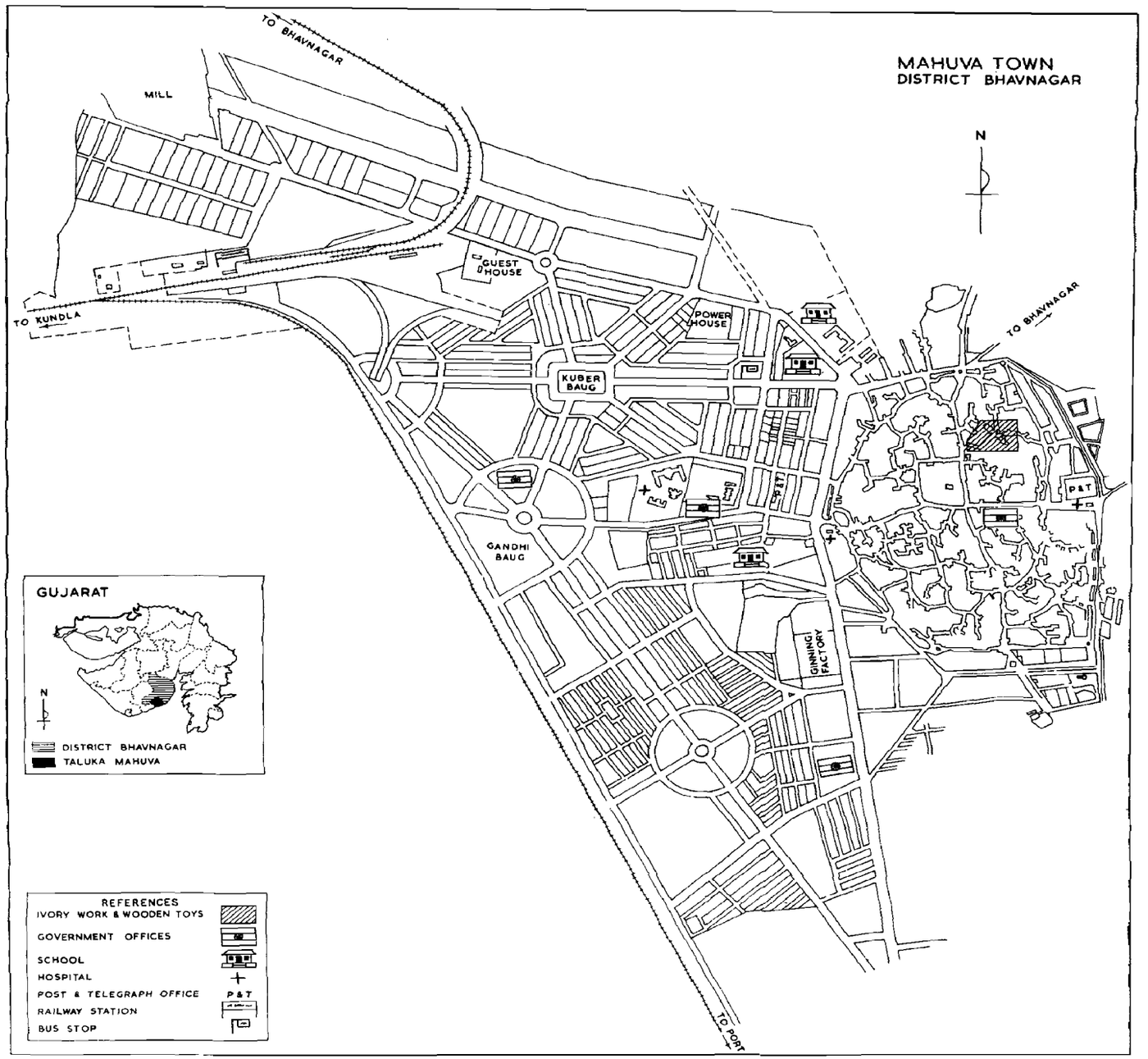
This publication is the fourth in the series of crafts monographs. The three already published earlier are (i) Agate Industry of Cambay, (ii) Wood Carving of Gujarat and (iii) Patara Making at Bhavnagar. The present work contains monographs on five crafts, viz., (i) Ivory Work of Mahuva, (ii) Padlock Making at Sarva, (iii) Scale Making of Savarkundla, (iv) Perfumery at Palanpur and (v) Crochet Work of Jamnagar.

Besides the field staff and other members of the Census Organisation who have contributed to this survey, I must also acknowledge the useful comments offered by Dr. Roy Burman, Officer on Special Duty, while going through the draft monograph as also to Shri Asok Mitra, Registrar General and ex-officio Census Commissioner, India, for his valuable guidance in the organisation of this survey in Gujarat.

R. K. TRIVEDI,
Superintendent of Census Operations,
Gujarat.

AHMEDABAD,
February 9, 1967.

1. IVORY WORK OF MAHUVA


MAHUVA TOWN
DISTRICT BHAVNAGAR
N
TO BHAVNAGAR
MILL
GUEST HOUSE
TO KUNDLA
POWER HOUSE
TO BHAVNAGAR
KUBER BAUG
P&T
GANDHI BAUG
GINNING FACTORY
TO PORT
GUJARAT
N
DISTRICT BHAVNAGAR
TALUKA MAHUVA
REFERENCES
IVORY WORK & WOODEN TOYS
GOVERNMENT OFFICES
SCHOOL
HOSPITAL
POST & TELEGRAPH OFFICE
P&T
RAILWAY STATION
BUS STOP

SECTION I

INTRODUCTION

INTRODUCTION

I.1 TRADITIONAL handicrafts of India are not mere manufacturing industries; they represent a heritage of creative art. They create things of beauty, and the artisans are also artists in their own right, who reveal in their creation their adherance to principles of ancient Indian *Shilpa Shastra*. Ivory craft is a beautiful and delicate art. It requires hard, careful and intelligent labour. The artist turns the lifeless matter into beautiful forms by his gentle and delicate touch.

I.2 Ivory work is an ancient and traditional handicraft of India. Mention of it is found in old scriptures and epics, like the *Vedas*, *Ramayana*, and *Mahabharat*. An inscription at Sanchi (200 B.C.) bears testimony to the fact that a number of craftsmen working in ivory used to reside in Vidisha, modern Besnagar near Gwalior. A Portuguese traveller mentions a chamber in the Vijayanagar palace entirely built of ivory.[1]

"All authorities now agree that ivory-carving was practised in ancient India. The Indian ivory statuette found at Herculaneum and probably dating to the 1st century A.D. and the ivory plaques discovered at Begram (2nd century A.D.), further testify to the antiquity of the craft in India."[2]

I.3 An excellent collection of panels of ivory from the Southern States of India is in the possession of the National Museum of Florence (Italy). The Golden Temple of Amritsar and some palaces of Lahore were beautifully decorated with the carvings in ivory, made by the artisans of Hoshiarpur, during the realm of Maharaja Ranjit Singh.[3] At the beginning of the British rule in India, many beautiful, delicate and durable ivory articles were exported to Europe, America and other Western countries.

"In the not so distant past, the chief sites of ivory-carving were Amritsar, Patiala, Delhi, Banaras, Lucknow, Murshidabad, Surat, Ahmedabad, Balsar, Sattara, Travancore, Vizagapatam, Vizianagram and Mysore, and even today they have a certain importance....Unfortunately, the figure carving in the round of today suggests a certain amount of stiffness and clumsiness of execution and is devoid of the technical freedom and flexibility of the really proficient carver's skill. Sir George Watt has an explanation for the peculiar distortion of form that is generally to be found : 'The figure work is certainly much inferior to the rich tracery and complete perforation practised. It might be spoken of as perspective sculpture that is true to nature when viewed from one position only. All the same it is clever because it is an artistic adaptation to the necessity for economy and the difficulty to obtain blocks of the required size and thickness."[4]

I.4 Ivory bangles are even to-day considered auspicious and put on by brides at the time of marriage. In some communities married women never part with their *chudis* or ivory bangles which are given up or broken only on the death of the husband. They are worn by Hindu as well as Muslim women of India.

I.5 In Gujarat, many articles used to be made from ivory, such as toys, animals, birds, idols of gods and goddesses, ornament-boxes, scent phials, betel boxes, antimony bottles, sprinklers of rose water, rose and lotus flowers, *agarbatti* stands, *bapaiyo*—a musical toy and various other large articles like handles of walking sticks, models of the Taj Mahal, etc. The most common ivory article which the women of Gujarat wear is the ivory bangles, coloured dark and light maroon and vermilion and fitted with gold strips. In Gujarat, the important centres for ivory work are Surat, Bulsar, Baroda, Ahmedabad, Surendra-

1. GHOSE VICTOR, *Ivory Craft of West Bengal*, an article from *Mirror*, July, 1964
2. MEHTA RUSTAM J., *The Handicrafts and Industrial Arts of India*, p. 59, 1960
3. GHOSE VICTOR, *op. cit.*, July, 1964
4. MEHTA RUSTAM J., *op. cit.*, pp. 59–60

nagar, Wadhwan, Mahuva, Rajkot, Jamnagar, Bhavnagar, Junagadh, Palitana, Mandvi, Anjar and Bhuj. The present survey attempts to study the craft as pursued at Mahuva, well-known for its ivory articles such as toys, animal and bird figures, buttons, etc., besides the traditional bangles.

MAHUVA

I.6 Situated on 21°–6′ north latitude and 71°–49′ east longitude, Mahuva is a taluka and sub-divisional headquarters in Bhavnagar district, fifty five miles south-west of Bhavnagar. Before Independence, it was included in the former Bhavnagar State. It is the terminal station of Dhasa-Rajula-Mahuva metre gauge section and also of Bhavnagar-Talaja-Mahuva narrow gauge section of the Western Railway. It is also connected by State Transport bus routes with Ahmedabad, Bhavnagar, Amreli, Junagadh and Una. Settled on the west bank of the river Malan, it is an ancient port on the Arabian Sea, having a population of 32,732 souls. Moherak and Madhumavati are its ancient names. It is said to have been given in *inam* by the king Vikram to Bhavad Shah. This region is of ancient origin. At a distance of 4 miles from Mahuva, there is a village Katpar situated on the seashore near Mahuva port. It is believed that originally known as Kundanpur it was the capital of king Bhismak, the father of Rukmani whom Shri Krishna kidnapped and married after defeating her brother Rukmi. Later on the place was named Kankavati nagari after Kanaksen Chavda who settled there. There is an ancient temple of Bhavani Mata between Katpar and Nikhol villages where two fairs are held on Shravan Vad 1 and *amavasya*.[1]

I.7 Mahuva was an important port during the reign of the Sultans of Gujarat and Moguls. Towards the beginning of the present century, the export trade of Mahuva comprised cotton, wool, grain and clarified butter, while the main items of import were timber, grain and seeds, coconuts, betelnuts and dry fruits, sugar-cane and molasses, metals, piece-goods, yarn, groceries, etc. The chief item of export trade was cotton to Bombay and that of import was timber from Daman, Bassein and Malabar. Grain was imported from Bombay and Karachi and there was also a miscellaneous trade with Muscat, Aden, etc. *Surma* or sulphuret of antimony was prepared at Mahuva and exported to other towns. There were some good turners in Mahuva who manufactured cots (*dholias*), cradles (*parnas*) and many kinds of wooden toys. One or two of these men also worked in ivory and made small boxes, chess-men, etc. At present Mahuva is a minor port open to coastal and foreign traffic with a light-house near the harbour. Its chief imports consist of building materials, timber and wood, cotton seed, kerosene, iron and steel and food-grains. The main items of export are groundnut seeds, oil and oil cake, onion, salt and food-grains. In the export of groundnut oil in the year 1961–62, Mahuva with 4,724 tons ranked second among all ports of the State. The details of its present volume of trade are given below.

Year	Import Tons	Export Tons	Foreign Trade Tons
1	2	3	4
1959–60	25,315	22,622	1,038
1960–61	31,084	30,661	1,083
1961–62	23,717	22,715	112
1962–63	23,096	17,628	97

I.8 Mahuva has one cotton spinning mill and oil mills. It is also well-known for its handicrafts, namely, lacquered wood work and toys, handloom textiles and cart-wheels, besides ivory work. It is quite possible that these crafts might have been located and developed at Mahuva because of a flourishing port with facilities for the import of raw material and export of finished products directly in addition to the advantage of a fertile hinterland.

HISTORICAL BACKGROUND

I.9 The origin of this craft at Mahuva is not definitely known. But according to a local enquiry in early times, married women wore wooden bangles made from *shisham* or *Dalbergia sissoo* wood. These bangles having more than 1″ width and $\frac{1}{2}$″ thickness are known as *baloya*. The artisans turned these wooden bangles on *sangheda* and immersed them in edible oil for a day or two to give them a dark maroon colour. Ivory bangles were considered luxury articles

1. TRIVEDI R. K., *District Census Handbook 1961*, Bhavnagar, p. 45

meant for the well-to-do. Rich persons selected a good piece of ivory and then ordered to turn bangles having 5.5" breadth. The artisans prepared small bangles known as *dantiya* for children and fancy articles and toys from the core of the tusk called *gabhla*. Piece wages were not paid directly to these artisans but by *havala* or transfer credit, a prevailing system of payment, through a rich merchant named Sheth Padma Tara, Bania by caste. *Hundis* or promissory notes written by him were honoured throughout the country. His firm worked as the money-lender, banker and also accountant, as the customer used to credit money regularly into the accounts of the artisans with the firm which were reviewed and settled periodically. The total weight of ivory worked at Mahuva a century ago is reported to be 5,000 lbs. valued at Rs. 32,500. Maharaja Takhtsinhji and Bhavsinhji former rulers of Bhavnagar State purchased fancy articles at Bhavnagar and also at Mahuva during their visits to that place in summer. Instances are not few when the rulers purchased all the articles prepared by a craftsman to help him to encourage the craft and overcome financial stringency. In course of time the artisans manufactured ivory bangles of shorter width and offered them for sale at lower prices with a view to attract customers of all castes and communities. The ruling families of Palitana, Lathi, Jamnagar, Kolhapur and the well-to-do patronised this craft. Even now, married women of various Hindu castes like Brahmin, Bania, Luhana, Kanbi, Suthar, Luhar, Koli, Kharak, Pancholi, Ayar, Bharwad and others of Mahuva taluka and surrounding areas purchase Mahuva bangles of various sizes as a *saubhagya chinha*.

SECTION II

CRAFTSMEN

II.1 HUMAN LABOUR, one of the main factors of production, plays a very important role in this craft, as all the processes involved therein are manually operated. In Mahuva making of ivory articles is the traditional occupation of Hindu artisans Brahmakshatriya by caste. It is very difficult to fix the date of origin of this caste in the absence of authentic data. However, the records of the households of this caste maintained by Barots or family bards and genealogists reveal that this caste is more than 900 years old. The legend relating to origin, of this caste is reproduced below.

> "The term Brahma Kshatri means Kshatris or warriors of the Brahma, that is Brahman class, and has its origin in the tradition that when Parashuram, the Brahman warrior, had subdued the Kshatriyas and was determined to extirpate their race, some of the Kshatri women who were pregnant sought the refuge of certain Brahmans, and when detected, were saved by the protectors by giving the persecutor to understand that they were Brahmans. The tradition further asserts that in verification of their statement the Brahmans ate food cooked by the women. As a proof of the truth of this tradition, the Brahma Kshatris point to the fact that their priests, the Sarasvat Brahmans, partake of food cooked by them even to the present day.
>
> Apart from the above tradition, which is put forward by many castes claiming a Kshatriya origin, the fact that they are the same as the Punjab Kshatris, who have been admitted to belong to the original Kshatri race, and that though now engaged in peaceful occupations they have not wholly lost their martial spirit, tend to prove that they were originally Kshatriyas. Their identity with the Punjab Kshatris is established by the similarity of some of their customs, by their being called Khakha Kshatris like the Punjab Kshatris, and by the custom of the Sarasvat Brahmans—who are priests to both—of eating cooked food at the hands of the caste.
>
> When and under what circumstances the Brahma Kshatris came into Gujarat is not known. The tradition is that about 500 years ago they emigrated from the Punjab and settled at Champaner in the Panch Mahals. On the capture of Champaner by Mahmud Begada (A.D. 1484) the Brahma Kshatris are said to have moved to Ahmedabad, where they occupied the quarter of the city at present known by the name of Khadiyu. The oppression of the Musalmans compelled them to migrate to other parts of India. Some of them went as far as Hyderabad in the Deccan, where a few families still marry with Gujarat Brahma Kshatris. Some who went to Benares and Lucknow are now known as Gujarat Kshatris.
>
> Brahma Kshatris have six endogamous divisions as follows:-
>
> 1. Brahma Kshatri Proper
> 2. Chudgar
> 3. Dakhani
> 4. Dasa
> 5. Natravala
> 6. Pancha
>
> None of the above divisions except the Brahma Kshatris Proper and Dakhanis eat together or intermarry. The latter have interdining and intermarrying relations. Dasas and Panchas are said to be the offspring of a Brahma Kshatri and a woman of another caste. Natravalas and Chudgars are functional in origin, the first following the occupation of making idols' eyes and the second, bangles."[1]

II.2 Chudgars or Maniyars are said to have inhabited Mahuva nearly a hundred years ago.

1. ENTHOVEN, R. E., *The Tribes and Castes of Bombay*, Vol. I, pp. 208-209, 1920

The artisans who manufacture bangles or *chudi* on *sangheda* or hand-turned lathe, are known as Chudgar also. Ivory is considered by the artisans of Brahmakshatriya caste as *parasmani*, or the jewel that turns baser metals into gold by mere touch. Since the ivory articles are turned between two axes or *ari* of a lathe, the artisans working on *ari* especially in ivory work, are known as Maniar.

II.3 Out of eight establishments working in this craft at Mahuva which had a population of 4,000 to 5,000 souls before a century, four artisans listed below earned credit as highly skilled craftsmen.

1. Devshi Jiva
2. Dungarshi Jiva
3. Makan Jiva
4. Bhagwan Nathu

Two establishments were closed because the owners died without a male heir, while one switched over to toy making.

II.4 At present the number of Maniyar households traditionally engaged in the craft is five, out of which three pursue it as their sole occupation and the remaining two as a subsidiary occupation. The main occupation of one of these two households is oil extracting and of the other sale of hardware. The artisans of both the households also make plastic articles and repair ivory bangles in spare time. One more household which was traditionally engaged in the craft has recently changed over to manufacture of lacquered wooden toys owing to the shortage of finance and non-availability of ivory the main raw material. But if finance is made available and regular supply of ivory is assured, he would be willing to restart the manufacture of ivory articles.

II.5 The number of workers actually engaged in the craft is only six. All the six artisans are family workers and they are all adult males, their average age being 42.33 years, the actual age ranging from 27 to 58 years. Neither females nor minors below 15 years of age are engaged as full-time workers in the craft. The artisans look after all the different techniques and processes. There is thus no division of labour or specialisation among the workers or members of the households. Over half a century ago, women worked as helpers in colouring and in turning the lathe with a bow-string known as *dhandhori*. Even at present they lend a helping hand in operations carried out in the privacy of the dwelling. Minor boys help in arranging the tools and implements and carrying out other ancillary non-technical work when they are free from study.

II.6 Of the five households engaged in this craft, three are located in the Sanghedia Bazaar so named because most of the work done on the *sangheda* or hand-turned lathe, whether of ivory or wooden articles, is carried out in this locality. The other two households are situated outside the Bazaar, but on the same road and very near to it. Three workshops are situated adjacent to the dwellings of the workers. Two of them are rented respectively at Rs. 225 and Rs. 177 per annum while the third one is owned by the artisan. The fourth is also owned by the artisan but is twenty yards away from his residence. The fifth is a workshop-*cum*-dwelling, taken on a yearly rent of Rs. 300. The front room is used as a workshop and the rest as residence. All the workshops consist of only one room each, measuring from 120 to 180 sq. feet and are moderately ventilated.

II.7 All the establishments are independent proprietary units, exclusively run by the labour of the members of the household carrying on all the operations involved in the making of ivory articles, that is from acquiring raw materials to the sale of final products.

SECTION III

ORGANISATIONAL AND SOCIAL CHARACTERISTICS

Organisational Pattern

III.1 Five independent establishments work with 6 artisans, belonging to the 5 households engaged in this craft. They are all inherited establishments. There is no trade guild or cooperative society but all the 6 members have enrolled themselves as members of the Bhavnagar, District Industrial Cooperative Association, Ltd., Bhavnagar, with a view to obtain raw material through it. Two of them are also members of Mahuva Nagrik Sahkari Bank Ltd.

III.2 It is reported by the artisans that they are hereditarily trained and even to-day the father trains the son in this craft. But now they feel the need of technical training in other branches of industries like turning, moulding, engineering, etc., as their traditional craft is dying out gradually. If it is possible to revive the craft, they are ready to join any institution imparting training in minute ivory carving consistent with modern tastes, designs and needs. At present, there is no scheme for the development of this craft.

Working Conditions

III.3 The average household of the craftsman consists of 6 members, of whom only one male is the earning member and the rest are dependents. A skilled artisan requires a healthy body with sharp eye-sight for minute carving and steady hand for accurate movement during work. Artisans attend to all the processes sitting near the *sangheda*. While working, the artisan mostly bends his waist and the left leg from the knee downward. He has to grasp his tools firmly and gaze constantly towards the revolving ivory. Long hours of work, therefore, create pain in waist, knee, eyes and hand. Sometimes, rolling and scraping of ivory damages the eyes and in the long run the artisan has to wear spectacles. Stomach diseases are also caused due to constant sedantary habits. Artisans are addicted to tea and tobacco in the form of *bidi*. They usually attend the shop from 8 a.m. to 12 noon and 1 to 8-30 p.m. with a recess of one hour in between. After the evening meal, they gather in the locality known as *chowk* and chitchat about current news and various matters from 9-30 to 10 p.m.

III.4 There are 100 to 125 households of Brahmakshatriya caste in Mahuva. This caste is spread all over the State. Five households are engaged in the craft under study, fifteen in making of lacquered wooden toys, twenty in making of lacquered wooden cradles, cots, etc., and the remaining in textiles dyeing, trade and commerce.

Religious and Social Customs

III.5 Brahmakshatriyas are religious minded. Besides having regular *darshan* at temples, they attend *harikatha* and *bhajans*. Vishvakarma the Divine Architect is the caste God. They observe Vishvakarma Jayanti and other Hindu festivals like Divali, Agiyaras, Atham, Ram Navmi, etc. The temples of Harshadmata, the caste goddess, are situated at Jamnagar, Jamkhambhalia and Madhupur. 1,500-2,000 persons of this caste gather at the temple of Matri Mata on Osam hill near Patanvav, Rajkot district, to attend a fair on Shravan Vad 30. There is a caste-building at Mahuva which is used for social and ceremonial functions as well as for caste-dinners. The caste *panch* arranged a dinner once a year on Shravan Sud 15, Balev, on the occassion of changing the sacred thread till 7 years ago. The caste members used to share the expenditure on this dinner, which is not arranged now on account of austerity measures undertaken by Government. Previously the ceremony of putting on the sacred thread was performed when a boy completed the age of 12 years. But it is now postponed till the time of marriage.

III.6 The parents arrange the betrothal of their sons and daughters taking into consideration the reputation and the financial condition

of the other party. Child marriage is prohibited. About Rs. 200 are spent towards the expenses of clothes and ornaments like golden ring, silver anklets, etc., at the time of betrothal. Marriage is arranged generally within 12 months after betrothal. Marriage ceremony takes place at the age of 20 in case of a boy and at the age of 18 in case of a girl. A sum of about Rs. 300 is spent at the time of marriage after clothes only. Gold ornaments weighing 5 to 10 tolas including earrings, necklace, bangles, rings, etc., are given by the parents of the bridegroom to the bride along with a sum of Rs. 500 to 1,000 at the time of marriage ceremony. The custom of cash payment is, however, abolished now. Giving of four feasts to the caste was formerly compulsory, but at present only the bridegroom's party and nearest relatives are given two dinners. Remarriage is allowed. Cases of divorce are on the increase.

LITERACY

III.7 The work of making of ivory articles, whether simple or fancy ones, requires accurate calculations and measurements. These the artisans are able to do with a high literacy ratio which can be seen from the following figures.

STATEMENT 1

Literacy and educational status

Age group	Total	Illiterate	Literate without educational standard	Primary	Secondary	S.S.C. or Matriculate	Graduate
1	2	3	4	5	6	7	8
Persons							
All groups	**32**	**7**	..	**20**	**3**	**1**	**1**
0–14	14	6	..	8	..	..	..
15–34	9	..	..	5	3	..	1
35–59	9	1	..	7	..	1	..
60 and above	..	..	..	..	..	..	..
Males							
All groups	**17**	**3**	..	**9**	**3**	**1**	**1**
0–14	6	3	..	3	..	..	..
15–34	6	..	..	2	3	..	1
35–59	5	..	..	4	..	1	..
60 and above	..	..	..	..	..	..	..
Females							
All groups	**15**	**4**	..	**11**	..	..	..
0–14	8	3	..	5	..	..	..
15–34	3	..	..	3	..	..	..
35–59	4	1	..	3	..	..	..
60 and above	..	..	..	..	..	..	..

III.8 Out of a total of 32 members in the five households engaged in the craft, 25 or 78.12 per cent are literate, whereas the remaining 7 or 21.88 per cent are illiterate. The percentages of literacy in males and females are 82.35 and 73.33 respectively. Of the 14 literate males, 9 have taken primary education, 3 secondary, one has passed secondary school certificate examination and one is a graduate. Similarly, out of 15 females, 11 have studied up to primary and 3 females who are minors and a female in the age group of 35 to 59 have not attained

any educational qualifications. Regarding the educational status of 6 artisans, it is noticed that one is a matriculate, one has studied up to the secondary standard and 4 have taken primary education.

III.9 Artisans have of late been paying more attention to the education of their children, particularly due to the decline of the hereditary craft. Technical education is preferred. One of the advanced castes in the State, Brahmakshatris were classified as writers in the Gazetteers, now engaged in such liberal professions as lawyers, doctors, engineers, etc. A caste boarding is situated at Bhavnagar, the district headquarters. A periodical *Brahmakshatriya*, is regularly issued from Bombay for the development of close contacts and for the betterment of the condition of the members of the Caste.

SECTION IV

RAW MATERIALS

IV.1 THE CHIEF raw material used in this craft is ivory whereas the subsidiary raw materials are colours, chemicals, acids, etc. Ivory is obtained from the tusk of the male and female elephants and is produced by both the sexes in Africa, India and Ceylon. It is a very dense substance covered with an outer layer or rough bark measuring about 1/10 to 1/8th inch. This bark must be first removed in carving. Carvings from ivory remain more or less the same for thousands of years, because the surface of ivory does not crumble or corrode like bronze or stone. The tusks weigh 50 lbs. on an average. The biggest tusks which can be procured rarely measure 8 to 10 feet and weigh 200 lbs. Ivory can be had in two varieties, (i) soft and (ii) hard or bright. The latter being glassy and transparent is comparatively difficult to cut with a saw or other similar instruments. Soft ivory contains more moisture, and, therefore, stands changes of climate and temperature better.

USES OF IVORY

IV.2 Ivory plays a very important part not only in the industrial arts for decorative purposes but also for domestic applications and for medicinal purposes. No part of the tusk is wasted. Large quantities of rings left out while turning billiard-balls are imported in India, and used for making bangles, small toys and figures. Imported ivory includes whole tusks as well as hollow and solid pieces. It is imported in different sizes and pieces as may be available with the exporters. Hollow pieces of more than 2½ inches' diameter are used for manufacturing carved table lamps and inlay work. Solid piece as well as those with a narrower hollow are used for making bangles. After cutting the outer ring of the tusk for making bangles, the core called *gabhla* is used for carving as well as for making bangles of small sizes. Chips of the tusk are used in inlay work. The powder and peel of tusk formed by cutting, scraping and carving are used for polishing ivory articles, in the manufacture of India ink and medicine. Buffaloes suffering from diarrhoea and rheumatism are given ivory powder and peel mixed with their morning and evening foods, which increase the production of milk also. Applied to wounds or cuts it prevents bleeding and gives relief. Patients of asthama or other respiratory diseases feel relieved after inhaling the smoke of ivory chips and peels. As one of the ingradients of medicated oil, it is considered to help profuse growth of hair.

VARIETIES OF RAW IVORY

IV.3 The different varieties of raw ivory imported in India were *gendai, mosambi, musi, galaga* and *chatta.* All these varieties except *chatta* were imported in Gujarat State. The quality and nature of all these varieties except *chatta,* which is not used in Gujarat, are given below.

(*i*) *Gendai*

It is the tusk of the male elephant. White in colour and hard in texture, it is heavier than other varieties. An article prepared from it, therefore, fetches a higher price than that made from other varieties. Due to its hardness, it takes more strain and labour to work upon. It cracks when it is exposed to heat or sun during summer and to cold during winter. It is, therefore, more susceptible to damage than are other varieties. It loses its weight by one per cent in a month or so after its import because it dries gradually. Price of *gendai* in open market is Rs. 1.50 more per lb. than that of *musi* and *mosambi.*

(*ii*) *Mosambi or Mozambique*

It is the tusk of a female elephant. Yellowish white in colour, it is softer than *musi.* The thickness of its bark or outer layer is somewhat less than 1/8 inch. It also cracks when exposed

to heat or cold, but is less susceptible to damage than *gendai.* It is also reduced in weight by one per cent in a month or so after its import.

(iii) Musi

Musi is also the tusk of a female elephant. Yellowish white in colour, it is soft and sticky. The thickness of its bark is greater than that of other varieties. It measures about 1/8 inch. The outer diameter of about 2½ to 3¼ inches is the same throughout its length. Being sticky in nature, it does not catch a uniform dark maroon colour evenly on its surface when processed. But it can be coloured light maroon or fast red, which is preferred by the people of Saurashtra for bangles and that is why this variety is in demand in this region. It also cracks by exposure to extreme heat and cold, but it is less susceptible to damage than *gendai.* It loses weight by two per cent which is greater than other varieties. Comparatively speaking *musi* and *mosambi* being soft varieties, less damage is caused to them by exposure to heat and cold than to *gendai.*

(iv) Galanga

It is the tusk of elephants of either sex and bigger in size than *gendai* and *mosambi* varieties. Its outer diameter measures about 4 inches near the jaw and 3½ inches at the point.

The types of tusks imported in the Gujarat State according to their size, weight and structure are as follows:

(a) Baby tusk weighs less than 10 lbs., medium tusk 10 to 20 lbs., and full tusk of about 20 to 30 lbs.

(b) *Musi modiya* is a solid piece of *musi* variety and *mosambi modiya,* a solid piece of *mosambi* variety.

(c) *Musi* hollow is a hollow piece of *musi* variety and *mosambi* hollow is a hollow piece of *mosambi* variety.

PROCUREMENT AND DISTRIBUTION

IV.4 Ivory is a controlled commodity in India. The import of raw ivory has been discontinued since April 1963 as the issuing of import licence has been stopped by the Government due to the foreign exchange crisis. Before April 1963, the Gujarat State Industrial Cooperative Association Ltd., Ahmedabad, established on 31st December, 1961 after bifurcation of Bombay State, held the import licence for raw ivory. Prior to that Bombay State Industrial Cooperative Association and some import establishments were the importers of raw ivory.

IV.5 Import licences were issued to the Gujarat State Industrial Cooperative Association Ltd. for two periods, namely, April to September 1961 and October 1961 to March 1963. Raw ivory was first brought to Zanzibar from African countries like Kenya, Uganda and Tanganyika, and then imported to India by sea. It was received at Bombay by the agent of the Association and transported to Ahmedabad.

IV.6 For proportionate distribution of raw ivory among the artisans of the State, the Association invited applications from the artisans giving details of purchases and sales of ivory products in two previous years. Ivory Distribution Committee including the Deputy Development Officer and the District Registrar of Cooperative Societies, Ahmedabad, fixed the quota for each artisan. The State Association, on the basis of the recommendations made by the Ivory Distribution Committee, made district-wise distribution among the District Industrial Cooperative Associations of the concerned districts which in turn made the material to the artisans according to the quotas fixed by the Committee.

IV.7 For the first period, 6,920 lbs. of raw ivory were imported in April 1962 and a further quota 394 lbs. was received from the Surat District Industrial Cooperative Association Ltd., which was in charge of distributing raw ivory in the State before the registration of the Gujarat State Industrial Cooperative Association Ltd., Ahmedabad. In all 7,314 lbs. of ivory were thus distributed during April-May 1962 among 236 artisans of the fifteen districts of Gujarat State except the Panchmahals and the Dangs.

IV.8 Out of the quantity received, 707 lbs. or 9.67 per cent of the total were distributed among 17 artisans of Bhavnagar district—400 lbs. of *mosambi* and 307 lbs. of *musi* variety. From this, 140 lbs. or 19.80 per cent were allotted to six artisans of Mahuva as shown in Table V in the Appendix. Whereas the average allotment was 23.33 lbs. per allottee, the actual allotments in Mahuva ranged from 15 to 44 lbs.

IV.9 For the second period, October 1961 to March 1963, 9,570.25 lbs. of raw ivory were imported by the Association in August 1963. From this quota, 4,158 lbs. were distributed in September 1963 among the 236 artisans aforesaid and 5,412.25 lbs. were kept in reserve for All-India Handicrafts Board, for allotment to the artisans engaged in carving, as about 50 per cent of the imports were directed by the Chief Controller of Imports and Exports, New Delhi to be utilised for carving only. From the quota thus reserved, 5,377.25 lbs. were allotted by the Association to the carvers of Calcutta, Murshidabad, Delhi, Kodinar, Palanpur, Patan, Baroda, Bombay, Banglore, Trivandrum, etc., according to the permits issued by the All-India Handicrafts Boards. Thus the artisans engaged in minute ivory carving get top priority for receiving raw ivory.

IV.10 Out of 4,158 lbs. of raw ivory distributed in Gujarat State, 394 lbs. were allotted to the artisans of Bhavnagar district. From the quota of 394 lbs. for Bhavnagar district, six allottees from Mahuva getting 78 lbs. or an average of 13.00 lbs. per artisan (see Table V in the Appendix), the individual allotments ranged between 22 and 10 lbs.

IV.11 During 1960 and 1961 A. D. 236 artisans of Gujarat had purchased 60,413.77 and 35,181.87 lbs. respectively of raw ivory from (i) the then Bombay State Industrial Cooperative Association through the Surat District Industrial Cooperative Association (ii) from some established importers and (iii) from the open market.

STATEMENT II

Purchase of ivory by artisans of Bhavnagar district, 1960-61

Sl. No.	Centre	No. of artisans	Purchase in pounds V.S. 2016 (i.e., 1960 A.D.)	Purchase in pounds V.S. 2017 (i.e., 1961 A.D.)
1	2	3	4	5
	Total	**18**	**3,823**	**2,689**
1	Bhavnagar	6	1,489	867
2	Botad	2	1,409	895
3	Savarkundla	3	313	239
4	Mahuva	7	612	688

Source :

The Gujarat State Industrial Cooperative Association Ltd., Ahmedabad

IV.12 The Statement II shows the purchases of raw ivory made by the artisans of Bhavnagar district during the years 1960 and 1961.

IV.13 Mahuva artisans bought 612 lbs. and 688 lbs. of ivory during 1960 and 1961 respectively, against which Gujarat State Industrial Cooperative Association allotted only 140 lbs. and 78 lbs. in the subsequent years 1962 and 1963 which was much less than their normal requirement. They had, therefore, to make good the short supply by purchase in the open market at a higher price, as their actual requirement of ivory is about 700 to 800 lbs. every year. The price charged in the open market varied from Rs. 50 to 80 per lb. as against the controlled price of Rs. 27 to 29 per lb. for the quota allotted by the Government. At other centres like Surat Chudgars use synthetic or imitation ivory manufactured in Germany and U. K. costing only Rs. 6.50 per lb. or procure old *chudis* from which new ones are prepared. The extent, however, of the use of synthetic ivory or old bangles was reported to be negligible in Mahuva.

IV.14 The annual consumption of ivory in Gujarat State is about 45,000 lbs., most of it being used in the manufacture of bangles. Against this requirement, the annual import licence granted was for Rs. 2 lakhs or 13,500 lbs. of ivory in terms of quantity. But the condition which the Chief Controller of Imports and Exports, New Delhi, imposed that 50 per cent of the licence value should be utilised for carving, further curtailed the quota of ivory for other articles to 6,500 lbs. only. Before bifurcation, the former Bombay State was given an import licence for the purchase of ivory worth Rs. 4 lakhs per year, 90 per cent of which could be made available the ivorists of Gujarat. To cope with their overall requirements, ivory workers and businessmen purchase about 45,000 to 55,000 lbs. of ivory valued at Rs. 20 to 25 lakhs approximately every year. In Gujarat, the main centre dealing in ivory is Ahmedabad, the State capital. Artisans and businessmen of Ahmedabad purchase ivory from those of Bombay, who obtain it from Amritsar, Delhi, Jaipur, Banares, Calcutta, etc. As carvers do not use the barked tusk but the core of the tusk left

out after cutting the outer ring, they have suggested that to ensure easy supply at reasonable rate, arrangements should be made to obtain the core only for the carvers from non-carvers directly or through the association.

IV.15 Despite the fact that purchases in the open market are as high as 45,000 to 55,000 lbs. in Gujarat, the artisans of Mahuva experience difficulty in getting it in sufficient quantity because of its high price. The stock of ivory on hand comes to nearly 250 to 300 lbs.

IV.16 Particulars of cost of ivory purchased by the artisans will be found in the following statement.

STATEMENT III

Price of ivory

Period	Ivory imported in Gujarat State (lbs.)	Cost at Bombay (C.I.F.) (Rs.)	Cost price per lb. at Bombay (Rs.)	Customs duty (Rs.)	Other expenses including bank, transport, port trust charges, etc. (Rs.)	Total cost price at Ahmedabad (Rs.)	Cost price per lb. at Ahmedabad (Rs.)	Selling price by D.I.C.A. (Rs.)	Price in open market (Rs.)
1	2	3	4	5	6	7	8	9	10
April 1962	6,920.00	99,994	14.45	62,144.25	3,535.40	165,673.65	25.73	27	50 to 80
August 1963	9,570.25	138,750	14.50	97,663.90	6,017.48	242,431.38	27.17	29	50 to 80

IV.17 The controlled price of one pound of ivory at Bombay (CIF) which is Rs. 14.50 increases to Rs. 27.17 at Ahmedabad after the inclusion of customs duty and other incidental expenses. Since the quota to the artisan is made available through the District Industrial Cooperative Association at Bhavnagar, the cost further rises by about Rs. 2 so far as the artisan of Mahuva is concerned who purchases his raw material at Rs. 29 per pound. This supply being inadequate, additional quantities have to be purchased at Rs. 80 per lb. from the open market. Compared to the prices ruling the market about a century ago when the cost of ivory was only Rs. 7 per pound, an increase over the controlled rate is 314.28 per cent and that over current prices 1,042.86 per cent.

SUBSIDIARY RAW MATERIALS

IV.18 Besides the main raw material of different varieties of tusk as described above, a few subsidiary materials, viz., colours, chemicals and acids, etc., are used for finishing and ornamentation of carved articles, and bangles. Sandpaper is used to rub the carved article and bangles to smooth the outer surface of the article. Rubbing by silken cloth gives a glossy finish, whereas smearing of edible oil makes them brighter and guards them against cracks caused by adverse atmospheric effects. The artisans use methylated spirit or hydrogen peroxide mixed with water for whitening the finished product. The powder of roots and fruits of *majith*, the madder plant or *Rubia tinctorun*, *harda* or *Myrobalan chabulic*, lemon, tamarind, tartaric acid, etc., are used for dyeing the bangles in dark or light maroon or red colour. The craftsmen use kerosene as fuel while dyeing. Most of these materials are easily available in the local market. The estimated expenditure incurred by the five establishments on the purchase of these subsidiary raw materials comes to about Rs. 4,170 per annum.

SECTION V

TOOLS AND TECHNIQUES

TOOLS AND IMPLEMENTS

V.1 THE CRAFT under study requires carpenter's and lathe-turner's tools and implements along with some special chisels for ivory carving.

STATEMENT IV

Tools and implements

Sl. No.	Name of tool: Local term	English equivalent	Price (in Rs.)	Place of procurement	Life
1	2	3	4	5	6
1	Sanghedo	Lathe	50	Local	10 years
2	Drill	Drill	12	Bhavnagar	5 years
3	Hemri	Emery wheel	12	Bhavnagar	5 years
4	Shighro	Vice	10	Bhavnagar	5 years
5	Kosh nisarno	Iron rod	9	Local	10 years
6	Karvat	Saw	6	Bhavnagar	5 years
7	Vanhlo	Adze	5.50	Local	10 years
8	Map	Measure	4.50	Bhavnagar	5 years
9	Shardi	Hand drill	3.50	Local	3 years
10	Ankadan	Staples	2	Local	2 years
11	Chinu/Chhinu	Scraper	4	Local	1 year
12	Nanu chhinu	Small scraper	2	Local	1 year
13	Alekhanun	Engraver	2	Local	1 year
14	Khotarni or Kotarni	Gouge	2	Local	1 year
15	Tir-kamthu or Dhandhori or Dhandhodi	Bow	0.37	Local	1 year
16	Baf pati	Buff-stick	0.25	Local	1 month
17	Kanas	File	2	Local	6 months
18	Sansi	Pincers	1	Local	5 years

V.2 From the above list it can be seen that the most important tools are procured from Bhavnagar, the district headquarters, from where also comes the raw materials. Other tools are procured from the local market or prepared by the artisan himself. At Ahmedabad the lathe is turned with the help of electric motor which costs Rs. 300, but in Mahuva, it is hand turned with the help of *dhandhodi* or *dhandhori*, i.e., bow. Electrically operated lathe is not used for minute carving. Such electrically operated lathes came into use 10 years ago. The total investment in tools and implements in this centre is nearly, Rs. 3,000, i.e., about Rs. 600 per establishment. The annual replacement value and repairing charges come to Rs. 75 to 100 per annum per establishment.

TECHNIQUES AND PROCESSES

V.3 The technique and process of making ivory articles at Mahuva can be conveniently studied under two heads, namely, for (1) *chudi* or bangle and (2) carving.

(1) CHUDI

While the process of manufacturing *chudi* or bangle, is comparatively simple, it requires a steady and gentle hand, training and concentration. The solid or hollow tusks of less than $2\frac{1}{2}$ inches diameter are used in the manufacture of bangles. Only the middle portion of the tusk,

is used for making bangles and the hollow or solid parts are left aside.

(a) Turning of tusk into cylindrical form

The crescent shaped tusk is cut into pieces with the help of a saw by two skilled artisans in such a way that the curve left on each piece is reduced to minimum. For such an accurate cutting, markings are previously made according to required sizes with a chisel or pencil on the outer surface of the tusk. Before turning the pieces so cut into cylindrical form, wax requires to be removed from the outer and inner surfaces of the hollow tusk and outer surface of the solid one. The turning process varies slightly in solid and hollow pieces.

The hollow piece is, if possible, placed over a wooden *dhoko* or *pakhwaj*, shaped like a cylinder which is swollen in the middle and tapering towards both the ends. After fixing the ivory tusk on the *dhoko*, it is kept between two axes of the hand turned lathe locally known as *sangheda* in such a way that it can be rotated easily. If the tusk is narrow at one end and wider at the other, it is fixed on the axes of *sangheda* after inserting a conical wooden piece locally known as *karbi* from the wider end, and a wooden square piece is stuck at the other end of *karbi* or the tusk with the help of lac. But where the hollow is very small towards the end, a chip of ivory or wood is inserted by means of lac to fill up the cavity and a wooden piece is inserted at either end to fix it on the axis of the *sangheda* to facilitate the rotation and to maintain length between the two axes. A solid tusk can be easily fixed between the two axes of the lathe after fixing wooden chips at each end as described above.

The tusk, thus fixed between the two axes is turned with the help of a bow, called *dhandhodi* or *dhandhori*. The string of the bow rotates on the grooves of the wooden piece and turns the tusk. During the process of rotation the bark is stripped out with a blade called *patta* or *patti* whereafter it is smoothed and turned into a uniform cylinder.

(b) Making of outer surface

On the cylinder so formed, pencil marks are made at the distance of one *lati* (i.e, quarter of an inch) or two *latis* according to the breadth required. Vertical cuts are then made by means of *chinu* or an instrument having pointed or sharpened edge on the pencil marks up to the depth of $\frac{1}{4}$ to $2\frac{1}{2}$ inches as may be necessary for obtaining the required *dal* or thickness of the bangles. The outer surface of the bangles is then turned and shaped into right angle by scraping it with a *patti*, smaller than that used for removing the bark of the tusk and has an edge like that of a screw driver.

(c) Cutting of inner diameter

The horizontal cut for the inner circumference of bangles called *galo* is made by means of *ankdo*, an iron bar having a sharp point at a right angle at each end. It pierces the rotating cylinder from the side so as to meet the vertical cuts made by the *chinu* on the upper surface and thus separates the bangles from the core or *gabhla*. The bangles are thus separated one by one from the core.

(d) Polishing

The bangle so obtained is again fixed over the *dhoko* and turned on the *sangheda*. The upper surface and sides are rubbed with simple blades of different sizes, such as *sada pana* and *arakanun* or *arakhanun*. Thereafter all the three sides are again rubbed with the powder and peeling thrown out while cutting and scraping the piece of tusk. This is done to give them polish. Finally the bangle is rubbed with sand-paper and then with silken cloth for giving it a glossy finish. To make the article brighter and to protect it from the adverse atmospheric effects resulting in cracks, edible oil is smeared on it, which can also be done after it has been dyed.

(e) The uses of core

After cutting the outer rings for bangles, the core or *gabhla* can again be used for manufacturing bangles of still smaller sizes, strikers for carom, toys, human figures, etc. The process is repeated once or more than once in case of bangles lesser in size. Smaller bangles worn by children are called *dantiya*. If smaller bangles are not prepared, the core is

sold for use by artisans engaged in ivory carving either directly to the artisans or to business-men who resell it to such artisans.

(f) Dyeing of bangles

The bangles manufactured from ivory tusk are white or yellowish white in colour. They are dyed in *ghero* or *achho majithio*, dark or light maroon colour, or *ghero lal*, dark red, maroon colours being more common. Bangles are coloured by two different processes one of which assures a fast colour.

(i) *Durable colour*—In this process, the powder of roots and fruits of *majith* or the madder plant (*Rubia tinctorum*) is used for maroon colour. Three lbs. of this powder and ¼ lb. of *harda* or *myrobalan chabulic* are mixed with water sufficient to immerse 200 bangles at a time and boiled in a large vessel. Bangles are allowed to remain in the boiling water for one and a half hours, so that they acquire a light maroon colour. If they are to be coloured dark maroon, they are kept in the boiling water for 3½ to 4½ hours more. During this time, the bangles are stirred up and down at intervals of 15 to 20 minutes so that the colour is absorbed evenly on all sides. The colour by this process is more durable and lasts for 10 to 15 years according to their use.

(ii) *Ordinary process*—This process, though similar to the one mentioned above, is easier and takes less time. Water mixed with the powder of roots and fruits of *majith* (*Rubia tinctorum*) or with fast red colour of reputed companies and *harda* or *myrobalan chabulic* is boiled in a large vessel. ¼ lb. of lemon juice or tamarind or a few drops of tartaric acid is then added to the boiling water. 200 bangles are immersed in it and stirred for five minutes for light maroon or red colouring. If a darker shade is desired, they are kept for 5 minutes more in the boiling mixture. The colour obtained by this process is less durable and lasts for less than a year.

(2) CARVING

The art of carving involves very minute and delicate operations. It requires a special training, steady and deft hands, and a very attentive mind. All the stages of carving are carried out by hands with the help of different carving instruments.

(a) Sawing of ivory

To begin with, a piece is cut from the solid portion of the tusk according to the size of the figure to be carved with the help of the bow-saw, called *ari* or *karvat*. The piece is then held between the jaws of a *sigharo* or vice and cut off with the help of a bow-saw into a slab, roughly rectangular or square in shape. Thereafter the unevenness of surface is removed and smoothened by a *kanas* or file.

(b) Figure carving

The figure to be carved is sketched on the slab in pencil. The craftsman is required to be an expert at drawing also. The drawing finished, the piece is held between two feet and the blank portion surrounding the sketch is cut off and removed with the help of a *farasi* or chisel and *hathodi* or *mogari*, i.e., a mallet, a wooden piece being sometimes used as a hammer. The mallet must be used softly. Experience and great care are necessary, otherwise the ivory would break or flake some little distance ahead of the tool. The sketched portion is then turned into a rough figure by cutting and peeling by means of chisels of different sizes and shapes. This is followed by filling for smoothing the figure and then giving simple shapes to the various parts of the body, e.g., hands, legs, belly, head, etc., which are also rubbed by sand-paper.

Minute carving or engraving by means of chisels of different sizes is then carried out. The chisel is held like a pen in the right hand, the finger tips being about ½ or 1 inch from the point. Holding the ivory figure in the left hand and giving a steady pressure at the point with the left thumb, the tool is pushed with a short flicking movement over the surface of the figure, removing the substance in thin shavings to bring out the figure in all its details with proper outline and depth of the smallest of parts such as lips, mouth, nose, eyes, forehead, ears, hair, etc. Thus as etching and carving proceed, the figure emerges bit by bit in complete relief.

(*c*) *Finishing and polishing*

After the carving is completed, a finishing touch is necessary to make the carved figure smooth and lustrous. For this purpose, sand-paper is rubbed on it. After making it smooth, polishing is necessary as the figure becomes dirty by the constant touch of hands. It is dipped in water for ten minutes and a soft brush is rubbed on it to remove dirt. In the alternative, it is washed in methylated spirit with a brush, if the ivory is white in colour. If it is yellowish white, it is immersed and washed in water mixed with hydrogen peroxide, which whitens it. The piece is rubbed dry with buff-cloth applied gently. In small interstices, where the finger cannot reach, a splinter of wood such as a match-stick is used with the cloth wrapped on it. This finishing touch imparts to the piece lustre and smoothness which bring out the exquisite craftsmanship of the carver.

DESIGNS

V.4 The articles manufactured are decorated in vivid floral and geometrical designs. The designs adopted by the artisans are modern as well as traditional. The birds, animals and other religious motifs like swastik, etc., are used according to the type, size and demand of the article.

V.5 The demand of the simple bangles locally known as *chudi* is high. The bangles are dyed into dark or light red or maroon colours. Especially, red colour signifies purity and a symbol of good omen. A *chip* or simple strip of gold is also fitted on its outer surface. With a view to facilitate putting the bangles on the arm they are sometimes cut at two sides and joined with hinges. These bangles are known as *khilipankhiyali chudi* in local parlance. The bangle with greater width is known as *chudo*. This is also dyed and has gold strip on the outer surface having a variety of designs such as flowers, creepers and leaves, either embossed or perforated with coloured aluminium foils underneath. Bangles are called *ekpatini chudi* or *bepati wali chudi* according as they have one or two strips. A simple, thick and broad bangle is known a *baloyu*, whereas one with a groove in the middle is known as *patiwalu baloyu*. Floral designs are sometimes carved on round bangle, when it is known as *velni chudi*.

V.6 Ornaments of ivory are also made in imitation of silver and gold ornaments. Idols, human figures, toys, animals and luxury articles, described in Table IX of the Appendix are prepared only when orders are received from customers. The artisans themselves give the designs.

SECTION VI

FINISHED PRODUCTS

VI.1 A WIDE VARIETY of ivory articles used to be manufactured at Mahuva in the past. They included idols like Krishna, Shanker, Laxmiji, Parshvanath, etc., for worship as well as for decoration, attractive toys like elephant, camel, horse, *ghughra*, chess-man and other articles like *buttas* or earrings, necklace, pen-holders, paper-cutters, tie-pins, handles of knives, buckles, hair-pins, cigarette-holders, *tika* sticks, *kankavati*, *surma-jalu*, *kajal* container, powder box, measure for powdered medicine, batons, buttons, etc. The artisans prepared a small round box which was very popular among Jain *munis* who used to keep a small picture of a deity in it with a view to have *darshan* early in the morning.

VI.2 At present, besides *chudi* or *chudo*, i.e., bangles, only a few pieces of toys and other articles of decoration, buttons, etc., are made to order because of the scarcity of raw material. Moreover, the demand has also diminished on account of availability of cheap plastic goods in the market. Decorative and attractive articles are purchased by the well-to-do to adorn their drawing rooms or as presentation articles, whereas ivory bangles are worn by married women of Hindu castes as a sign of *saubhagya*. In Mahuva Kanbi, Koli, Kharak, Pancholi, Ayar are the main patrons of this craft who purchase thick and costly bangles even today. The number and size of the bangles are in fact an index to the social status of the family. Women of other castes like Brahmin, Bania, Luhana, Suthar, Luhar, etc., especially in urban areas use thinner bangles than those worn in villages, and go in for cheaper substitutes so that the demand for ivory *chudis* is diminishing. As most of the articles are the products of the artist's imagination and skill, they vary in shape, size and craftsmanship from artisan to artisan. In such a craft, where the design and artistic excellence of the product depend on the individual talent of the artisan, standardisation is out of question. Since articles are manufactured according to the demand of the customers, there are no strict restrictions about adopting shapes or designs given by others. Finished products are displayed in show-cases to attract customers and the surplus articles are preserved in tins and wooden boxes locally known as *hadfa*. A list of articles made at Mahuva along with the prices charged is given in Table IX in the Appendix.

SECTION VII

MARKETING

VII.1 THOUGH THE information is not available in respect of carved ivory articles exported to other countries in the past. Mahuva being an ancient port on the Arabian Sea having trade with Muscat, Aden, etc., visitors and sailors from these parts used to purchase these articles which brought popularity and prosperity to the artisans and the town. Ivory from Africa was received at Mahuva *via* Bombay by sea in the absence of rail link with Mahuva; the same route was also used for despatching finished products to all parts of India and abroad. Craftsmen even went to Bhavnagar on foot—a three days' journey to sell the fancy articles to the ruler. Other rich customers and members of the ruling families visiting Mahuva also purchased finished goods. At present local residents and visitors to Mahuva purchase the products for presentation and decoration. Sometimes merchants from other parts of the country also come and purchase them. Mahuva, being the headquarters and also the chief marketing town of the taluka, villagers visit the place quite frequently. As stated earlier, several sections of people purchase ivory bangles for ceremonial purposes at the time of betrothal, marriage, etc.

VII.2 It is interesting to note that though artisans of Mahuva get the advantage of obtaining raw ivory to manufacture ivory toys and carved pieces under the export promotion scheme, the proportion of ivory bangles made by them far exceeds that of carved articles which, because of their high prices are in much lesser demand, whereas bangles being an article of essential use by a married woman, its popularity has been maintained at the same level.

All the raw ivory required for making of bangles is not available in sufficient quantity. The artisans are, therefore, tempted to purchase ivory from open market at high rates or manufacture bangles from raw ivory actually obtained for toys and other carved articles under the advantage of export promotion scheme.

VII.3 Reputed and skilled artisans are ready to prepare carved articles for the whole year or at least for eight months from January to April and September to December. They can adjust the manufacture of bangles in the remaining four months from May to August to satisfy their regular customers. But there is a long time lag between production and sale of such products due to lack of demand and unstable marketing conditions, besides insufficiency of quota of ivory allotted for making carved articles. The Gujarat State Industrial Cooperative Association and the District Industrial Cooperative Association who arrange for the quota rarely place orders for such carved articles or purchase them. On the other hand artisans cannot afford to explore the market for such artistic and fancy articles or wander from one place to another to sell them as their economic condition would not permit incurring all these expenses. In the result, the fluctuating condition of supply of essential raw material and lack of demand of finished goods adversely affect the craft causing workers to shift from this craft to another.

VII.4 Though the artisans are keen to keep this art alive, they are severely handicapped due to the shortage of capital. They cannot purchase ivory directly from the market or stock finished products on hand. These problems create unemployment during the year especially in May to August when they do not have work for eight hours a day. Most of the articles are sold in the local market. The artisans themselves retail the articles on cash at their own shops. Sometimes the artisan being familiar with a particular family, sells on credit, generally for a period of 15 to 90 days. The articles are purchased once or twice during the lifetime and the demand, therefore, does not fluctuate much. While selling thick ivory bangles to the women of cultivating castes like Kharak and Bharwad, the artisan is also required to put them on the girl's heavy hands. At times this does not prove to be any easy task. The artisan applies soap and water on both

the palms and wrists of the women, at times also applying edible oil to make them more slippery. One person holds the hand and the artisan presses the bangle up towards the wrist with the help of a *chipiya* or fork having a round clamp joined between two handles. Sometimes string is used instead of a fork for pushing a bangle upward. Bruising of the skin and bleeding are common in the process, and in extreme cases, the woman even becomes unconscious. As a rule, a married woman never parts with these bangles in the lifetime of her husband. Thick and narrow bangles are preferred to avoid accidental breaking, which is considered an evil omen.

VII.5 As the articles are manufactured in small quantities, there is no scope for displaying them. The peak season is the marriage season, i.e., the six months from December to May, when the products are sold out within a period of 15 to 90 days of their manufacture. In case of sales outside Mahuva, artisans send the articles through post, though the popular agency of *angadia*, i.e., a system of transport of goods by establishments engaged in this work who employ their own men to carry articles from one place to another and deliver them in person to the consignee on payment of reasonable fees.

VII.6 The articles are not exported to other countries. No undisposed of stock was reported during the year of survey. From the income of Rs. 14,160 for the five households, it can be inferred that articles worth Rs. 56,000 are manufactured and sold during 1963 on the basis of nearly 25 per cent profit on the finished articles as reported by the artisans.

SECTION VIII

ECONOMIC CHARACTERISTICS

Capital Structure

VIII.1 It is estimated that fixed capital invested by all the five establishments in owned worksheds amounts to Rs. 10,000, besides nearly Rs. 3,000 in tools and implements and Rs. 30,000 in circulating capital. This circulating capital also includes cash on hand and recovery pending with the customers. Thus, with the total investments of Rs. 43,000 in the entire craft, Rs. 8,600 are invested on an average by each establishment. However, an artisan intending to start this craft will require tools and implements valued at Rs. 500 to 1,000 and a cash amount of Rs. 3,000 to 4,000 on an average to run the establishment. At Mahuva, all the five establishments invest their own capital, and have not, therefore, taken any loans or advances from Government, money-lenders or bankers, a fact which bespeaks a fairly stable economy enjoyed by the ivory carvers of Mahuva.

Cost of Production and Earning

VIII.2 In the manufacture of simple or carved ivory articles, the expenditure on subsidiary raw materials like colours, acids, chemicals or edible oils is negligible as the main ingrediant required is the skill of the artisan. It can be seen from Table VIII given in the Appendix that the rate of profit works out to 25 per cent in the case of ivory bangles in the total expenditure of main and subsidiary raw materials which account for 75 per cent of the sale price. This margin of profit, however, includes remuneration for family workers or unpaid wages, interest, rent, depreciation, etc., reducing the element of actual profit earned.

VIII.3 The annual net income as reported by the proprietors of all the five establishments comes to Rs. 14,160. The earnings of one of them is Rs. 800 to 1,000 and that of the rest is more than Rs. 2,500 each per year. The average annual income per household comes to Rs. 2,832 and that per artisan Rs. 2,360.

VIII.4 In Mahuva the craft is a self-supporting one considering the capital structure and man-power employed in production. The artisans run the craft with their own capital and without hiring artisans of any other caste. Females help in the work of dyeing of bangles at home after completing their household duties and male children repair the bangles or arrange the tools and implements at the shop when they are free from study. Because of the irregular supply of raw material as well as lack of full-time work, two artisans have supplemented their income by starting an oil mill, making plastic or celluloid articles and selling of hardware.

Workers

VIII.5 The statement given below distributes the members of these 5 families into workers and non-workers by sex and age group.

STATEMENT V
Workers by age group

Age group	Persons				Males				Females			
	Workers in this craft	Workers in other occupation	Non-workers	Total	Workers in this craft	Workers in other occupation	Non-workers	Total	Workers in this craft	Workers in other occupation	Non-workers	Total
1	2	3	4	5	6	7	8	9	10	11	12	13
Total	**6**	..	**26**	**32**	**6**	..	**11**	**17**	..	..	**15**	**15**
Below 15 years	1	..	13	14	1	..	5	6	..	..	8	8
15–34	3	..	6	9	3	..	3	6	..	..	3	3
35–59	2*	..	7	9	2	..	3	5	..	..	4	4

* The two males also work in other occupations as a subsidiary activity.

Out of 32 persons enumerated in these five households, 6 or 18.75 per cent are workers and 26 or 81.25 per cent are non-workers. All except one of the artisans are aged between 15 and 59 years. Two artisans falling in the age group 35-59, work in other occupations which are oil extracting, sale of hardware and making of plastic and celluloid articles. Females and children also help the artisans in spare hours as discussed above. Among the non-workers numbering 26, 11 males and 15 females are dependent on the head of the household owing to childhood, study, domestic duties and old age. A minor artisan aged below 15 points to the hereditary nature and skill acquired by the craftsman. An artisan who has attained about 25 years of age and has bright eye-sight and a steady hand for minute carving generally works in this craft up to the age of 60.

VIII.6 As mentioned earlier, the period of 8 months from September to April, generally the marriage season, is the peak season for manufacture and sale, whereas the remaining period of 4 months is the slack season. In the busy season artisans work up to 10 hours but in the remaining months they hardly work for four hours a day. As the artisans do not work on Sundays and Hindu festivals, the number of working days per year come to about 300.

Other Centres

VIII.7 Ivory bangles are manufactured in all important towns by artisans of Brahmakshatriya caste. Centres deserving special mention are (1) Jamnagar, (2) Jamkhambhalia, (3) Wadhwan-Surendranagar, (4) Dhrangadhra, (5) Palitana, (6) Mandvi, (7) Anjar, (8) Bhuj, (9) Ahmedabad, (10) Surat, (11) Kodinar, (12) Palanpur, (13) Patan and (14) Baroda. But so far as ivory carving is concerned Mahuva ranks first on account of its workmanship. There is no competition among these centres as only a limited quota of raw ivory is supplied to the artisans. There is also no arrangement for providing intelligence to the craftsmen about marketing trends of different articles at different places.

VIII.8 A survey of the craft of ivory bangles making was carried out in 1961 by the All-India Handicrafts Board at Surat, one of the important centres of the industry, where seven establishments were working with 10 family workers and 3 wage-earners. A comparative picture of the craft as practised at Mahuva and Surat is given in Table XI in the Appendix.

SECTION IX

CONCLUSION

IX.1 THE FUTURE of the ivory craft at Mahuva does not at all appear to be bright. Shortage of finance and raw materials as well as diminishing demand of exquisitely carved articles hamper the natural growth of this handicraft. Only the Government and institutions like the All-India Handicrafts Board and Akhil Bharat Khadi Gramodhyog Board can keep this craft alive by united efforts for its survival. Financial assistance for the purchase of raw materials, tools and implements and for building worksheds would no doubt help the craftsmen. But the immediate and essential needs are a regular supply of raw materials at reasonable rates and a revival of the demand for its finished products which alone can prevent the craft from further set-back. In the artistic side of the craft, namely, manufacture of carved articles, the art has much more than a mere utilitarian value as in the case of bangles. Ivory carving represents an age-old tradition of art as also of the aesthetic expression of the people through dainty objects exquisitely worked in minute detail and with an unsurpassed delicacy of form. The craft has now fallen into disfavour to such an extent that carved articles are produced only when they are ordered for. The craft is not practised on any large scale in Gujarat. For the present only two centres Mahuva and Surat, are well-known for carving. Since the dimensions of the problem are not large, it is within the bounds of practicality for the authorities to stimulate and revive this craft which is one of the few reminders of the pristine glory of the Indian art traditions by removing some of the handicaps from which it suffers.

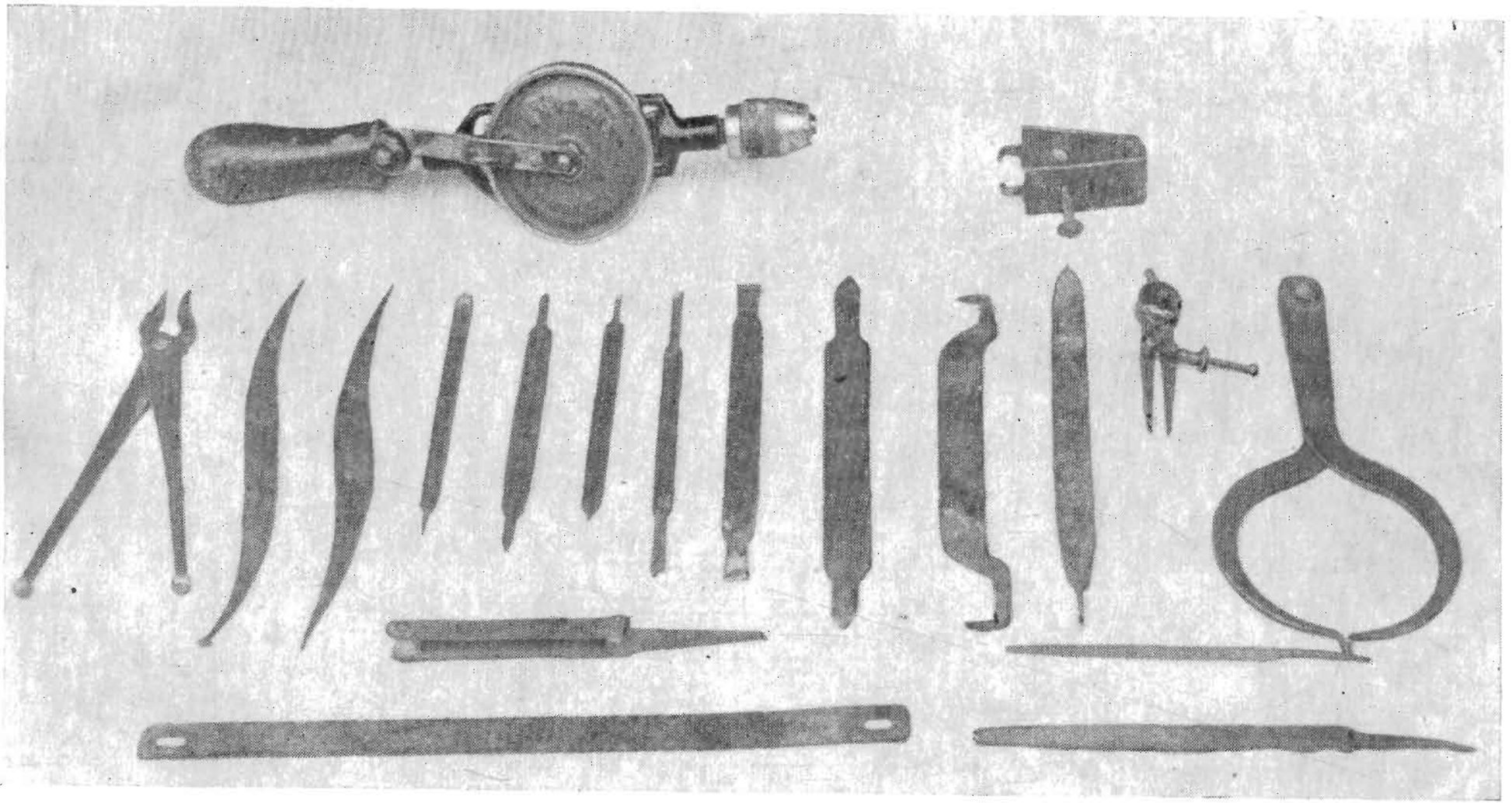
IX.2 Besides the regular supply of raw ivory at controlled price, other measures that can be conceived to promote this craft are the training of a few master-craftsmen in preparing new designs in tune with modern tastes, popularisation of fancy ivory articles, including ornaments and creating a demand for the products in the country and abroad. Propaganda, publicity and exhibitions and emporia organised by various institutions working for the revival of India's traditional handicrafts can do much in this direction.



Sawing of the tusk

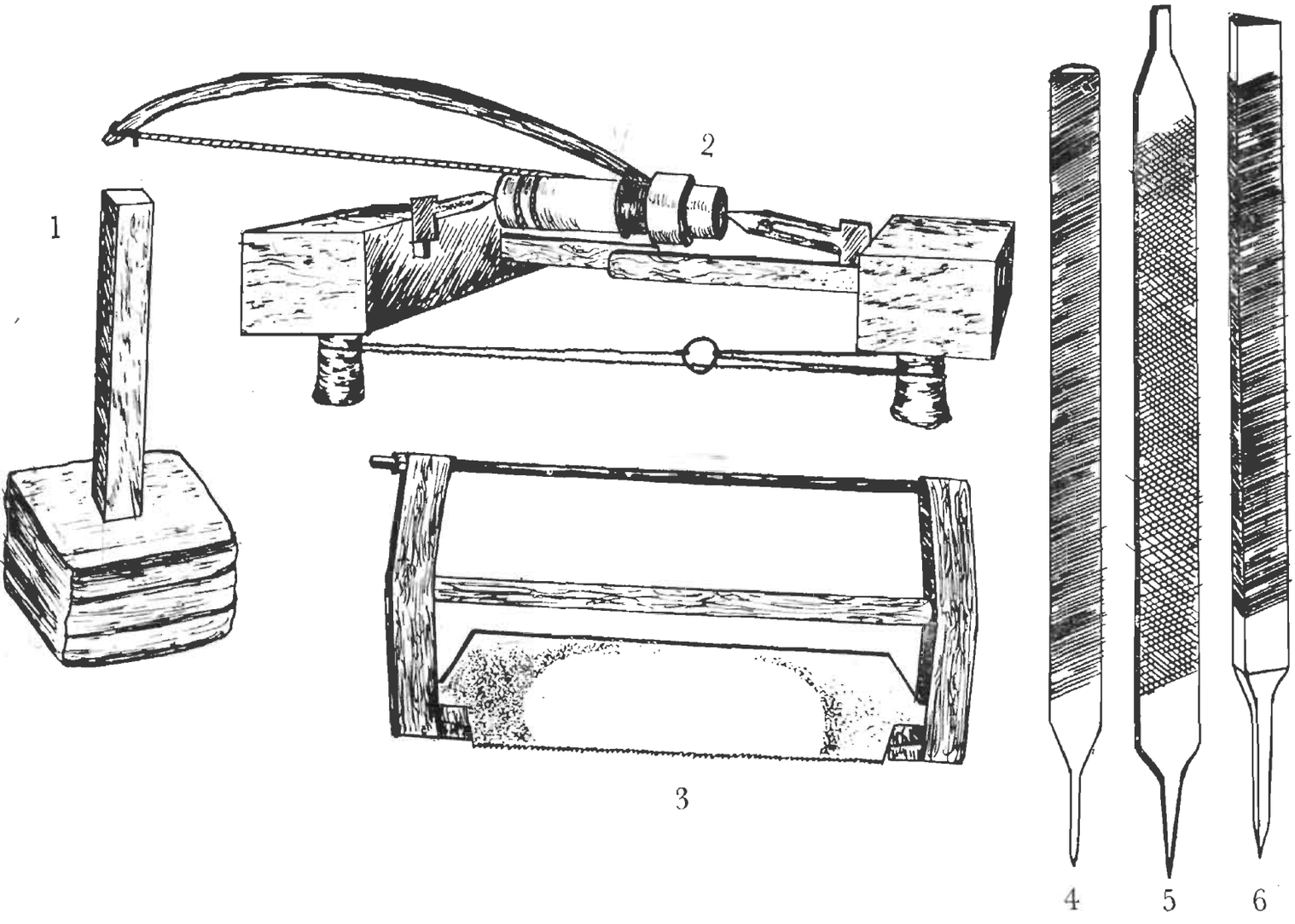


Removing wax from the inner surface of the tusk



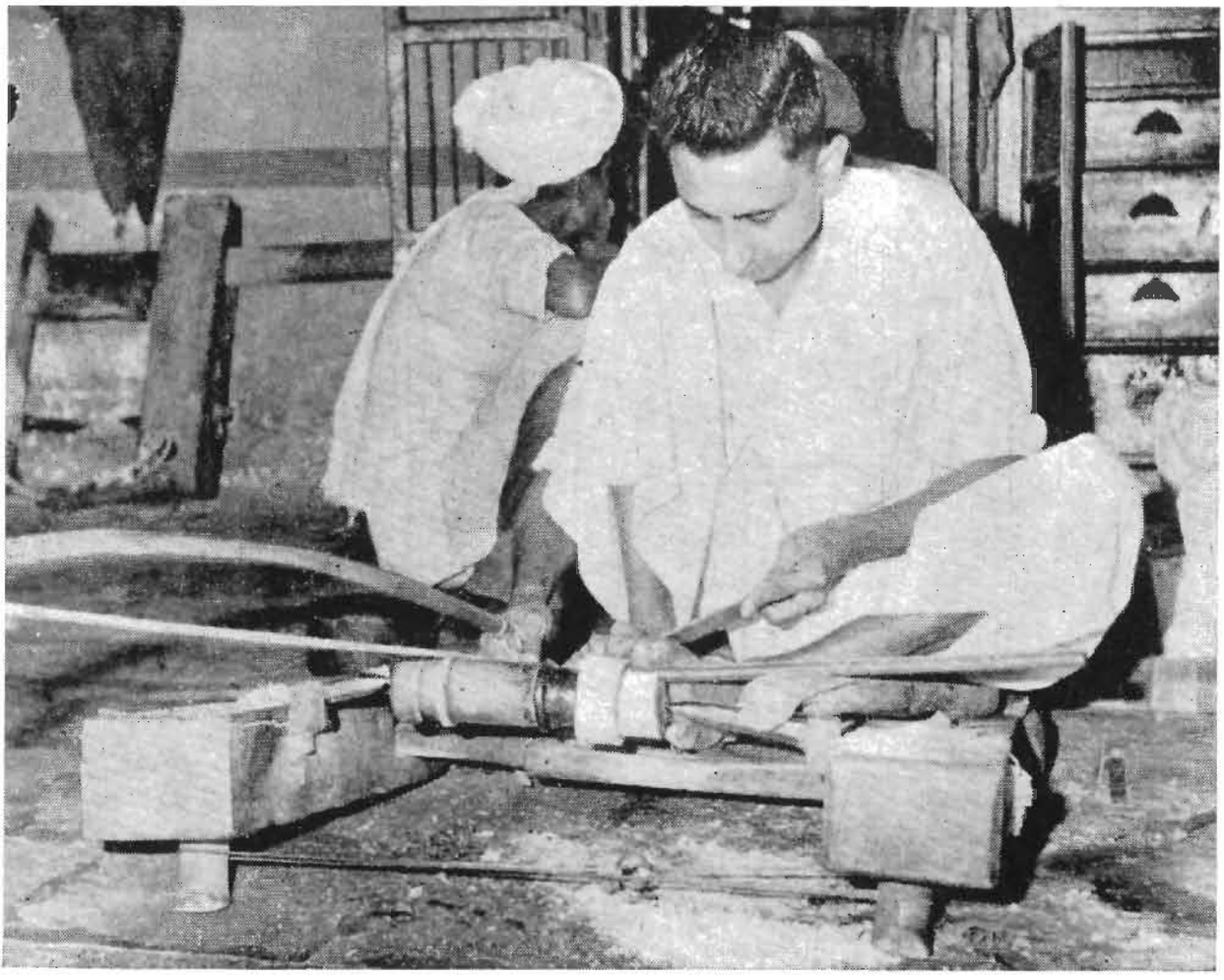
TOOLS AND IMPLEMENTS

1. Drill; 2. Vice (hath sighro); 3. Pincers (sansi); 4-5. Gravers (kotarni); 6, 7, 8, 9 & 13. Scrapers (pati); 10. Chisel (barakhi); 11-12. Cutters; 14-15. Compass; 16-17. Hand-saw (hath karvat); 18-19. Triangular and flat files (kanas)

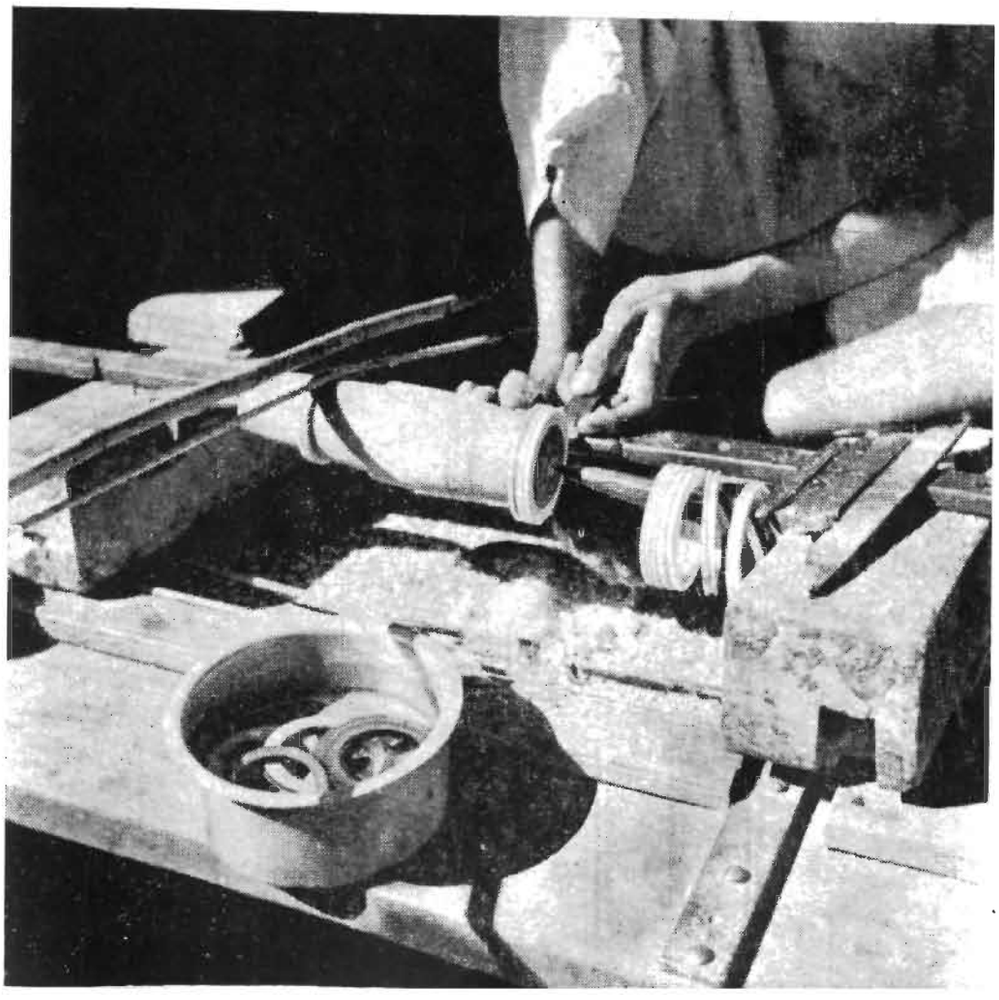


TOOLS: *1. Wooden support for carving; 2. Hand turned lathe; 3. Traditional saw; 4. Half round file; 5. Flat file; 6. Triangular file*

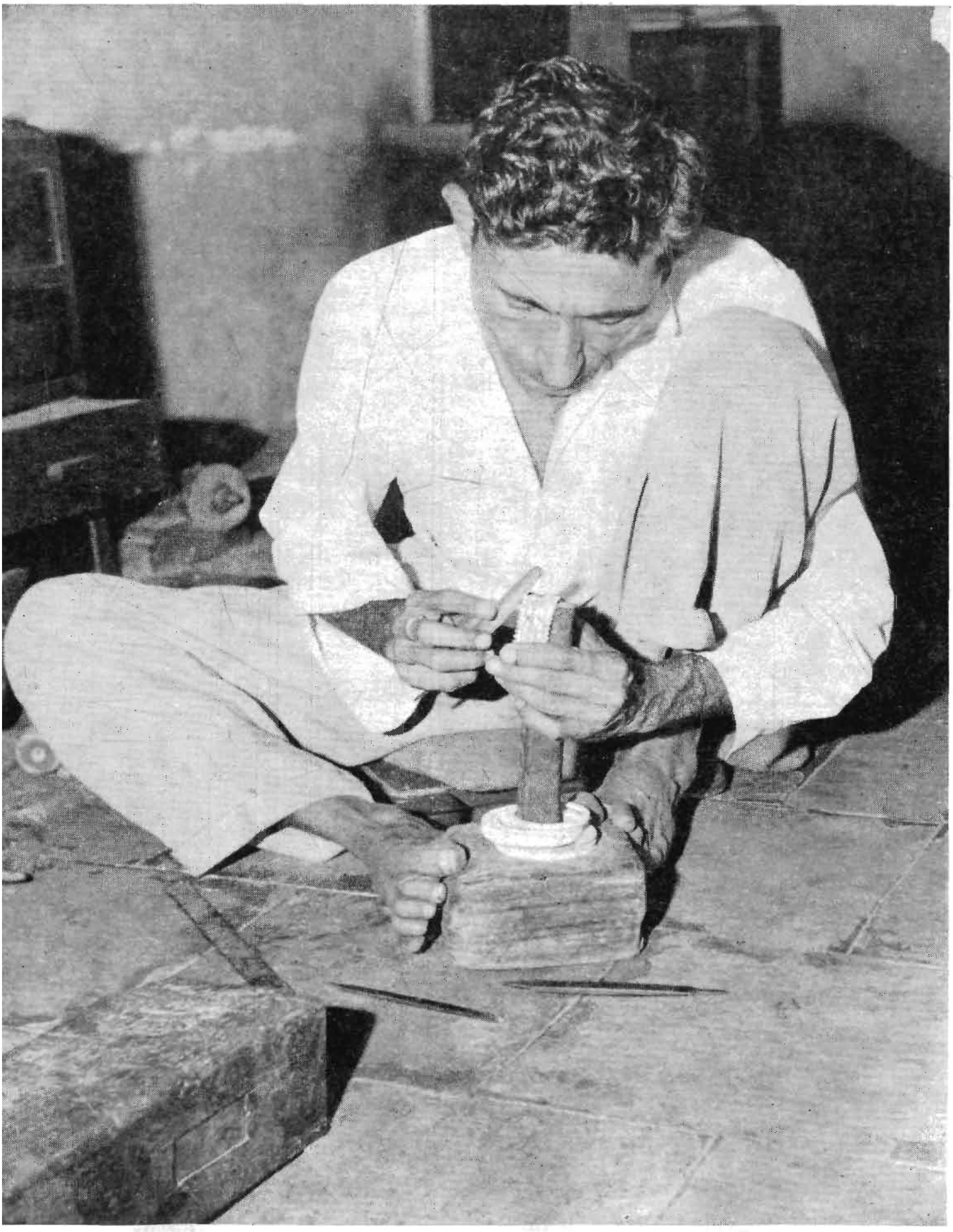
PLATE IV



Turning 'chudi' on hand operated lathe



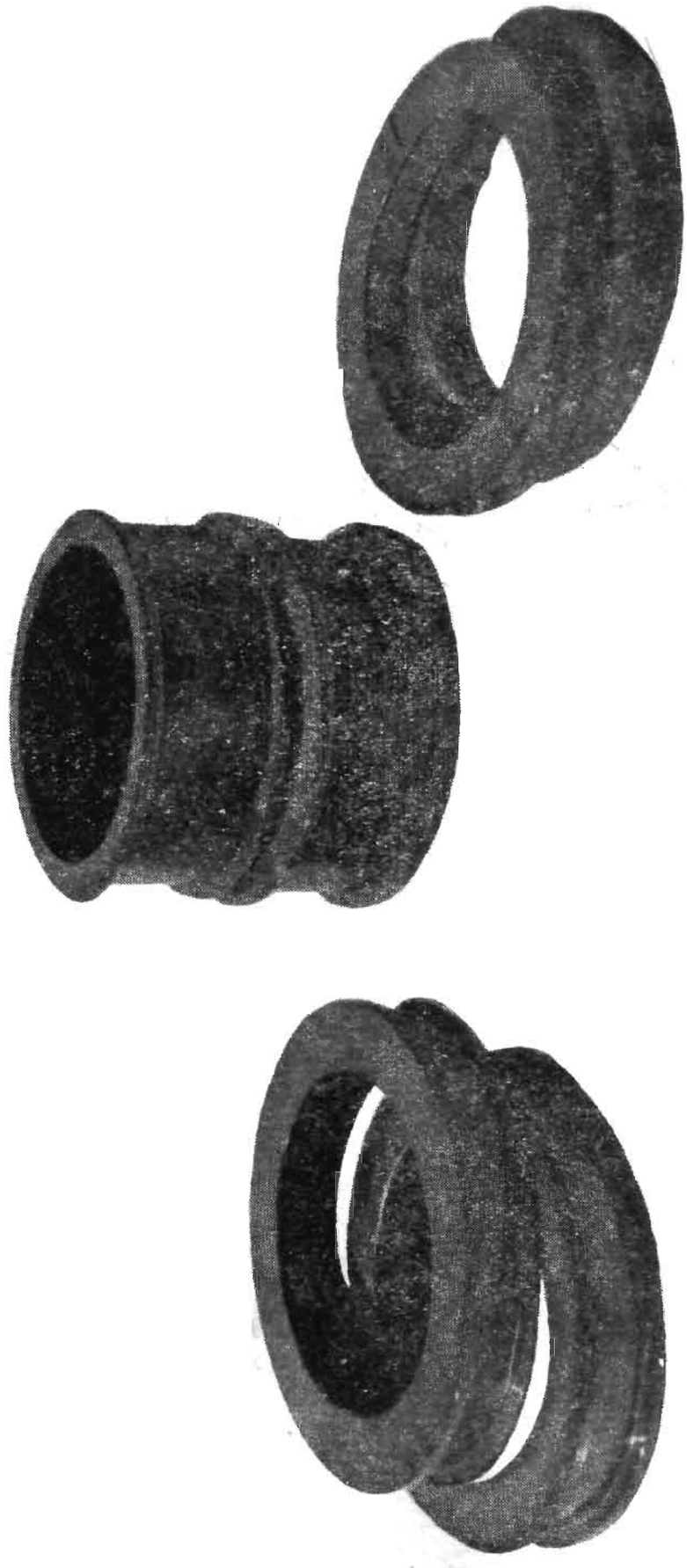
Making grooves in 'chudi'



Filing the edges

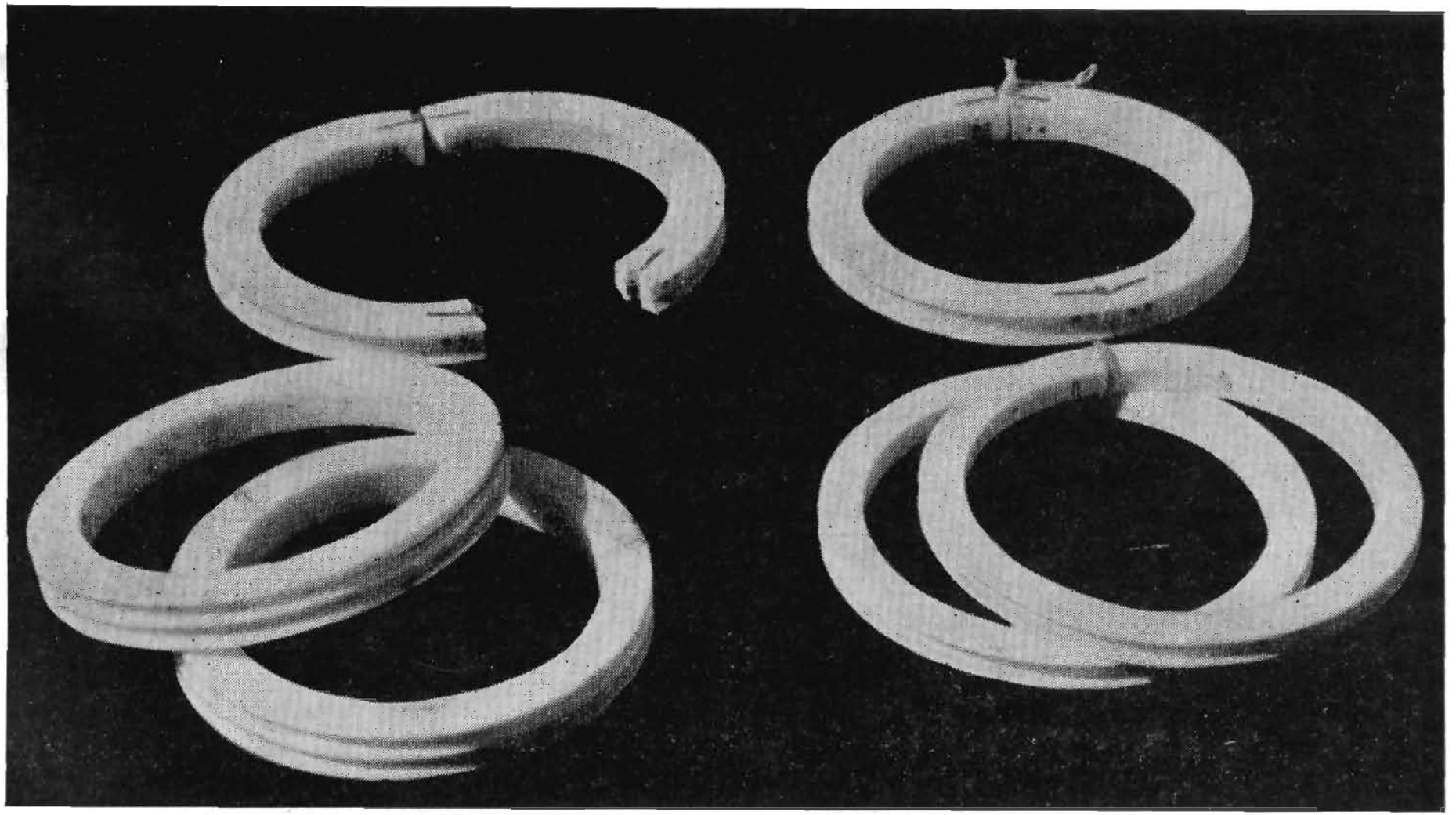


Figure carving



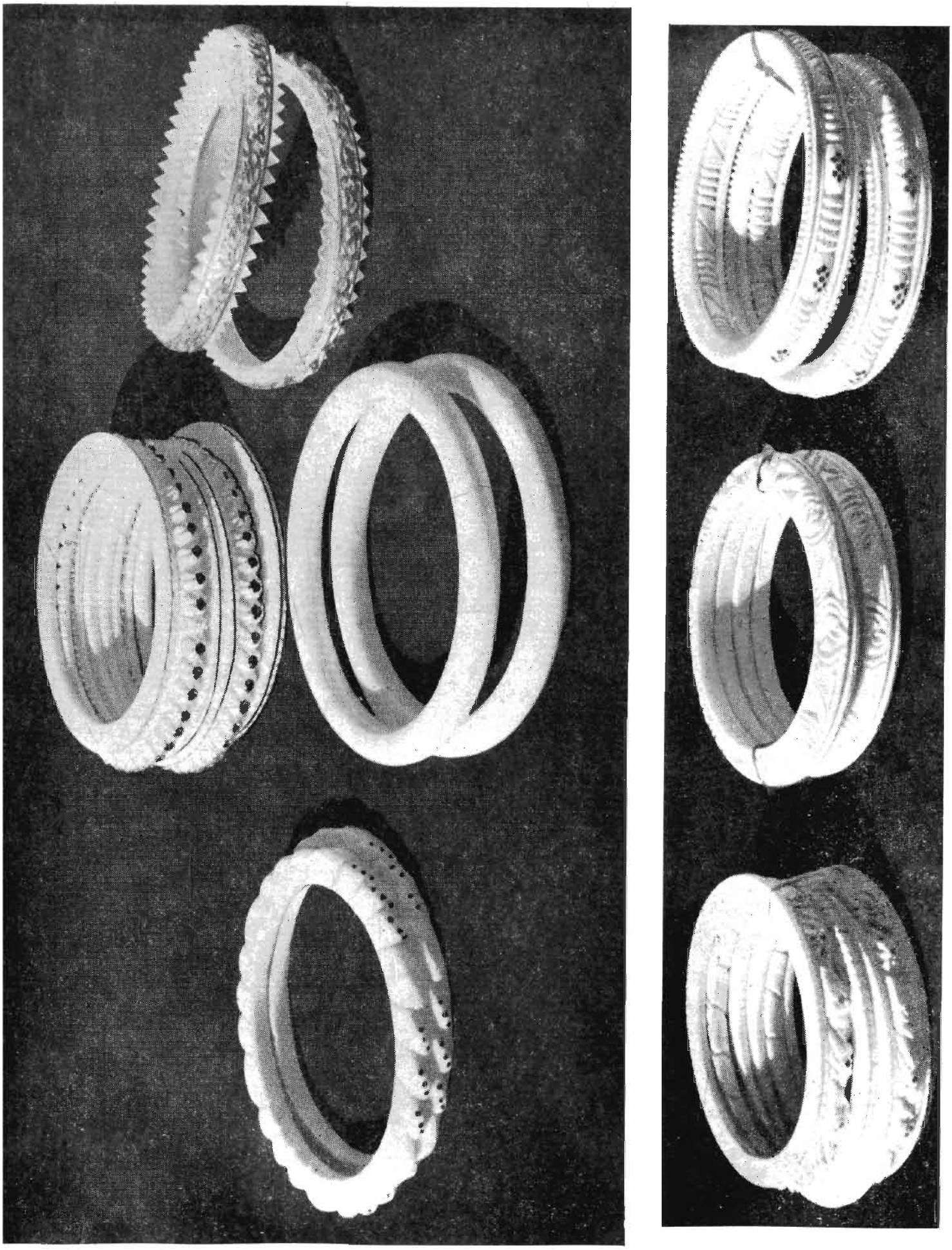
Simple 'baloya' and 'chudi'

1 2



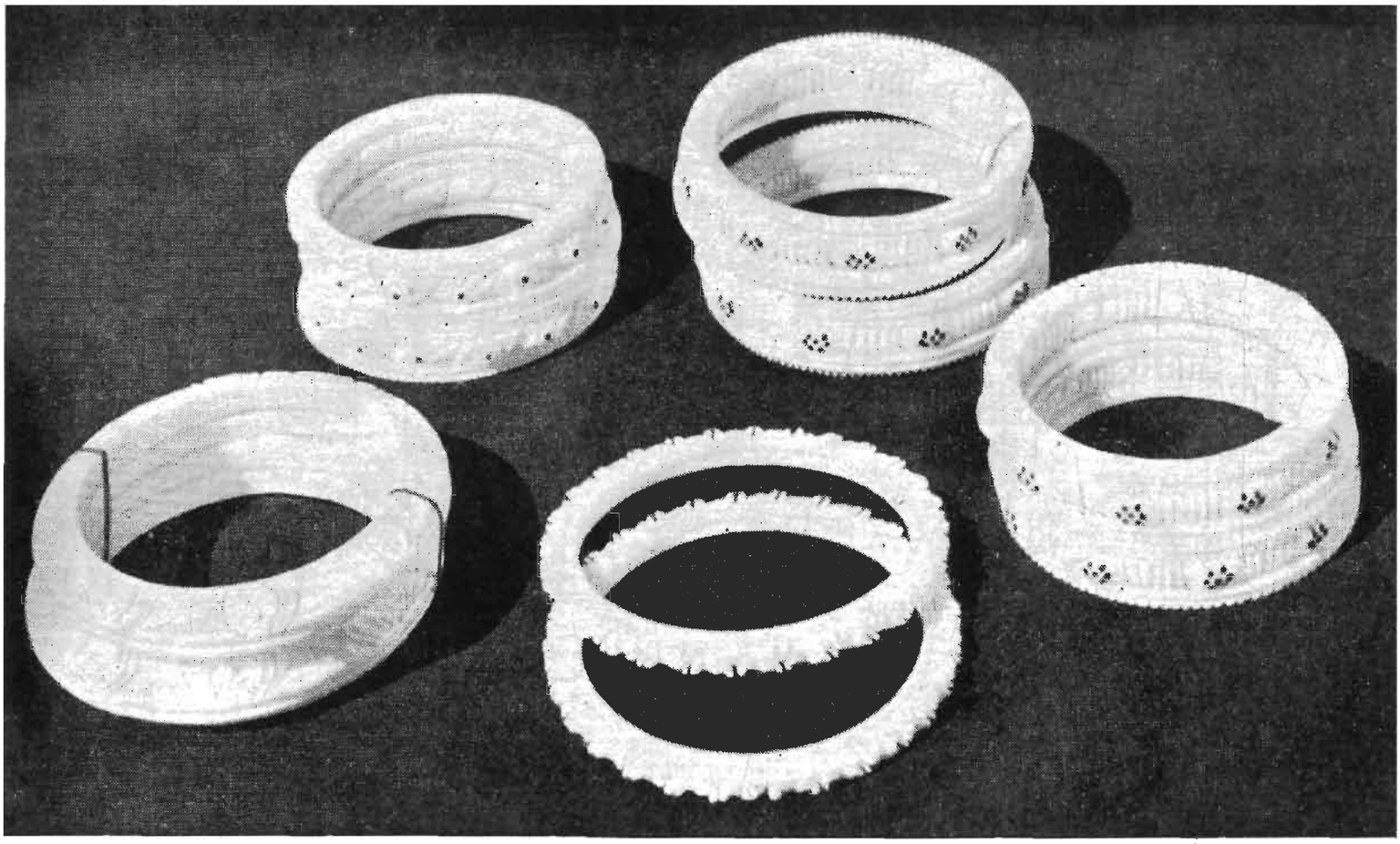
3 4

1-2. Chudis joined with hinges; 3. Be-pativali chudi; 4. Ekpati-ni chudi



Bangles of various shapes and designs

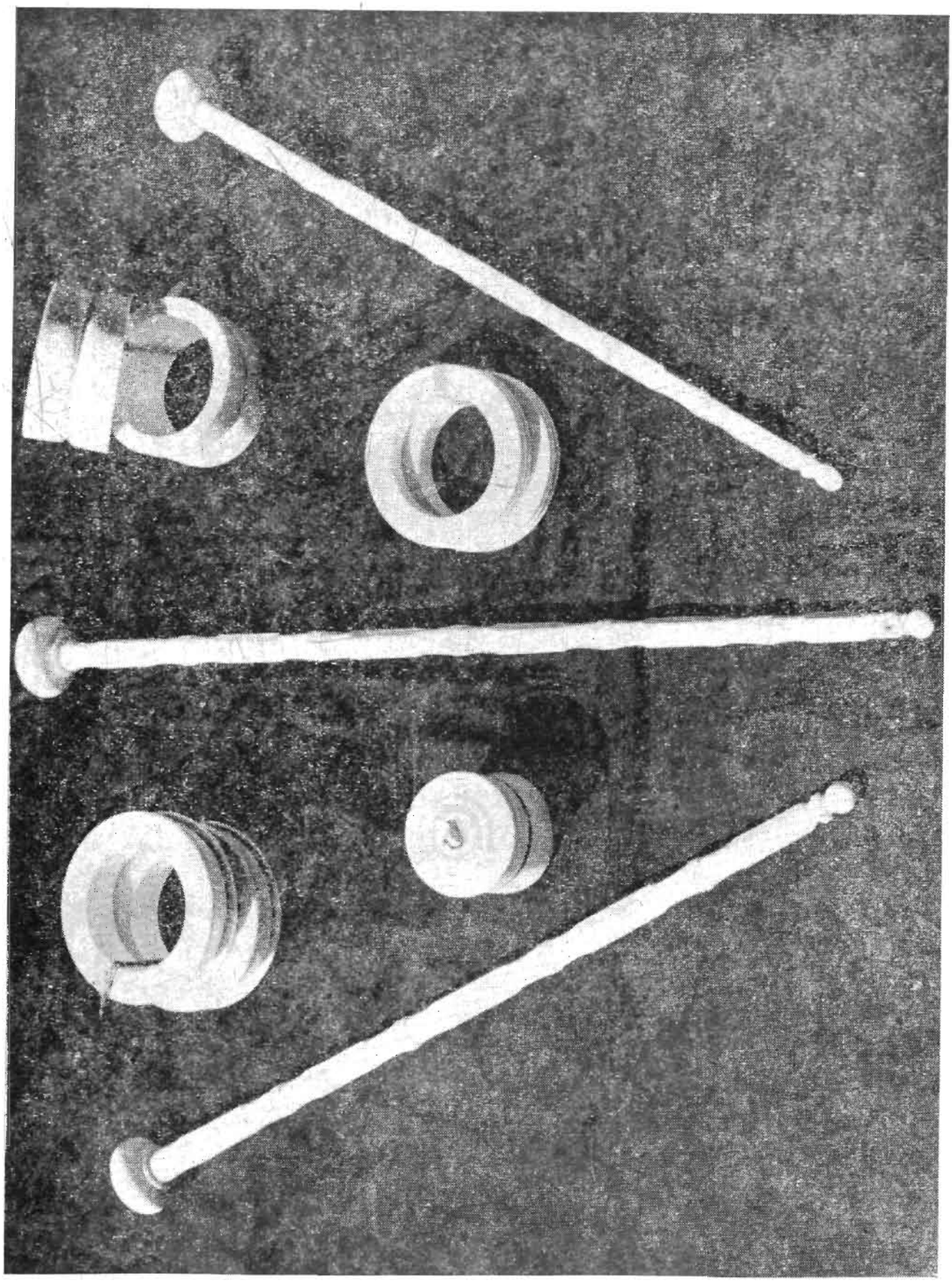
PLATE X



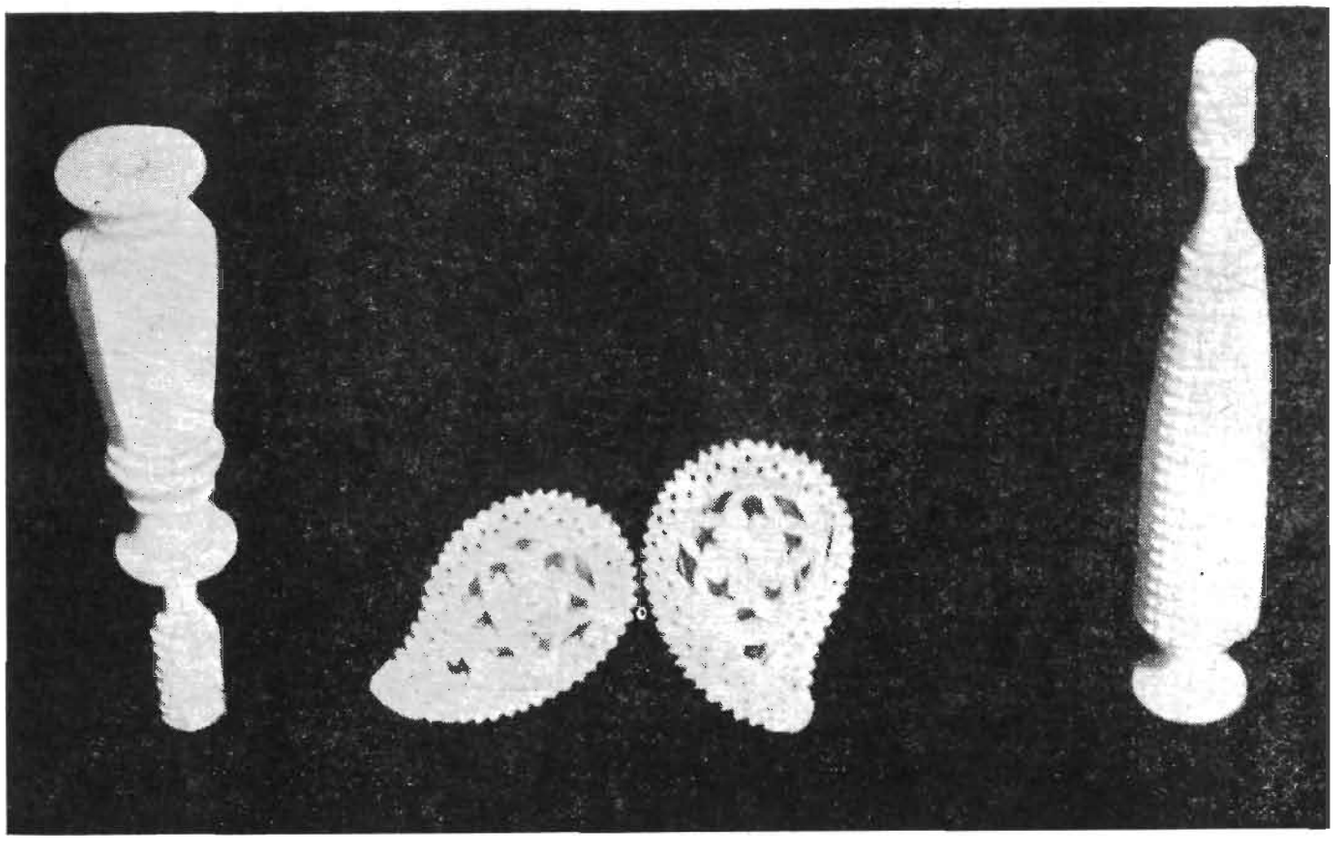
Bangles with carved designs



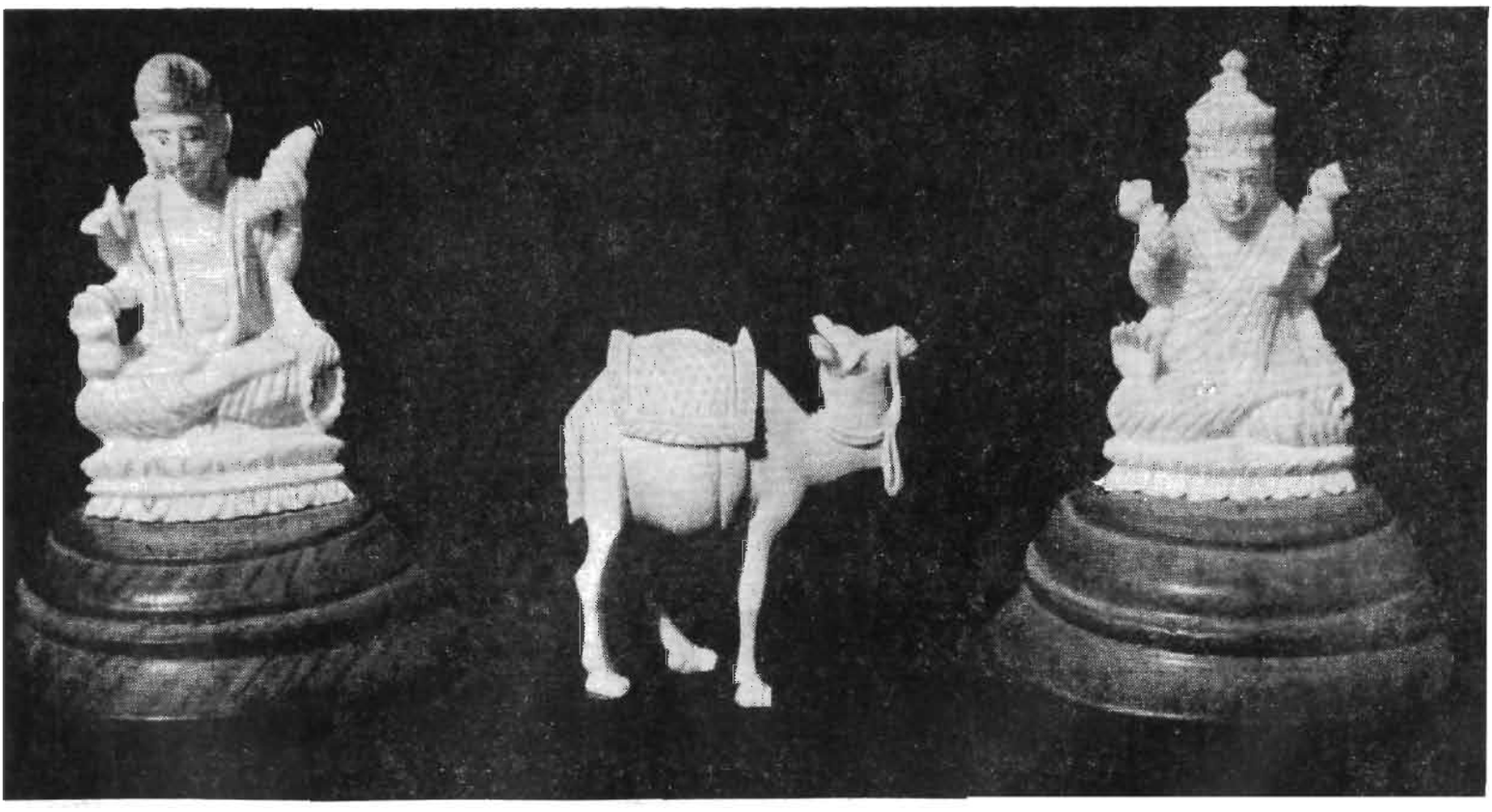
'Chudis' with artistic strips in gold



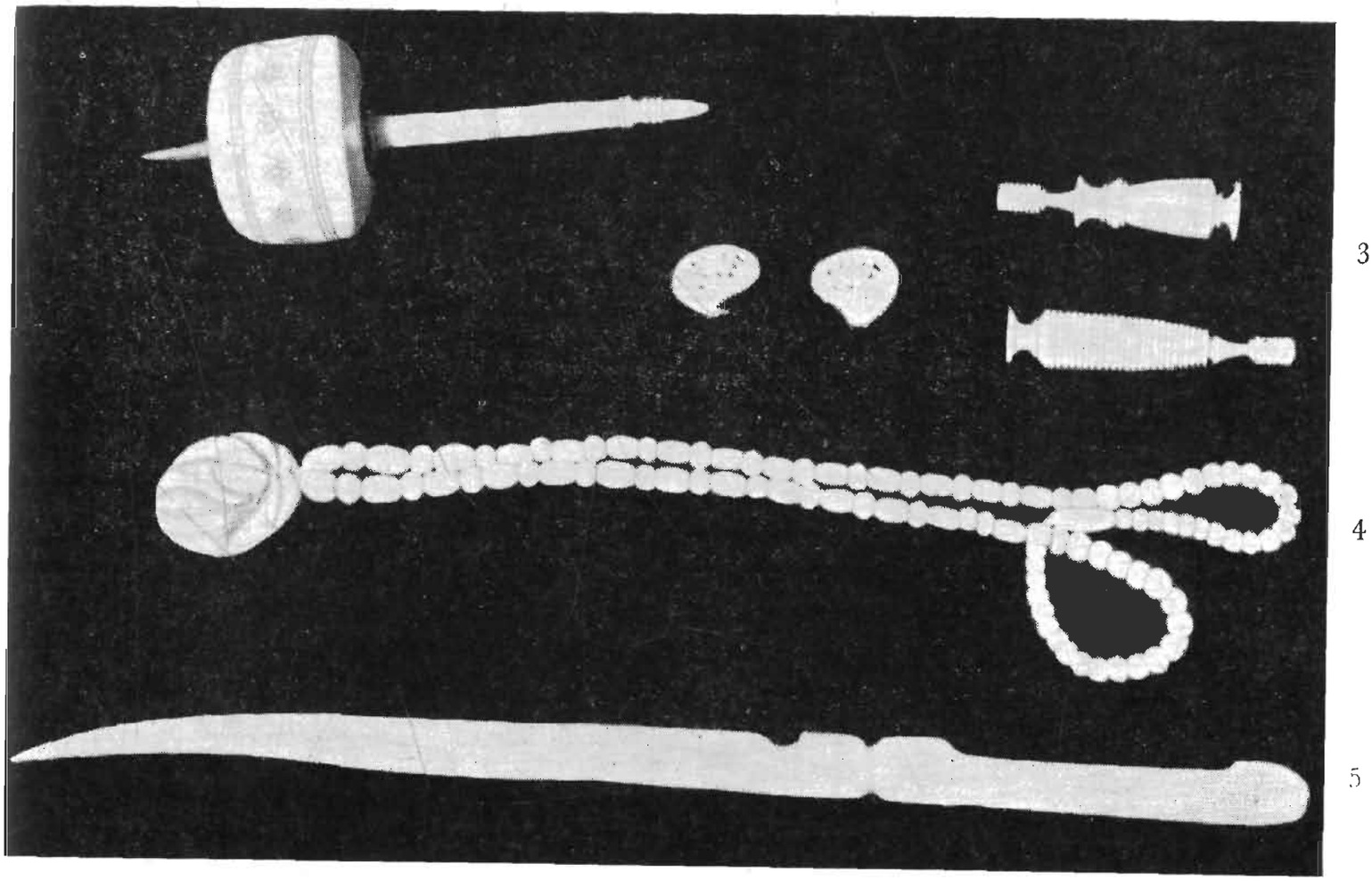
Sticks, Snuff box and Bangles



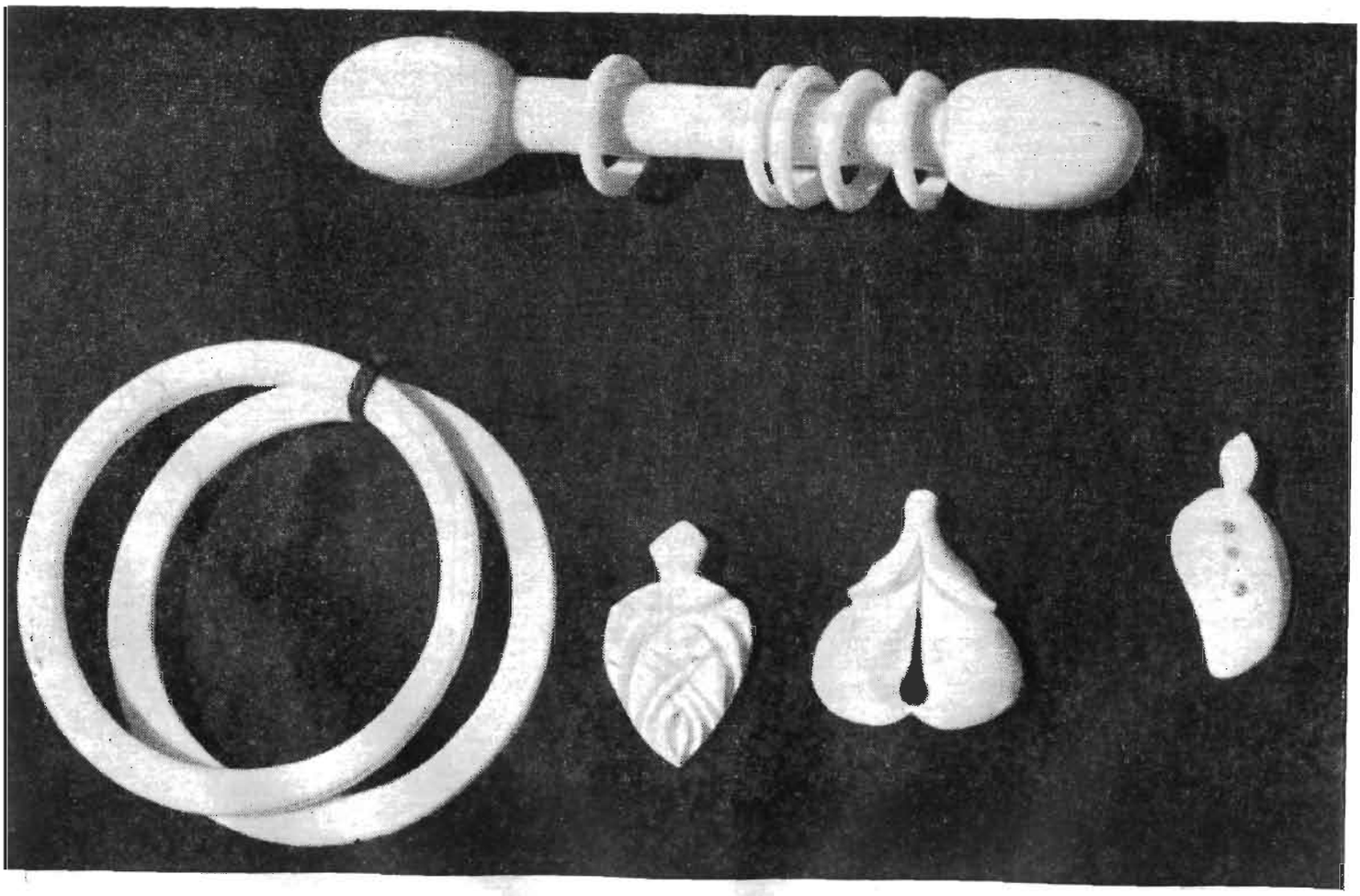
Antimony holders and earrings



Beautiful specimens of ivory carving

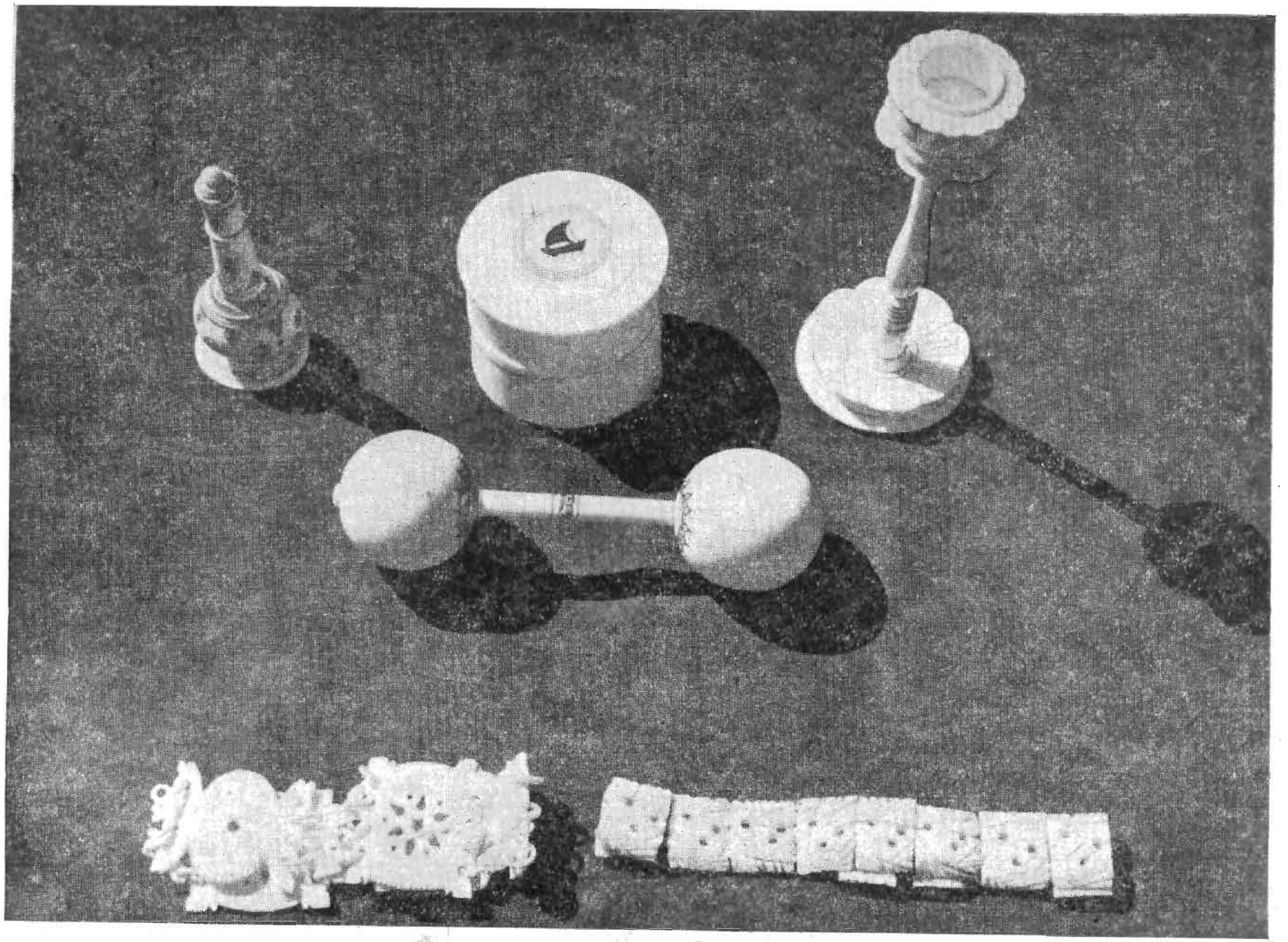


1. Koyal; 2. Earrings; 3. Antimony holders; 4. Necklace; 5. Paper cutter



Ivory toys and 'chudi'

1 2 3



4

5

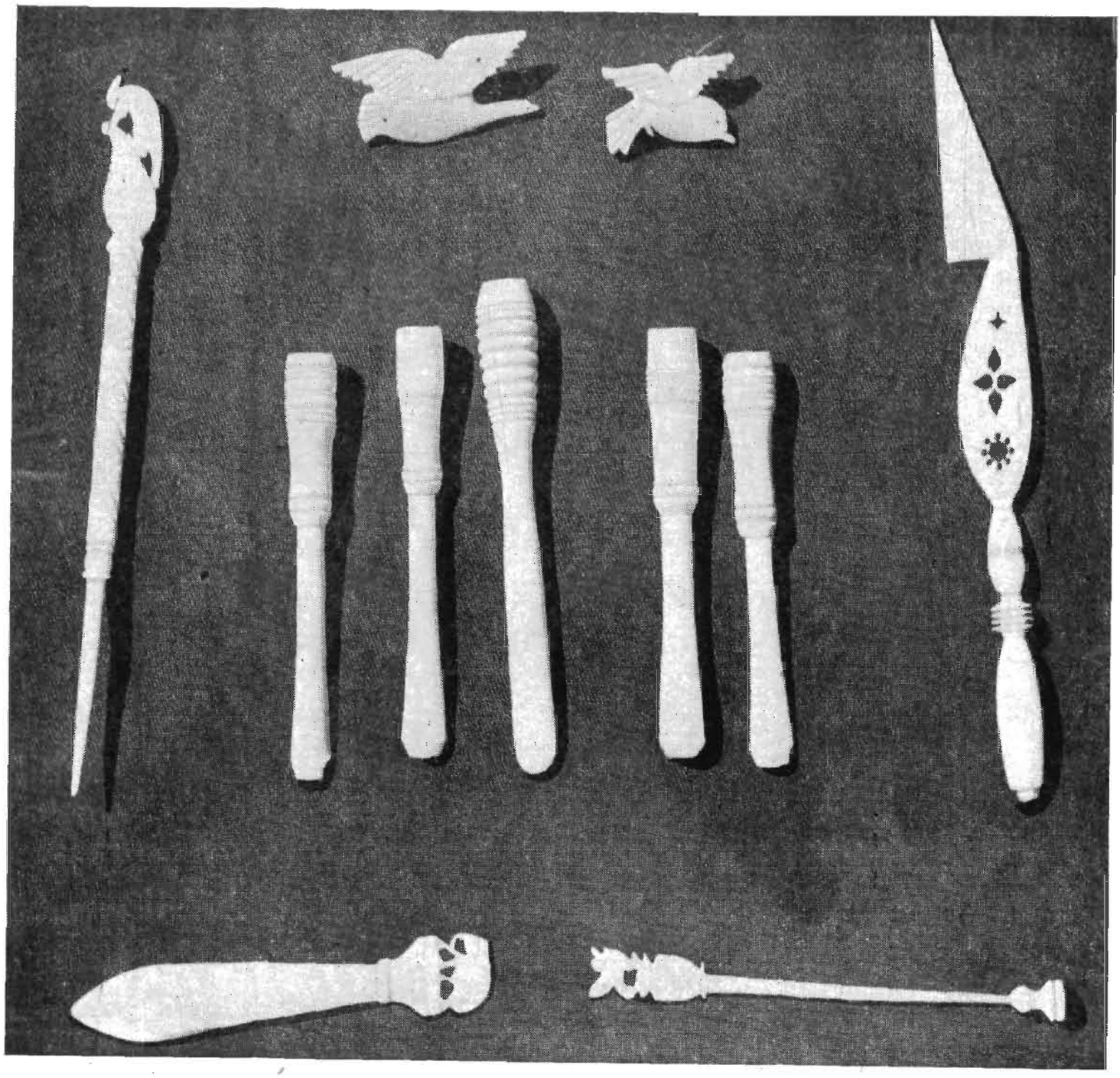
6

1. Agarbatti stand; 2. Powder box; 3. Kankavati; 4. Ghughro (Toy); 5-6. Bracelets

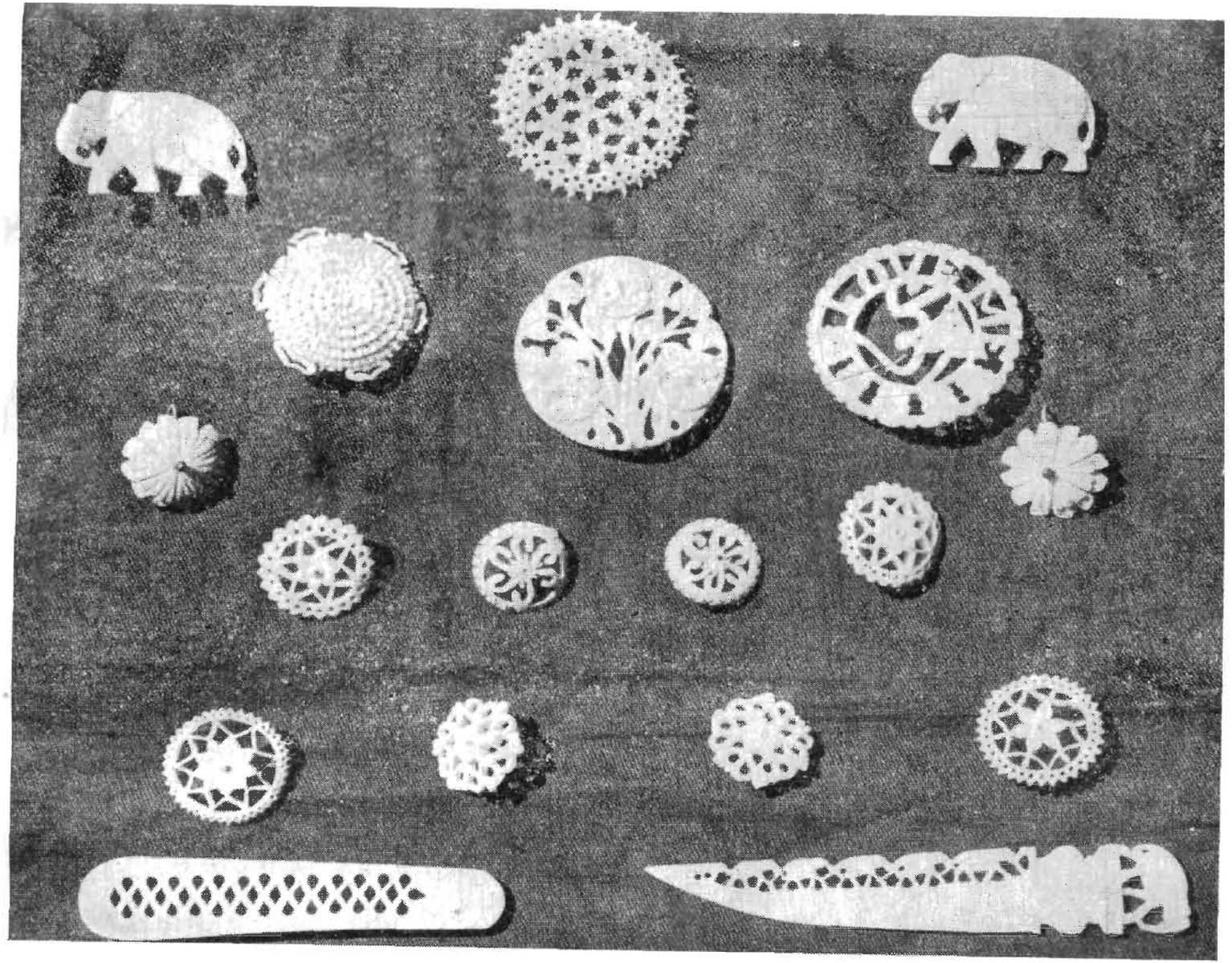


Carved ivory articles

PLATE XVI



1-2. Buckles; 3. Antimony stick; 4 to 8. Cigarette holders; 9-10. Paper cutters; 11. Tika stick



Buckles, Brooches, Ear-tops and Paper cutters perforated in varied designs



Rose water sprinkler

PLATE XVII

PLATE XVIII



Striking the bargain

PLATE XVIII



Striking the bargain

APPENDIX

APPENDIX

TABLE I

Number of persons employed in production

Name of craft	No. of towns surveyed	Number of persons employed in production		
		Persons	Males	Females
1	2	3	4	5
Ivory articles . . .	1 Town (Mahuva)	6	6	..

TABLE II

Distribution of artisan communities

Name of caste	No. of towns surveyed	No. of families	Total number of adult workers			Number of families working under co-operation	Number of families working in own houses or in workshops set up by their employers
			Persons	Males	Females		
1	2	3	4	5	6	7	8
Brahmakshatriya	1 Town (Mahuva)	5	6	6	..	Nil	5 (in own houses)

TABLE III

Distribution of articles of rural crafts by materials used

Name of article	Main material	Subsidiary material		Raw material imported
	Name of material	Name of material	No. of towns engaged in manufacture	Place from which imported (name of State or country)
1	2	3	4	5
Idols, ornaments, luxury articles, toys, animals and human figures	Ivory	(i) Majith or the maddar plant or *Rubia tinctorum* (ii) Harda or *Myrobalan chabulic* (iii) Red colour (I.C.I/C.I.B.A.) (iv) Lemon juice (v) Temarind (vi) Tartaric acid (vii) Hydrogen peroxide (viii) Edible oil	1 Town (Mahuva)	Bombay, Bhavnagar, Ahmedabad

TABLE

Purchase, sale and allotment

Sl. No.	District	Purchase in lbs.[1] V. S. 2016 (1960 A.D.)	Purchase in lbs.[1] V. S. 2017 (1961 A.D.)	Sale in lbs.[1] V. S. 2016 (1960 A.D.)	Sale in lbs.[1] V. S. 2017 (1961 A.D.)	No. of allottees
1	2	3	4	5	6	7
	Total	**60,413.77**	**35,181.87**	**18,152.38**	**2,463.82**	**236**
1	Jamnagar	1,526.70	584.18	50.00	..	6
2	Rajkot	2,280.08	981.22	9.31	10.00	22
3	Surendranagar	4,627.12	2,347.49	501.14	..	20
4	Bhavnagar	3,823.00	2,689.00	..	..	17
5	Amreli	159.31	151.81	18.44	15.00	4
6	Junagadh	762.24	427.21	..	..	12
7	Kutch	1,987.76	1,220.38	..	..	10
8	Banaskantha	3,606.50	4,351.61	..	..	23
9	Saharkantha	250.52	112.00	..	..	1
10	Mehsana	4,603.55	3,549.36	90.00	13.00	23
11	Ahmedabad	32,724.35	15,412.12	17,216.49	2,253.52	49
12	Kaira	1,261.20	1,252.18	..	58.30	13
13	Baroda	1,262.50	1,078.00	327.00	114.00	14
14	Broach	259.00	95.00	..	..	2
15	Surat	1,279.94	930.31	..	..	20

NOTE :

1. Purchased directly by the artisans from the open market
2. Allotted by the Gujarat State Industrial Cooperative Association Ltd., Ahmedabad
3. Calculated from the corresponding figures under cols. 7 to 9

IV

of ivory, Gujarat State

Sl. No.	District	Allotment in lbs.[2] April–May 1962	Allotment in lbs.[2] September 1963	Average allotment per allottee in lbs.[3] April–May 1962	Average allotment per allottee in lbs.[3] September 1963	Percentage of allottees[3]	Percentage of allotments[3] April–May 1962	Percentage of allotments[3] September 1963
1	2	8	9	10	11	12	13	14
	Total	**7,314**	**4,158**	**30.99**	**17.62**	**100.00**	**100.00**	**100.00**
1	Jamnagar . . .	203	117	33.83	19.50	2.54	2.78	2.81
2	Rajkot . . .	447	261	20.32	11.86	9.32	6.11	6.28
3	Surendranagar . .	666	374	33.30	18.70	8.47	9.11	8.99
4	Bhavnagar . . .	707	394	41.59	23.18	7.20	9.67	9.48
5	Amreli . . .	60	40	15.00	10.00	1.70	0.82	0.96
6	Junagadh . . .	216	134	18.00	11.17	5.09	2.95	3.22
7	Kutch . . .	327	188	32.70	18.80	4.24	4.47	4.52
8	Banaskantha . .	796	444	34.61	19.30	9.75	10.88	10.68
9	Sabarkantha . .	36	18	36.00	18.00	0.42	0.49	0.43
10	Mehsana . . .	807	451	35.09	19.61	9.75	11.03	10.85
11	Ahmedabad . .	2,045	1,140	41.73	23.27	20.76	27.96	27.42
12	Kaira . . .	312	180	24.00	13.85	5.51	4.27	4.33
13	Baroda . . .	286	178	20.43	12.71	5.93	3.91	4.28
14	Broach . . .	36	21	18.00	10.50	0.85	0.49	0.51
15	Surat	370	218	18.50	10.90	8.47	5.06	5.24

Source :

The Gujarat State Industrial Cooperative Association Ltd., Ahmedabad

TABLE V

Purchase and allotment of raw ivory

Sl. No. of artisans	No. of sanghedas	Purchase[1] V. S. 2016 (1960 A.D.) lbs.	Purchase[1] V. S. 2017 (1961 A.D.) lbs.	Allotment[2] April–May 1962 lbs.	Allotment[2] September 1963 lbs.
1	2	3	4	5	6
Total	9	**612**	**688**	**140**	**78**
1	2	213	226	44	22
2	1	75	246	32	16
3	3	90	106	19	10
4	1	94	43	15	10
5	1	90	42	15	10
6	1	50	25	15	10

Source :
The Gujarat State Industrial Cooperative Association Ltd., Ahmedabad

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NOTE :

1. Purchased directly by the artisans from the open market
2. Allotted by the Gujarat State Industrial Cooperative Association Ltd., Ahmedabad

TABLE VI

Designs

Name of article	Number of households engaged in manufacture indicating the sources from which they receive designs						Name of design and motif	
	Traditional	Self designed	Middlemen who undertake marketing	Design centres	Co-operative sales societies	Other sources	Name	No. of towns engaged in its manufacture
1	2	3	4	5	6	7	8	9
I IDOLS	5	5	None	..	...	...	Geometrical and floral designs Human figures, Animals, Birds	1 Town (Mahuva)
1 Krishna 2"								
2 Shankar 2"								
3 Lakshmiji 2"								
4 Parshvanath 2"								
II ORNAMENTS								
5 Necklace								
6 Earrings								
7 Ekpati-ni-chudi (0.25" to 0.50")								
8 Bepatiwali chudi (0.25" to 0.50")								
9 Kangan chudo (0.25")								
10 Patiwala Baloya (2" to 3")								
11 Baloya (3" to 5")								
III LUXURY ARTICLES								
12 Kankavati								
13 Kajal dabi								
14 Surma jalu								
15 Powder box								
16 Tika stick 4"								
17 Knife handle 2"								
18 Buckle								
19 Measure for powdered medicine 4"								
20 Paper cutter 5"								
21 Tie-pin 2"								
22 Buttons set (4 for shirt, 2 for cuff and 6 for coat)								
23 Gulabdani								
24 Attardani								
25 Ink-pen holder								
IV TOYS, ANIMALS AND HUMAN FIGURES								
26 Ghugharo								
27 Elephant 1"								
28 Camel 1"								
29 Horse 1"								
30 Human figure 1.5"								
31 Gandhiji								
32 National emblem								
33 Chess								

TABLE VII

Consumption and sale

Name of article	No. of households which entirely produce for use		No. of households which produce for both personal use and sale	No. of households which produce for sale in open market		No. of villages/towns where there are cooperative sales societies
	Domestic use	Use for ceremonial purposes		Order of middlemen who advance money and undertake marketing facilities	Others	
1	2	3	4	5	6	7
I Idols	..	..	..	..	5	..
II Ornaments						
III Luxury articles						
IV Toys, animals and human figures						

TABLE VIII

Cost of production, sale price and earnings

Name of article	No. of centre surveyed	Cost per piece of raw material Rs.	Cost of conversion into finished product per piece Rs.	Average sale price of finished goods Rs.	Average earning per pair/piece Rs.
1	2	3	4	5	6
Bangles (one pair)	1 Town (Mahuva)	14.50	0.50	20	5.00 (Pair)
Idol 2" (one piece)	,,	1.00	0.50	5	3.50 (piece)

TABLE IX

Finished ivory articles

(Year 1966)

Sl. No.	Article	Price (Rs.)
1	2	3
I	IDOLS	
1	Krishna 2"	5.00
2	Shankar 2"	5.00
3	Lakshmiji 2"	5.00
4	Parshvanath 2"	5.00
II	ORNAMENTS	
5	Necklace	10.00 to 50.00
6	Earrings	5.00
7	Ekpati-ni-chudi (0.25" to 0.50")	5.00 to 25.00
8	Bepatiwali chudi (0.25" to 0.50")	5.00 to 25.00
9	Kangan chudo (0.25")	10.00
10	Patiwala Baloya (2" to 3")	20.00 to 50.00
11	Baloya (3" to 5")	50.00 to 100.00
III	LUXURY ARTICLES	
12	Kankavati	8.00
13	Kajal dabi	6.00
14	Surma jalu	6.00
15	Powder box	12.00
16	Tika stick 4"	5.00
17	Knife handle 2"	4.00
18	Buckle	2.00
III	LUXURY ARTICLES-*contd.*	
19	Measure for powdered medicine 4"	5.00
20	Paper cutter 5"	10.00
21	Tie-pin 2"	5.00
22	Buttons set (4 for shirt, 2 for cuff and 6 for coat)	8.00
23	Gulabdani	60.00 to 100.00
24	Attardani	15.00 to 20.00
25	Ink-pen holder	10.00 to 15.00
IV	TOYS, ANIMALS AND HUMAN FIGURES	
26	Ghugharo	6.00
27	Elephant 1"	5.00
28	Camel 1"	5.00
29	Horse 1"	5.00
30	Human figure 1.5"	5.00
31	Gandhiji	40.00 to 75.00
32	National emblem	40.00 to 75.00
33	Chess	150.00

TABLE X

List of very skilled craftsmen of each community

Name of town	Name of craft	Name of caste	Name of skilled craftsmen
1	2	3	4
Mahuva	Ivory articles	Brahmakshatriya	Chunilal Tribhovandas Jayantilal Dhananjay Pradyuman Tribhovandas Dwarkadas Gordhandas Gordhandas Keshwji Ramniklal Gordhandas

TABLE XI

Comparative details of the industry at Mahuva and Surat

		Mahuva	Surat
1	*Number of establishments*	5	7
	(a) Inherited	5	3
	(b) Self started	..	4
2	*Nature of organisation*		
	(a) Proprietary establishment	5	6
	(b) Partnership	...	1
	(c) Others	—	—
3	*Place of manufacture*		
	Within the dwelling	1	7
	Separate premises	4	..
	Common shed	..	..
4	*Mode of work*		
	(a) Own account	5	7
	(b) On contract or wages	..	..
5	*Motive power used*		
	Completely manual	5	7
	Others	..	..
6	*Average number of days worked in a year*	300	245.7
7	*Total number of mandays*		
	Worked during the year	1,800	3,178
	Average number of mandays per establishment	360	454
8	*Total employment* (full-time)		
	Total	*6*	*13*
	Family workers	6	10
	Hired workers	0	3

		Mahuva		Surat	
9	*Raw material consumed*	Quantity	Value (Rs.)	Quantity	Value (Rs.)
	Ivory (in lbs.)	700	37,685	790	33,200
	Synthetic ivory (in lbs.)	..	..	1,250	8,125
	Colour	..	3,962	—	1,580
	Total		*41,647*		*41,905*

		Mahuva	Surat
10	*Investments*		
	A—Fixed Assets (in Rs.)		
	Machinery	..	460
	Sheds and buildings	10,000	16,200
	Tools and implements	3,000	2,505
	Total	*13,000*	*19,165*
	B—Working capital (in Rs.)	30,000	18,200
	C—Total investments (in Rs.)	*43,000*	*37,365*
11	*Value added by industry* (in Rs.)		
	Output	56,000	66,700
	Input		
	Raw material	41,647	41,905
	Miscellaneous	193	1,404
	Value added	14,160	23,391

NOTE :

1. Data of Surat pertain to 1961 and are based on a survey carried out by the All-India Handicrafts Board.
2. Item 8—Only male workers, as no female and child workers are employed.

2. PADLOCK MAKING AT SARVA

SECTION I

INTRODUCTION

Introduction

I.1 The word padlock literally means lock of pad pannier or a detachable, portable lock having a shackle or bow adapted to be opened for engagement through a staple or the links of a chain. Small lock with a link turns on a hinge or pivot at one end catching the bolt at the other. The lock is used for fastening the staple of a door, trunks, bags, etc. In the field of lock making, there were formerly a few popular centres in Gujarat, viz., Sihor in Bhavnagar district, Sojitra in Petlad taluka and Cambay in Cambay taluka, both in Kaira district. The products of these centres were made from iron and were very strong and sturdy. Among these products, a cylinderical shaped lock with a long key was very popular and came to be known as *khambhati talu* because it was prepared by the artisans of Khambhat or Cambay. The subject matter of the present monograph is padlock making at Sarva, a village of Botad taluka in Bhavnagar district. This centre enjoys the pride for continuing this traditional craft on a very small scale basis in Gujarat State.

I.2 The antiquities of the craft or the article itself are not known. An interesting account regarding the development of lock manufacture from different types of raw materials in the West as given by the author of "History of Technology" and reproduced below will be found interesting.

"The primitive type of wooden lock used by ancient Egyptians was also used by the Greeks, and even by the Romans in early days; but eventually locks of bronze and subsequently of iron came into common use in Roman houses. They were of two kinds, one of which should be operated by one hand; the other required two. A straight or carved metal key took the place of a clumsy wooden one and a spring was introduced into the mechanism which was rather complicated. Not many hinges have survived from Roman buildings in Britain, but several hook-and-eye fastenings have been discovered".[1]

"The next advance arose from the necessity of devising an economical method of manufacturing Braham's patent lock. Joseph Braham (1748–1814), the son of a Yorkshire farmer, was an ingenious man responsible man for many inventions.... In 1784 he patented a very successful lock which he exhibited in his shop-window in Piccadilly with the notice, "the artist who can make an instrument that will pick or open this lock shall receive two hundred guineas the moment it is produced." Although many attempts were made, the money was not won until 1851, when a mechanic succeeded in opening the lock after fifty-one working hours. This is sufficient proof of the excellence of the lock, but it was complicated mechanism which could be satisfactorily and economically manufactured only by a well-designed series of mechanic tools".[2]

Location

I.3 Sarva is situated 16 miles away from Botad which is the headquarters of the taluka of that name in Bhavnagar district. Except in the heavy monsoon season it is approachable by road and the State Transport bus plying between Botad and Rajkot halts half a furlong away from the village. The nearest railway station, Pipardi, on the Botad-Jasdan metre gauge section of the Western Railway, is 2 miles away from Sarva. Paliyad is the nearest marketing centre for this village, 5 miles away from Sarva and is a railway station, 15 miles away from Botad on the Botad-Jasdan metre gauge section. As for public amenities in the village, drinking water is drawn from a rivulet and *pucca* well also. The village has a middle school and a post office.

1. *History of Technology*, Vol. IV, p. 423
2. *Ibid.*

I.4 Regarding the historical background of the village, according to the local legend it is said that Seja, a Rajput of Sarvaiya clan established this village nine to ten centuries ago and that the village is named after his clan-name. The total area of the village is 8,995 acres and 26 gunthas. There are 340 occupied houses and 343 households in the village according to the 1961 Census. 1,075 males and 953 females comprise the total population of 2,028 souls, out of which 94 or 8.74 per cent males and 107 or 11.23 per cent females belong to Scheduled Castes. 228 or 21.21 per cent males and 45 or 4.52 per cent females are returned literate and educated. Workers include 594 males and 471 females constituting 52.81 per cent of the total population, leaving 963 or 47.19 per cent non-workers. The statement given below shows the approximate number of households of different castes and Scheduled Castes of the village.

STATEMENT I

Distribution of households by castes

	Caste	Households	Per cent	Occupation
	1	2	3	4
1	Koli	60	17.49	Agriculture
2	Kumbhar	55	16.04	Agriculture and making of earthen pots
3	Rajput	40	11.66	Agriculture
4	Vaghri	40	11.66	Agriculture
5	Luhar-Suthar	35	10.20	Agriculture and blacksmithy (including padlock making) and carpentry
6	Brahmin	16	4.66	Agriculture, service and traditional service as a Brahmin priest
7	Bania	12	3.50	Trade and commerce
8	Bharwad	10	2.92	Agriculture, rearing of livestock
9	Kanbi	6	1.75	Agriculture
10	Ghanchi	5	1.46	Oil extracting and agriculture
11	Bava	5	1.46	Begging charity and agricultural labour
12	Barber–Hajam	4	1.17	Hair-cutting and agricultural labour
13	Soni	2	0.58	Goldsmithy
14	Darjee	2	0.58	Tailoring
	SCHEDULED CASTES			
15	Vankar	5	1.46	Basket-making, weaving, agricultural labour, scavenging
16	Bhangi	2	0.58	
	OTHERS			
17	Others	44	12.83	Agriculture, agricultural labour, miscellaneous work
	Total	**343**	**100.00**	

I.5 Thus the main occupation of the village is agriculture. The craftsmen pursuing household industries include three carpenters and two blacksmiths engaged in making and repairing wooden and iron agricultural tools and implements besides four potters making earthen pots, bricks and tiles, two goldsmiths and two tailors. Two Luhar-Suthars prepare iron locks and one Bhangi makes baskets, oil extracting being the occupation of 5 Ghanchi households. All these craftsmen belonging to Luhar-Suthar, Ghanchi, Soni, Darjee, Vankar and Bhangi castes are traditionally engaged in the crafts described above. They work for the villagers by supplying essential household articles and services.

SECTION II

CRAFT AND CRAFTSMEN

Craft and Craftsmen

II.1 The family of the forefathers of Vithalbhai Virjibhai Pithva, who started the industry in Sarva, migrated to Sarva 60 years ago from Pipalia, a village in Botad taluka, 10 miles away from Sarva. Luhar-Suthar by caste, it pursued the traditional occupation of making indigenous wooden and iron agricultural implements. Vithalbhai who was clever and intelligent, continuously went out to Ahmedabad, Surat, etc., in search of work as a carpenter and blacksmith keeping his permanent residence at Sarva. During this period he could not concentrate on the traditional craft but the flare for starting something new was there. After Independence, encouraged by the policy of the Government to develop village industries, Vithalbhai decided 15 years ago to start making iron locks and padlocks and commenced this industry in 1949 A. D. with a meagre working capital and simple tools and implements operated by hand. The Director of Industries recommended this establishment for the supply of iron, the main raw material needed in this craft. Its products became so popular and were in such great demand, that the artisan thought of increasing his production by designing a press which could be operated by motive power. In 1951 he completed the designs of two presses and started work with the help of an oil engine. The establishment continued to get permit of iron up to 25–8–1960 during which period various processes and techniques were mechanised to compete with other similar products in the market. But Government has recently stopped issuing permit for the required material which has created obstacles in the development of this craft as the artisan has to purchase very costly raw materials from the open market resulting in high cost of production and reduced rate of profit.

Luhar-Suthar Caste

II.2 As regards the origin of this caste, it is believed that after the creation of the world, Vishvakarma, the architect of gods, created communities of artisans like Suthar, Luhar, Soni, Maniyar, Sathwara, etc., with a view to enrich it with arts and crafts. These castes are known as the heirs of Vishvakarma. The distribution of work was so arranged that wood work was done by carpenters, iron work was attended to by the blacksmiths, gold work was carried on by Soni, and so on. The story narrated below is based on the legend about Luhar-Suthar caste.

II.3 A carpenter accompanied by his daughter was travelling by cart to arrange her betrothal at another village. On the way, the iron rim of the cart-wheel was broken and he went to the near-by village to get it repaired. A bachelor blacksmith, self-willed but skilled resided in that village. The carpenter requested him to repair his cart but the artisan bade him wait till he completed cooking his meal. The carpenter who was in a hurry said that his daughter would prepare the food and in the meanwhile both of them could repair the cart. The blacksmith then lighted the fire and started work. As soon as he took out the red hot iron end of the rim from the fire for hammering it into shape, the carpenter, with a powerful spell, made the anvil disappear deep in the ground to test the skill of the blacksmith. For, if the hammering were not done all at once in time, the end of the rim would cool down and the work would not be completed. But making his ankle as strong as an anvil by his spiritual power, the blacksmith hammered the rim on his ankle and fixed the same on the cart-wheel. While preparing food, the daughter of the carpenter had observed the skill and strength of the blacksmith who did his job at the risk of

his life. All of them dined together and the carpenter then asked leave of the blacksmith. But the daughter refused to go with him saying that the intention of their journey was fulfilled there, and as the work of a house-wife was attended to by her, she had plighted her troth to the blacksmith, and that she was not ready to prepare food for any other man. She, therefore, asked her father to return to his village alone. Thus as a carpenter girl was married to a blacksmith, it gave rise to a caste known as Suthar-Luhar or Luhar-Suthar. The later formation of caste combinations are due to the subsequent change over in traditional occupations. A section of Luhars who have taken over to carpentry have separated from the main caste and formed a new one known as Suthar-Luhar.

Workers

II.4 Households of workers engaged in the craft are distributed into Luhar-Suthar (2), Koli (6), Kumbhar (1), and Hajam (1). Two households of Luhar-Suthar having padlock making as their main occupation and agriculture as a subsidiary occupation, are bifurcated from one family. The families of the remaining castes, viz., Koli, Kumbhar and Hajam are engaged in the craft as their main occupation along with agricultural labour, making of clay articles and hair-cutting respectively as subsidiary occupation. One household of Koli caste has migrated to Botad from Sarva and started working independently. Thus a total of nine craftsmen work in the different processes of this industry.

II.5 An examination of the economic status of 13 persons from two households who own the two establishments in the village shows that out of 5 males, 3 adult males are engaged in the craft under study whereas 2 minor males are dependents because of childhood and study. All the 8 females are returned as non-workers. They include 3 adults and 5 minors whose activities are household work, study, old age and dependency due to childhood. From the two households of Luhar-Suthar, only 2 adults have studied up to secondary standard and 1 can read and write only. The remaining 2 males and 8 females are illiterate. Thus 3 family workers of Luhar-Suthar caste and 6 hired workers, 2 from each of Koli, Kumbhar and Hajam castes make up the total of nine artisans normally engaged in this industry. The number of hired workers, however, rises up to 19 during the peak season—14 males from 6 Koli households, 3 Hajam males and 2 males of Kumbhar caste. These additional workers are usually engaged in agricultural labour, as padlock making is their subsidiary occupation.

Workshops and Dwellings

II.6 The dwellings as well as workshops are owned by the artisans. The workshop of one of them is at a distance of 200 yards from his dwelling. It measures 44 x 9 yards. A one-storeyed building with two rooms 12′ x 12′ near the workshop is used as a warehouse for storing raw materials, finished products, etc., and the open space near-by is used for keeping agricultural implements and other miscellaneous things. The other workshop is a *kutcha* shed, constructed in the courtyard of the dwelling itself. The residential tenements of both the households are adjacent and consists of two rooms, a verandah and a kitchen covered with country tiles, enclosed in a *deli* or a huge gateway on either side of which is a *bethak* or meeting place separated from the main house by an open courtyard.

II.7 The hired workers also reside in houses owned by them in village, a little away from the workshop. Both the units work independently with the help of hired workers. The formation of work-group system according to the operation involved, is not prevalent in this craft.

Social and Personal Characteristics

II.8 The average household consists of 6 members of whom 2 are workers and 4 non-workers. Thus the average number of male workers per household engaged in the craft is two.

II.9 There are some techniques of the craft like hammering and cutting of iron bars, sheets, etc., which require physical strength and stamina. No instance is recorded of physical disability on account of strenuous work in different techniques of smithy. When free from their work the artisans recreate themselves by *bhajan* and *kirtan*. They are habituated to take *bidi* and tea as stimulant during hard work.

SECTION III

RAW MATERIALS

RAW MATERIALS

III.1 THE MAIN raw material used in this craft is iron sheets (16, 22 and 24 gauge) and bars (1/3" and 1/2" diameter) whereas subsidiary raw materials are aluminium and copper. Coal and coke are used as fuel in the furnace; crude oil is used for working the engine, which mechanically works the presses. The main raw material is obtained by the artisans on the basis of yearly production under a permit issued by the State Director of Industries. But as stated earlier, this establishment has not received any permit for iron since 25-8-1960. The owner of the establishment complains that in spite of submitting the requisite forms and necessary certificates for the required raw material in time, the party has not received any permit. This has resulted in a decline in production. Moreover, the artisan feels the procedure for obtaining the permit to be lengthy as it takes a long time to finalise the application, and that Government should arrange to give raw material as per requirements and specification well in time if the craft is to develop and survive. For example, in the making of a hook of the lock, the iron rod of 1/6" diameter is required to maintain the necessary hardness; but the artisans have to purchase that of 1/7" diameter from the open market at high prices which adversely affect the demand of the products and weaken its strength. Because of such difficulties in obtaining basic raw material, the artisans are compelled to suspend work for several months. Most of it is purchased from Botad, Jamnagar, Rajkot and Bhavnagar on cash payment. The raw materials are stored in a separate room in the workshop. The average yearly requirements of raw materials for both the establishments are estimated as under:

STATEMENT II

Raw material

Sl. No.	Raw material	Maunds	Value in Rs.
1	2	3	4
1	Iron	400	8,000
2	Colour . . .	5	400
3	Aluminium, copper, etc.	100	4,000
4	Coal and coke, etc.	50	100
	Total		**12,500**

SECTION IV

TOOLS AND TECHNIQUES

Tools and Implements

IV.1 The craft of padlock making essentially involves the techniques of blacksmithy. As such tools and implements used in different processes are those which are usually used by a blacksmith. The leather bellow and a furnace with a small iron chimney form the smithy workshop. The bellow blows the furnace made of clay and bricks and heats the fire according to the intensity required. The cost of building a furnace and putting the chimney is estimated to be Rs. 150 to 200. Other important tools are hammer, scrapers, chisels, punches, pincers, forks and iron supports. The hammer costing Rs. 3 to 25 according to the size, is used for striking the tools. The price of the scraper, chisel and punch used for chiseling, scraping and punching varies from 0-50 paise to Re. 1. Pincers used for holding the article cost Re. 1 to Rs. 3. The fork which puts the article into the furnace and takes it out from it can be had at 0-50 paise to Rs. 2. Big rectangular iron logs which are used as supports or anvils cost Rs. 5 to 25.

IV.2 The statement that follows gives the names, prices—past and present—function and age of the main tools and implements used in making of locks.

STATEMENT III

Tools and implements

Sl. No.	Tool or implement	Approximate price in Rs. 25 years ago	Approximate price in Rs. Present	Function	Life (in years)
1	2	3	4	5	6
Hand Operated					
1	Press	45	250	Pressing and cutting	25
2	Bellows	25	150	Blowing	50
3	Shears	25	150	Cutting	2
4	Anvil	15	100	Supporting	50
5	Drill	8	50	Boring	10
Machine Operated					
6	Press	85	500	Cutting	25
7	Lathe	70	400	Turning and shaping	50
8	Drill	30	175	Boring	20
9	Emery wheel with small stool	25	135	Polishing	10
10	Blower	18	100	Blowing	15
11	Drum	8	50	Smoothening	3
12	Oil engine	200	1,250	Generating power	30

IV.3 Two presses are designed and prepared by Vithalbhai Virjibhai in 1951 A.D. in his own workshop. Other tools and implements are purchased from Botad, Rajkot or Bhavnagar. The tools shown against serial numbers 6 to 11 are operated with the help of oil engine. Lathe is used for shaping as well as repairing small and big parts of the machines designed by the artisans themselves whereas the emery wheel is used for sharpening the tools. The mechanised tools introduced by these establishments have saved human labour and increased production. The total investment in tools and implements by the two establishments at Sarva comes to Rs. 10,000 whereas the value of replacement and repairs is estimated at Rs. 200 per annum.

Techniques and Processes

IV.4 Five types of padlocks are manufactured in different shapes and sizes. Most of the techniques applied by the blacksmiths in manufacturing other iron articles, are also applied here.

However, it is noteworthy that the use of a furnace in this craft is comparatively less. The size of the inner parts of different types of the locks vary according to the size and shape of the locks but their general structure remains the same. The technique of manufacturing the various parts and complete sequence of assembling them in the form of a padlock are detailed below stage by stage.

Cutting of iron sheets—The artisans mark guide lines with the help of a chalk or a scraper for accurate cutting of strips as per required size. The sheet is kept on the floor and a scraper gripped in the left hand is put on the marked line whereafter hammering with an iron hammer takes place. The strips are then cut further according to requirements of size and shape. One of the establishments has devised a *katar* or a big pair of shears for cutting the iron sheets. It is fixed on a big wooden stand in such a way that an artisan can sit near the lower tongue of the shear keeping the sheet under his seat. A big triangular handle is attached to the upper tongue of the shear. The handle which is projected on the opposite side of the wooden stand is pressed by a worker. As soon as the upper tongue touches the sheet, he gives a jerk for more pressure by standing on the handle itself which results into immediate cutting of the sheets. One skilled artisan and another unskilled or semi-skilled worker attend to this job. This technique is locally known as *patru kapvu*, i.e., cutting the sheet.

Making of a lock case—The iron strips are then put into a hand-made press where square, crescent or rectangle pieces of required shapes and sizes of locks are cut by pressing the steel dies. The press is also used for making holes for key, rivets, etc. Sometimes the edges of two portions, i.e., front and rear are bent for forming a lock case. One of the establishments runs the press with an oil engine. Skilled artisans are employed in this work. This process is known as *dabla banavava* or making lock case in local parlance.

Making of lever and ancillary parts—The artisans prepare *kaman* or *kal*, i.e., lever from a narrow strip after cutting the same with shear and bending them on anvil or vice with the help of pincers and hammer. Other packing materials like *khatko* or inner plate, staple, *thesi* or latch, *bhungli* or a plug, *chavi* or a key, and label-plate are also prepared likewise. Necessary holes are bored with hand operated or machine operated drills.

Making of a shackle—The *ankadiyo* or hook or shackle for the lock is made from the iron rod. The artisan cuts the iron rod with chisel and hammer after marking the size of the hook on the rod. Both the ends of this hook-rod are heated in the furnace. One artisan presses the bellow which blows air for creating intensive heat. The hot piece of rod held with pincers is put on the anvil and struck with a small hammer, whereas the other artisan beats it with big hammer alternatively. Of the two ends one is made flat and the other is shaped round. Both the ends are bored with a punch whereafter the rod is bent into 'U' shape from the middle forming a hook for the lock. This process is locally termed as *ankadiyo banavavo*. These hooks and other parts which are not to be coloured are put into an iron drum in which paddy husk is kept. The drum is rotated by oil engine continuously for four hours for polishing.

Assembling of different parts forming a lock and colouring—The levers and latches are arranged on the lower plate and fixed with rivets along with packing plate. Both the plates, upper and lower are joined with a crescent shaped iron strip which forms the sides of the lock. These plates are fixed with copper and aluminium rivets after arranging *bhungali* a plug in the hole of the plates. The hook and label-plate marked 'SARVA' are fixed with the rivets and coloured with a brush into black and silver colour by oil paints. Thus *talu* or the lock is now ready for sale.

IV.5 The articles produced are not to be viewed from any artistic point of view. There is nothing like design or decorative motif. These articles have utility value only. The artisans themselves give two popular shapes, viz., semi-circular and square on the basis of the shapes of locks put in the market by reputed companies like Godrej, Metro, Klik, Plato, etc. New shapes are sometimes invented by the artisans as in the case of 'Ghela Somnath' which is a lock of rectangular shape.

SECTION V

FINISHED PRODUCTS

FINISHED PRODUCTS

V.1 THE DIFFERENT types of locks manufactured at Sarva are listed below.

V.2 The names given to the products are interesting. The artisans attempt to imitate the locks manufactured by big companies of India. They adopt names like 'German copy', or 'Godrej type' for their products on account of their popularity among customers who have faith in the durability of these makes. Another name associated with their products is 'Ghela Somnath', a well-known Shiva shrine and place of pilgrimage in Saurashtra, 32 miles away from Sarva village. The annual production capacity of these two workshops is estimated to be 30,000 pieces worth Rs. 33,750. The average price, per piece works out to about Rs. 1.12. Godrej type lock is prepared for the past 5 to 8 years. The finished articles are wrapped in thin paper, then packed in small cartons of cardboard and kept in a separate room in the workshop.

STATEMENT IV

Finished products

Sl. No.	Type of lock	Shape	Size	Unit	Price (in Rs.)
1	2	3	4	5	6
1	German copy No. 191	Half round	Height 3"	Dozen	24.00
2	Mauland lock (big)	Square	" 2"	"	13.50
3	Mauland lock (small)	Square	" 1¾"	"	9.50
4	Ghela Somnath	Rectangular	" 6"	"	240.00
5	Godrej type	Oblong	" 2"	Piece	3.00

SECTION VI

MARKETING

MARKETING

VI.1 THE ARTICLES are marketed only within the country. The main marketing centres are Botad, Surendranagar, Bhavnagar and Ahmedabad. The artisans themselves sell the products to traders and merchants as per their demand on cash as well as on credit basis and recover the amount within two to six months. As this is a purely cottage industry run at a very small margin of profit, no other indirect agency or middle man is employed with a view to save commission charges. Normally the articles are disposed of within 30 days after they are produced. Monsoon is the slack season for marketing the goods. Transport of the articles is by private trucks and State Transport buses. The transportation charges per article are estimated to be 2 to 5 paise only.

VI.2 During 1963-64, the year under survey, one workshop was closed for eight months because the raw materials were not available. During the remaining period of 4 months only 4,000 different types of locks worth Rs. 4,500 were prepared. Most of the articles are sold on wholesale basis. The price per lock varies from 87 paise to Rs. 3. It goes up to Rs. 20 to 21 in case a special lock for shop or office is made. A new shape priced at Rs. 2 has been recently introduced by the craftsmen. Average earnings per article vary from 25 to 67 paise. On an average locks valued at Rs. 100 remained on hand as undisposed of stock during the year under survey.

VI.3 Companies like Godrej, Metro, Plato, Klik and others engaged in large scale manufacture of locks have factories equipped with electrically operated modern machines in urban centres like Bombay, etc. They enjoy the facility of getting raw materials at controlled prices in big bulk through regular quota system. Established channels of trade, marketing and transport facilities which are the advantages enjoyed by these big establishments are denied to these small units working on the basis of a cottage industry. The artisans practising this craft, despite their producing quality goods, do not get the requisite raw materials at controlled rates as stated earlier. The rural centre is also located far away from big towns and cities. The artisans mostly work on hand-made machines and produce articles in small quantities. Thus they cannot compete with big companies. Moreover, the craft suffers a great deal due to poor knowledge of marketing trends, low educational standard of artisans and lack of publicity and propaganda. No concessions are provided for the benefit, betterment and development of this craft either by the Government, local institutions or Gram Panchayats.

SECTION VII

ECONOMIC CHARACTERISTICS

ECONOMIC CHARACTERISTICS

VII.1 THE FIXED capital invested by the owners of two establishments amounts to Rs. 15,000 out of which Rs. 5,000 are invested in worksheds and warehouses and Rs. 10,000 in tools and implements. The working capital is estimated at Rs. 10,000. All the capital required in the craft is provided by the owners themselves.

VII.2 The two owner households of Sarva have fair-sized agricultural holdings of 14 and 40 acres respectively which provide them with a valuable additional means of livelihood. Because of shortage of raw materials required for the craft, they have started production of agricultural iron tools as a subsidiary craft since 1963. A new venture to the credit of these establishments is the manufacture of ground-nut threshing machine which can be operated by an oil-engine. Both the establishments have so far (up to 1966) manufactured eight machines of which five are sold. The price of a machine varies from Rs. 800 to 1,200. They also manufacture toothed harrow, costing Rs. 300 that can be operated with one bullock and chaff-cutter for grass cutting. The agricultural tools are made from timber and iron.

VII.3 The cost of production of different types of articles manufactured by these two units can be studied in the statement given below.

STATEMENT V

Cost of production, sale price and earnings

Sl. No.	Description of article	Prevailing unit	Raw materials (in Rs.)	Other charges including fuel, transportation, depreciation charges, interest on capital and labour charges, unpaid family wages, etc. (in Rs.)	Cost price (in Rs.)	Profit (in Rs.)	Sale price (in Rs.)
1	2	3	4	5	6	7	8
1	German copy No. 191 half round height 3"	Dozen	10.00	8.00	18.00	6.00	24.00
2	Mauland lock (big) square height 2"	„	6.50	3.50	10.00	3.50	13.50
3	Mauland lock (small) square height 1¾"	„	4.50	2.50	7.00	2.50	9.50
4	Ghela Somnath height 6" . . .	„	160.00	44.00	204.00	36.00	240.00
5	Godrej type height 2"	„	14.40	9.60	24.00	12.00	36.00

VII.4 'Other charges' mentioned in column No.5 include expenses on fuel, labour charges, transportation charges, depreciation charges and unpaid interest at 6 per cent. A skilled artisan working for 10 hours can prepare 12 pieces of different types of locks per day. It is computed that the average monthly earning of a skilled artisan is Rs. 30 whereas that of a semi-skilled worker is Rs. 22.50 on the basis of 15 working days in a month.

VII.5 Wages are mostly paid daily in cash. A skilled artisan gets Rs. 2 and a semi-skilled artisan Rs. 1.50 per day during busy season. Hired workers work for 8 hours but the family members have to work for more than 10 hours. The artisans carry out some operations like hammering, cutting, shaping, etc., in the open compound because of shortage of space. The workshop remains closed during monsoon because of agricultural operations and shortage of raw

materials. The craftsmen observe holidays on religious festivals and *amas* or *amavasya*, i.e., new moon day of each month. The average number of working days in a year thus come to about 190.

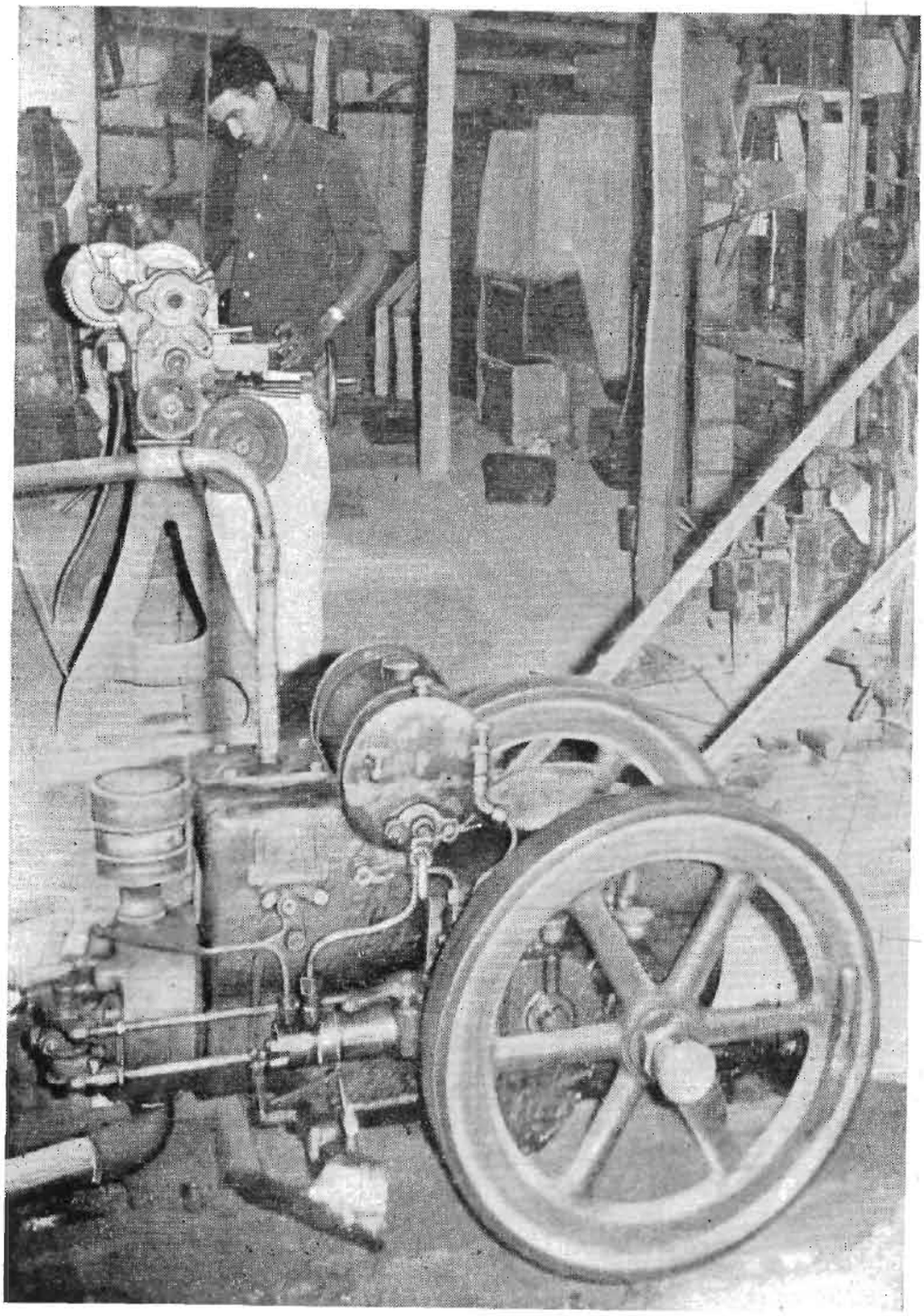
Organisational Characteristics

VII.6 Both the establishments are run independently with the help of family members and hired workers. As this is a very small craft with limited numbers of families engaged in it, an association of artisans or of hired workers is out of question. The head of one of the two establishments, Vithalbhai, has himself devised locks after making practical experiments involving trials and errors, on the basis of knowledge obtained during his tour to places like Bombay and Surat as a blacksmith as mentioned earlier. He trained his borther Bhimjibhai. There is no other facility for training in this craft nor are the present artisans who are self-trained in need of it. An apprentice can be trained in this craft within a period of 12 months. Skilled craftsmen of this centre, all of them belonging to Luhar–Suthar caste, are listed in Table VI in the Appendix.

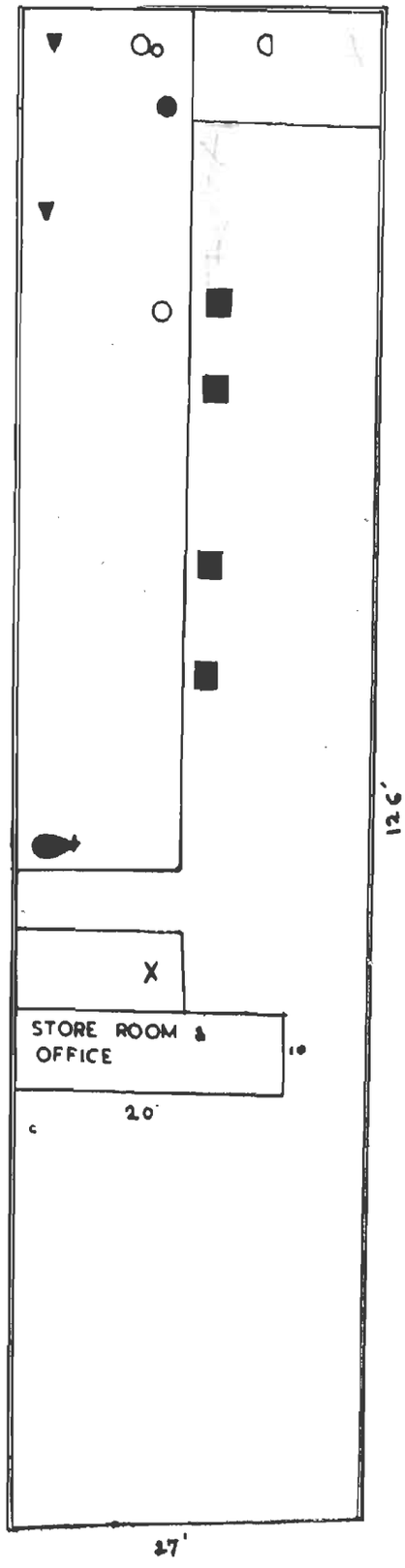
Conclusion

VII.7 The craft is too recent and is worked on too small a scale to permit speculation about its future. The ingenuity of the master craftsmen is remarkable. They are not only self-trained and enterprising, but have also used their skill in making other machines useful to themselves as well as to agriculturists. The fact, however, remains that they work in isolation in a heavily circumscribed field. The competition of large companies is overwhelming. The craft is doubtless amenable to the use of machinery in all the operations involved and requires no artistic ability on the part of the craftsman. In the circumstances, the economies of large scale manufacture render the craft most suitable for larger organisation. To the craftsman working in the manufacture of padlocks at Sarva, shortage of raw material is a very serious handicap. If the craft is to develop and progress it is necessary that this bottle-neck should be removed by ensuring regular supply and creating an assured market by publicity and propaganda.

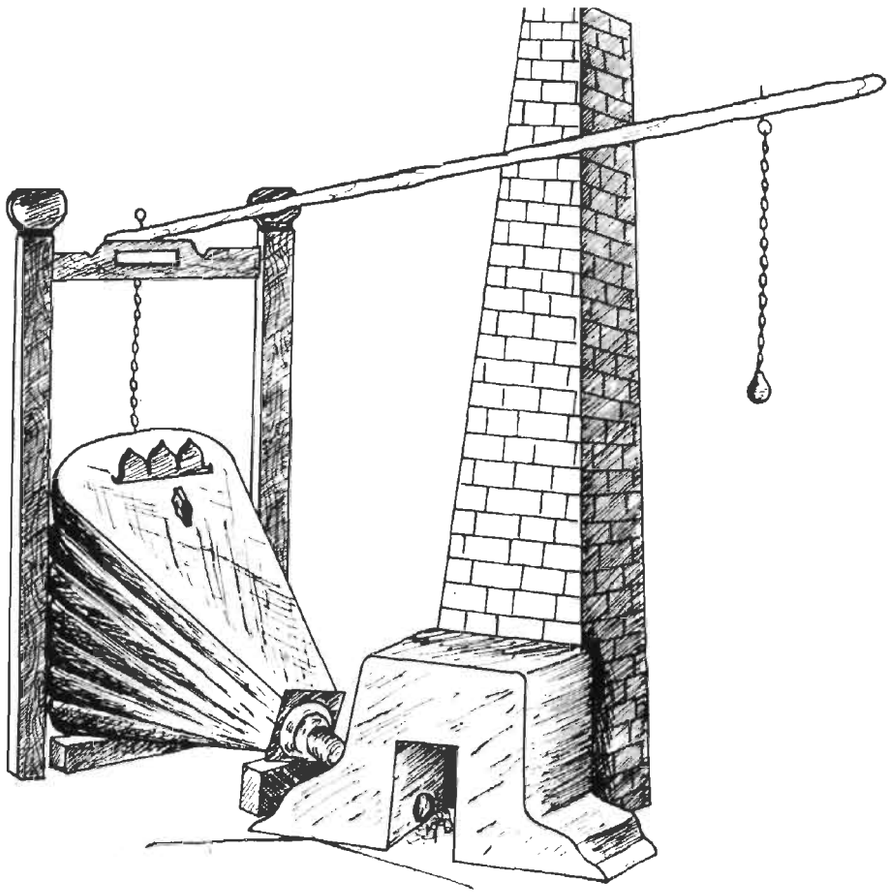
Lathe operated by oil engine



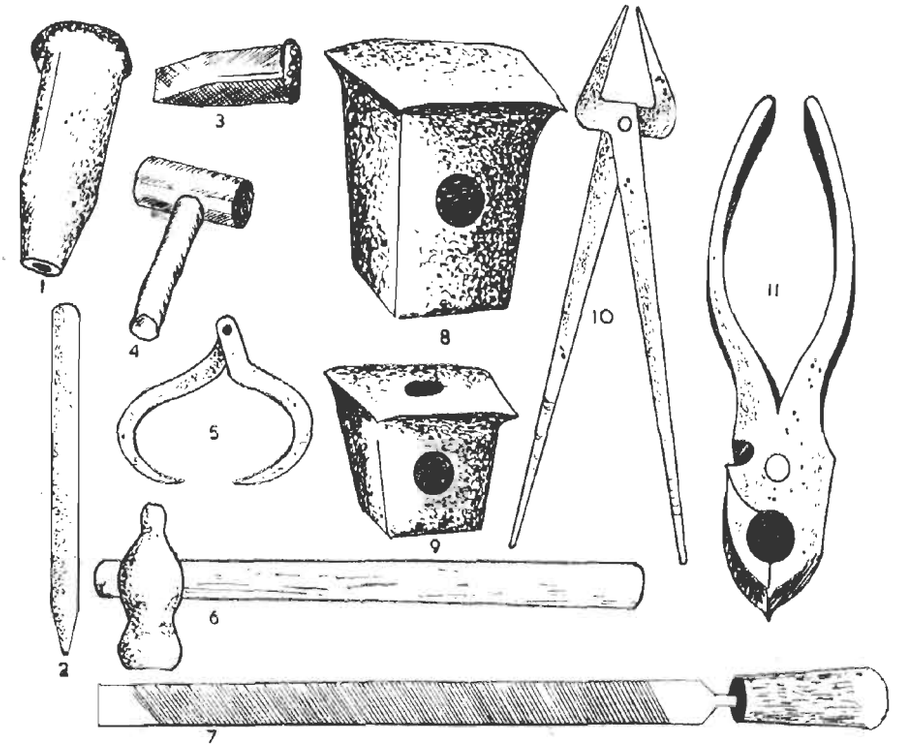
Ground Plan of the workshop



FURNACE
CUTTING MACHINE
HAND OPERATED PRESS
LATHE
OIL ENGINE
MACHINE PRESS
POLISHING DRUM
MOULDING FURNACE

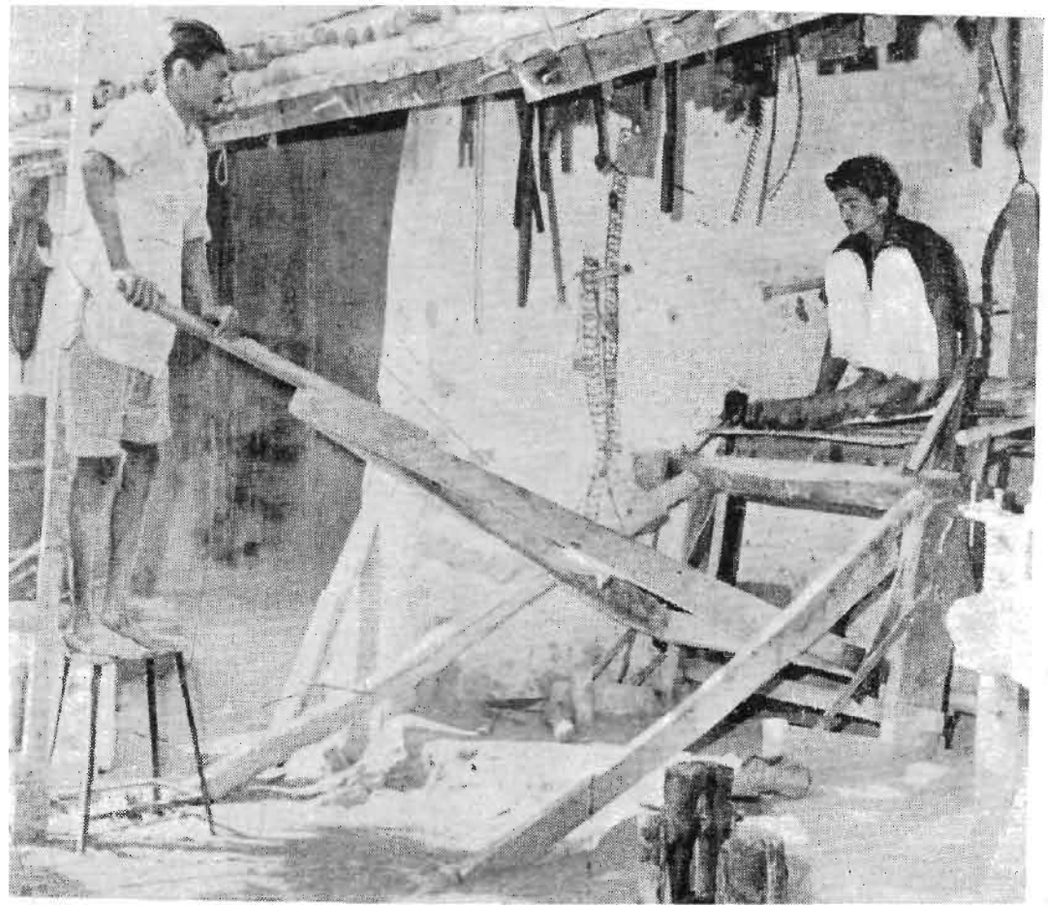


Furnace and bellows



TOOLS AND IMPLEMENTS

1 & 2. Punches (tankana); 3. Chisel (sini); 4. Hammer (hathodo); 5. Compass; 6. Hammer (hathodi); 7. File (atardo); 8 & 9. Envils (eran); 10. Pincers (sansi); 11. Pliers (pakkad)



Big handmade shears for cutting iron sheets

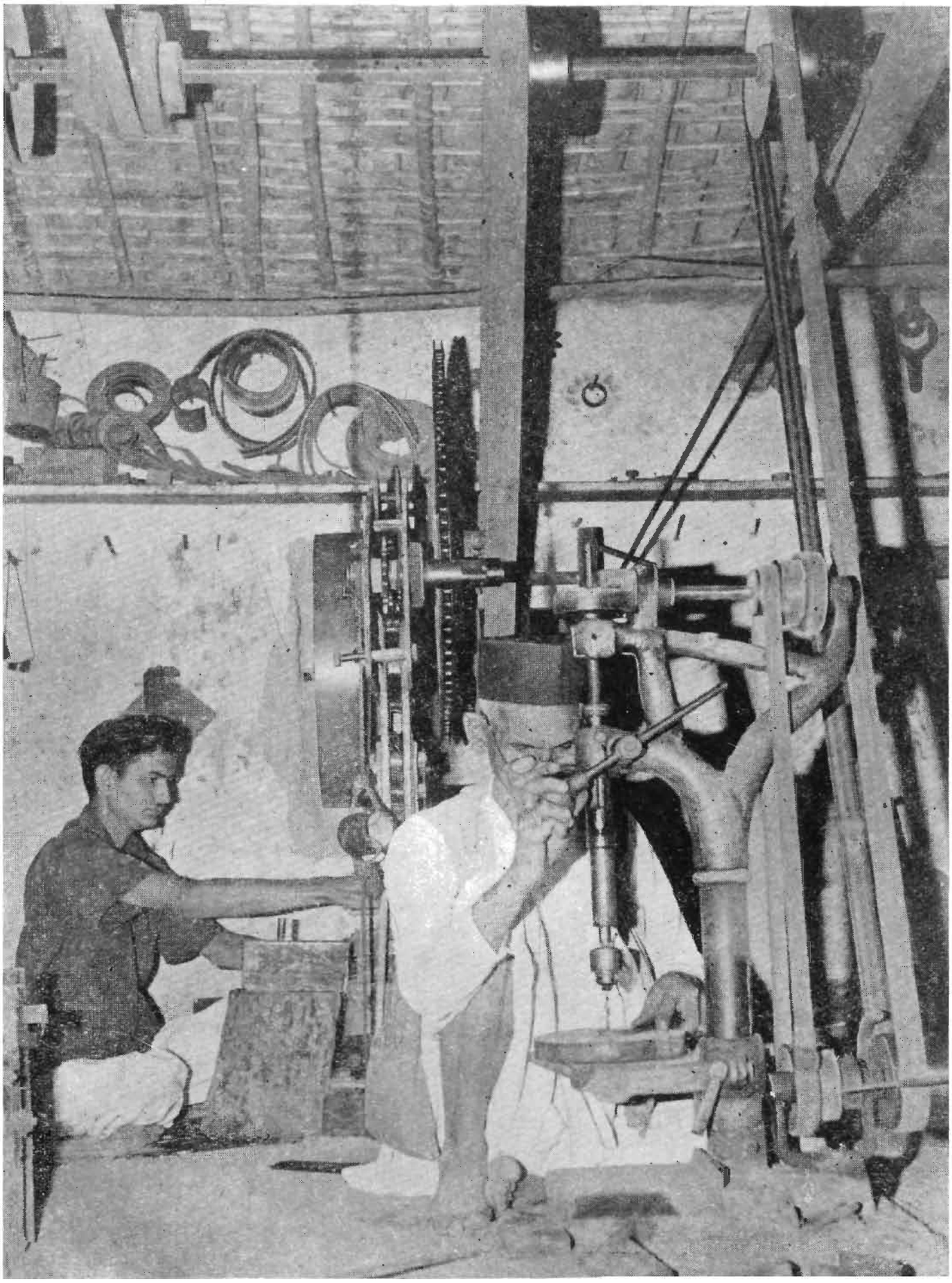


Adjusting the iron sheet before cutting

PLATE IV

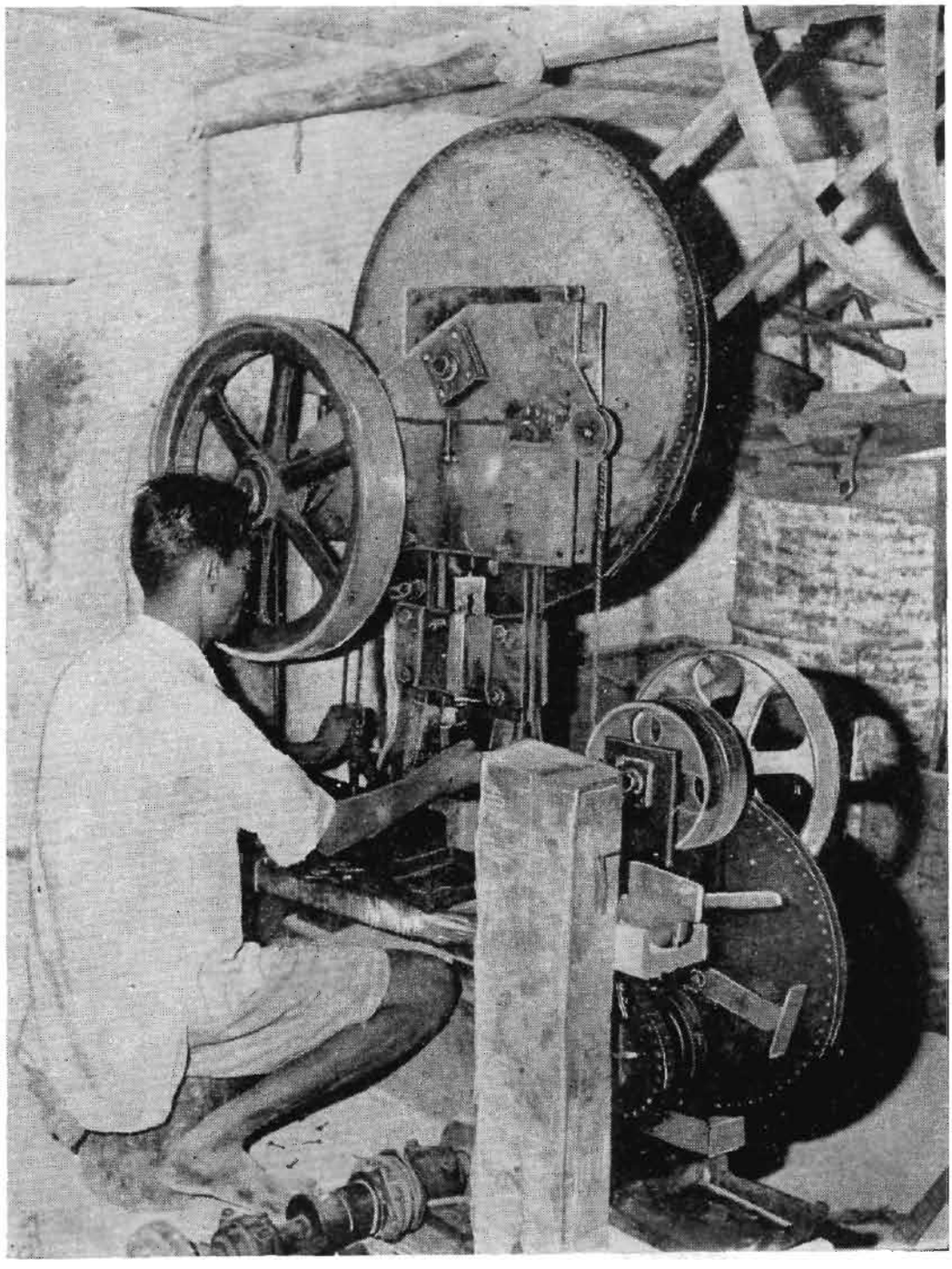


Press dies with specimens produced—dies are indicated thus †

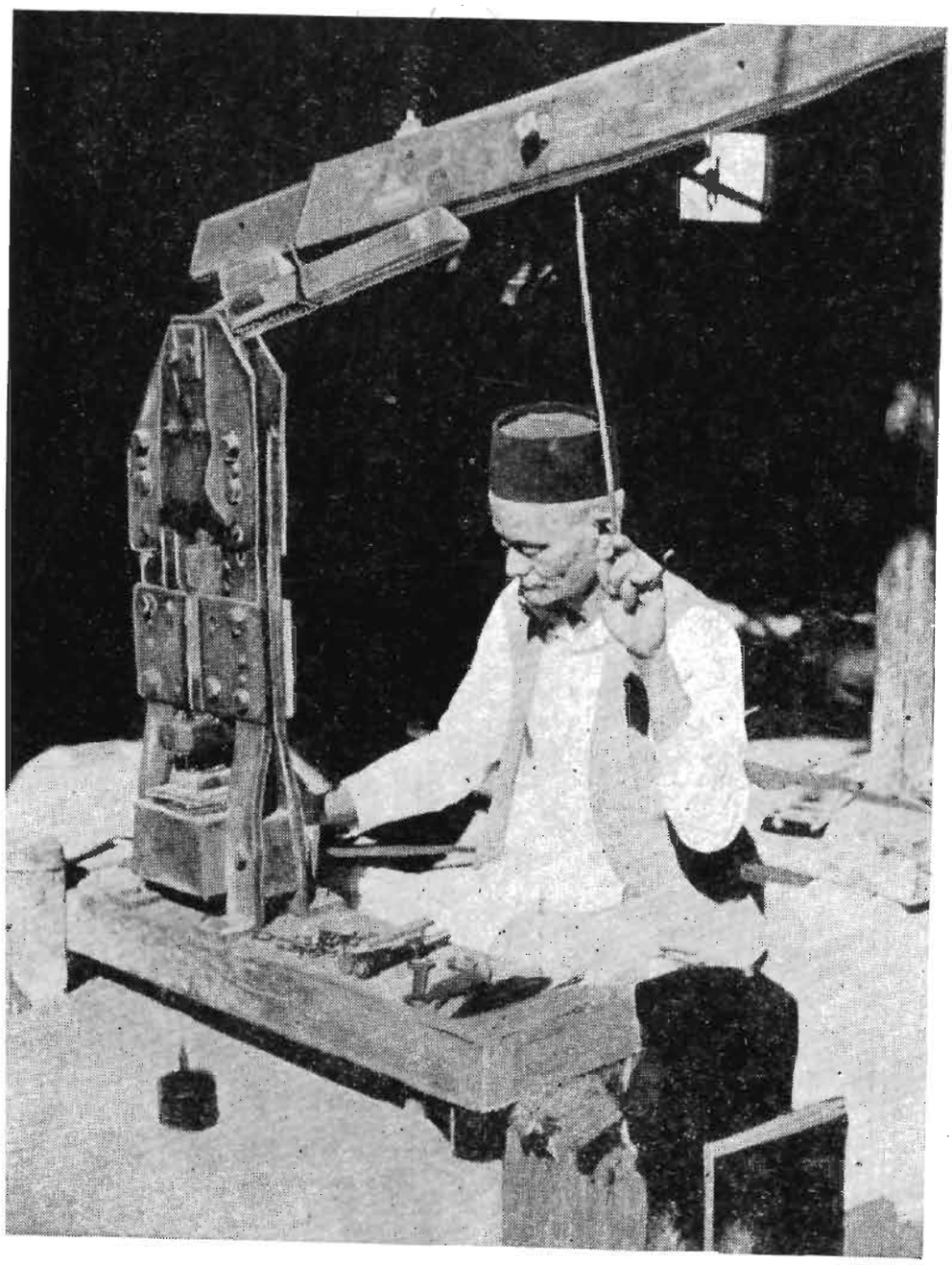


Machine Drill in operation

PLATE VI



Power operated press for making small parts of the padlock



Cutting by hand operated press

PLATE VIII

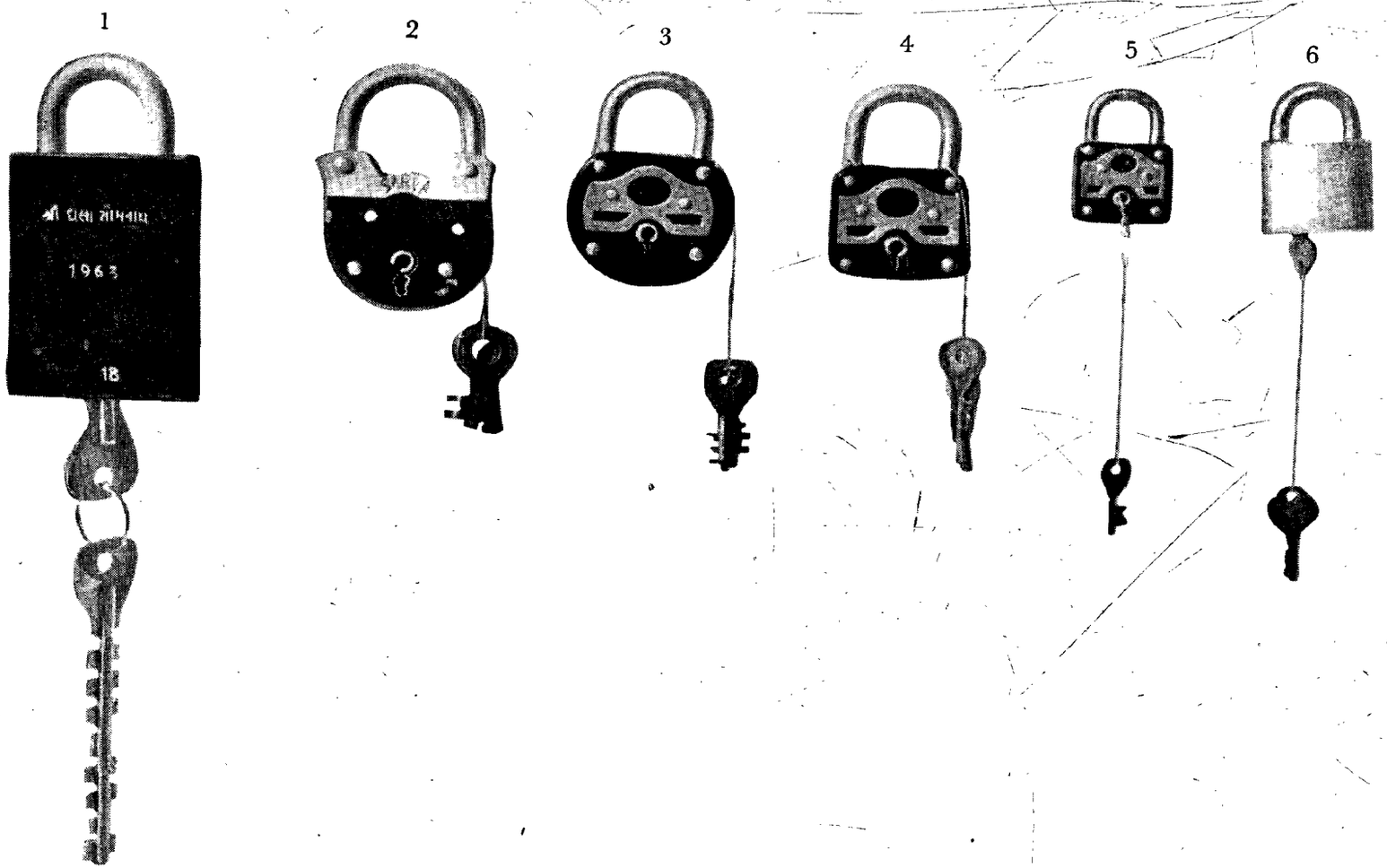


Polishing hooks by machine operated drum



FINISHED PADLOCKS

1. Ghela Somnath; 2. German copy No. 191; 3. Gol type; 4. Mauland lock(big); 5. Mauland lock (small); 6. Godrej type



FINISHED PADLOCKS

1. Ghela Somnath; 2. German copy No. 191; 3. Gol type; 4. Mauland lock(big); 5. Mauland lock (small); 6. Godrej type

PLATE IX

APPENDIX

APPENDIX

TABLE I

Number of persons employed in production

Name of craft	Number of villages/towns	Number of family members of enterprisers employed in production		
		Persons	Males	Females
1	2	3	4	5
Padlock making	1 (Village)	3	3	—

TABLE II

Distribution of artisan communities

Name of craft	Name of caste	Number of villages/ towns surveyed	Number of families surveyed in the craft	No. of artisans of two surveyed households			Number of families working under co-operation	Number of families working in own houses or workshop set up by their employers
				Persons	Males	Females		
1	2	3	4	5	6	7	8	9
Padlock making	Luhar–Suthar	1 (Village)	2	3	3	—	..	2 in own houses

TABLE III

Distribution of articles of rural crafts by materials used

Name of article	Main material	Subsidiary material	Place from which imported
1	2	3	4
1 German copy No. 191 2 Mauland lock (big) 3 Mauland lock (small) 4 Ghela Somnath	Iron sheet (6 and 8 gauge) Iron bars ($\frac{1}{2}$" & $\frac{1}{4}$" diameter)	Copper, Aluminium, Oil paints	Jamnagar Rajkot Bhavnagar Botad
5 Godrej type	Zinc		

TABLE IV

Designs

Name of craft	Name of article	Number of villages/towns/ families engaged in manufacture indicating the sources from which they receive designs					Name of design		
		Traditional	Self designed	Design centres	Cooperative sales societies	Other sources (specify)	Name	Number of villages engaged in manufacture	Name of colour
1	2	3	4	5	6	7	8	9	10
Padlock making	1 German copy No. 191	..	One Village	..	..	..	Half round	One Village	Oil paints (black and silver)
	2 Mauland lock (big)	..	Two Establishments	..	..	..	Square	Two Establishments	
	3 Mauland lock (small)	..	,,	..	..	..	Square	,,	,,
	4 Ghela Somnath	..	,,	..	..	..	Rectangular	,,	,,
	5 Godrej type	..	,,	..	..	..	Oblong	,,	,,

TABLE V

Cost of production, sale price and earnings

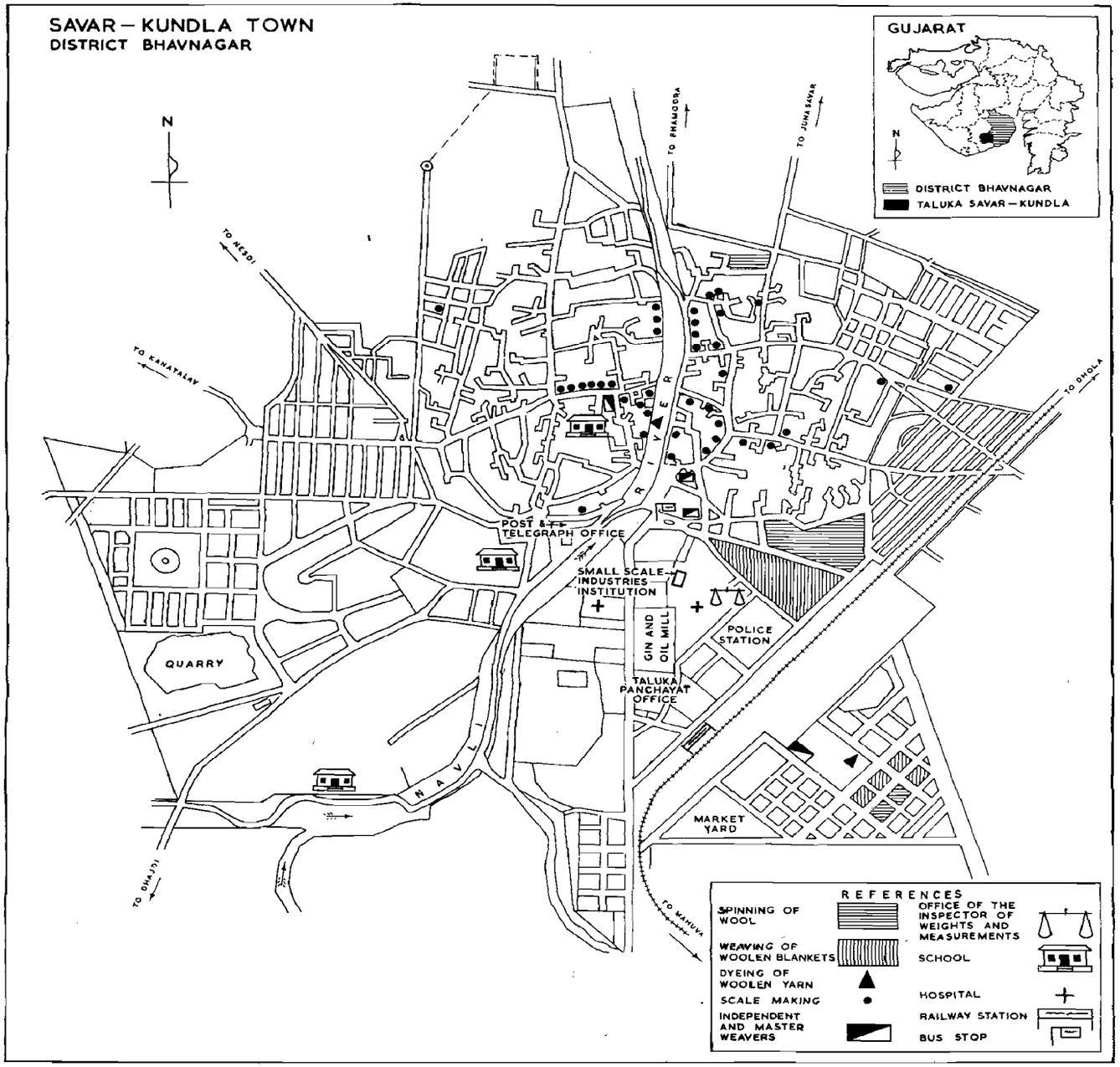
Name of article	Number of villages surveyed	Cost of raw material per dozen (in Rs.)	Cost of conversion into finished products per dozen (in Rs.)	Average sale price of finished goods per dozen (in Rs.)	Average earning per worker per day (in Rs.)
1	2	3	4	5	6
1 German copy No. 191 semicircular height 3" . .	1	10.00	8.00	24.00	2 Skilled worker 1.50 Semi-skilled worker
2 Mauland lock (big) square height 2" . .	..	6.50	3.50	13.50	,,
3 Mauland lock (small) square height 1¾" .	..	4.50	2.50	9.50	,,
4 Ghela Somnath height 6"	..	160.00	44.00	240.00	,,
5 Godrej type height 2"	..	14.40	9.60	36.00	,,

TABLE VI

List of very skilled craftsmen of each community

Name of village	Name of craft	Name of the community	Name of skilled craftsmen
1	2	3	4
Sarva	Padlock making	Luhar-Suthar	1 Bhimjibhai Virajibhai Pithva 2 Vithalbhai Virajibhai Pithva 3 Damjibhai Vithalbhai Pithva

3. SCALE MAKING OF SAVARKUNDLA


SAVAR – KUNDLA TOWN
DISTRICT BHAVNAGAR
N
GUJARAT
N
DISTRICT BHAVNAGAR
TALUKA SAVAR – KUNDLA
TO PHAMODRA
TO JUNA SAVAR
TO NESDI
TO KANATALAV
TO DHOLA
POST & TELEGRAPH OFFICE
SMALL SCALE INDUSTRIES INSTITUTION
GIN AND OIL MILL
POLICE STATION
QUARRY
TALUKA PANCHAYAT OFFICE
NAVLI
MARKET YARD
TO DHAJJI
TO MAHUVA
REFERENCES
SPINNING OF WOOL
WEAVING OF WOOLEN BLANKETS
DYEING OF WOOLEN YARN
SCALE MAKING
INDEPENDENT AND MASTER WEAVERS
OFFICE OF THE INSPECTOR OF WEIGHTS AND MEASUREMENTS
SCHOOL
HOSPITAL
RAILWAY STATION
BUS STOP

SECTION I

INTRODUCTION

General

I.1 The scale making industry is a light engineering industry. Diverse are the uses to which scales are put. Ranging in capacity to weigh from minute pieces of precious metals and stones to fully loaded trucks and varying from the crudest beam and pans to the most complicated machines dispensing the patron's weight (and forecast about his luck!) on a printed card, scales have come to occupy an important position in the day-to-day life of man in this modern age of calculators and computors. Measures taken by Government to standardise weights have also necessitated a great amount of skill and exactitude in their manufacture.

Savarkundla, a town in Bhavnagar district, occupies a pride of place in the manufacture of scales as it alone the artisans report, accounts for about 60 per cent of the production on small scale basis in the country. Ratlam in Madhya Pradesh and Calcutta in West Bengal manufacture 15 per cent each and Dolesam in Madras 10 per cent.

Location

I.2 Savarkundla, seventy miles south-west of Bhavnagar, is a taluka headquarters and a railway station on the Dhasa-Rajula-Mahuva metre gauge section of the Western Railway. The township consists of Kundla town (population 30,122) and the hamlet of Savar Samapadar (population 929) between which flows the river Navli, so called because its bed, with its sloping banks resembles the shape of a *navli* or small boat. A legend ascribes the origin of the river to the blessings of Khodiyar Mata to Someshwar Kotiya, the son of a former ruler of Kundla, who appeased the goddess by fasting and severe austerities for seven days to obtain relief from water scarcity. She told him that a water stream would run where he poured cow's milk but that it would stop if he ever looked behind. The blessing came true, but the stream stopped after a course of four miles when the prince looked back. Even now its course is only four miles long. Its water is believed to contain properties required for tempering iron. Another factor that helped this industry to flourish at this place is the abundant supply of fuel from the forest of Mitiala situated in the vicinity of the township. Other handicrafts for which the town is famous are saddles, hand-woven rugs, coarse cotton cloth, woollen blankets, *khadi*, miscellaneous iron articles, carts and cart-wheels. Besides these, Savarkundla has oil mills and a workshop run by the Small Industries Service Institute. It has also made good progress in cooperative activities in the field of oil *ghanis*, weaving, retail stores and road transport.

Weighing Machines

I.3 There are various types of weighing machines, viz., (1) scientific balance, (2) counter machine, (3) portable platform scale, (4) cart weighing bridge and (5) the beam scales. It is for the last type, viz., the beam scale or *sada lokhandna kanta* or simple balance for commercial use in which Savarkundla is renowned throughout India. Beam scales are again classified into A, B, C and D according to the purposes to which they are put. These are:

Class	*Use*
A	Analytical balances used in laboratories for weighing fine chemicals
B	For weighing precious stones and metals
C	For weighing grains, grocery and non-precious metals
D	For weighing voluminous goods like wood, charcoal, grass, etc.

Only C and D classes of beam scales are manufactured in Savarkundla. They are o

various sizes ranging from 4' to 8'. Improved varieties are also introduced. Scales having 3 axles (*tin dhari*) are manufactured at present as against only one in the past. Round beams are replaced by flat beams. Various other innovations introduced by the manufacturers are fixed hook, double hook, and *bhammar kadi* or a swivel. Counter-balances and iron and brass balances for weighing precious metals like gold and silver are also sometimes manufactured.

The *Encyclopaedia Britannica* describes 'balance' in following terms.

"The balance consists, essentially, of a rigid beam which oscillates on a horizontal central knife edge as a fulcrum, and has the two end knife edges parallel and equidistant from the centre."[1]

The pans of the balance supported by the end knife-edges weigh the loads. Tilting conditions can be limited by providing additional pieces of steel like knife-edges between the end bearing and the pan. Separation of knife-edges from their bearings prevents damage during loading.

> "The earliest balance of which we have knowledge were of the cord-pivot type, the beam being suspended at its centre by a cord attached to a fixed support and the scale pans similarly suspended from the ends of the beam. At first, to effect these attachments, holes were drilled diametrically through the beams, but at a period which may be as early as 2,000 B.C., a great improvement was initiated which enabled balances of considerable precision to be constructed. The end-pivot was formed by drilling a hole into the upper surface of the beam and connecting it with one drilled longitudinally into the end. The suspension cord issuing from the latter and secured above the former hole was always held by the weight of the scale pan in definite contact with the end of the beam. Any inequality of armlength could be quickly corrected. The central pivot, or fulcrum, was either constructed by drilling diametrically through the beam, or by wrapping the suspension cord round the beam or by attaching the cord to a metal ring secured to the upper surface of the beam. The better type of Egyptian balance, as early as 1,500 B.C. and possibly much earlier, was always suspended from a bracket projecting from a substantial standard. From this bracket a plumbline was hung, the heart-shaped plumb-bob of which was placed immediately below the tip of a downward-depending tongue ('finger' or pointer) of triangular shape, secured to the beam at its centre. The ancient method of constructing the cord-pivot beam has survived in India and China to the present day."[2]

Counter Machines or Small Linked Mechanisms

I.4 It is convenient for most commercial purposes to use scales in which the scale-pans are placed above the beam. In Savarkundla, Shri Shamji Vallabhdas is known for manufacturing counter-balances. He is the fifth in descent from Luhar Devram who settled in Savarkundla 300 years ago and whose entire family has settled in the scale making industry of Savarkundla. In the United States such machines are known as 'counter trip scales'. To put the scale pans above the beam, "linked mechanisms have had to be devised which maintain the pans always in a horizontal position, and give accurate weighing irrespective of the position, thereon of the load and weights. This means that each pan must be supported so that a load, wherever it is placed, will exert the same turning moment round the centre of oscillation of the main beam. This may be effected in various ways, the object in all cases being to give to every part of a pan or platform the same virtual velocity."[3] The beam scale, or simple balance is used for commercial as well as for scientific purposes.

1. *Encyclopaedia Britannica*, Vol. 2, P. 951, 1955
2. *Ibid.*, Vol. 23, P. 479, 1955
3. *Ibid.*

History of the Craft

I.5 Even before the advent of machinery, skilled artisans used to work iron by indigenous techniques in this area. There was no large scale iron industry in Gujarat. Remains of iron furnaces are, however, found in various parts of Saurashtra. Savarkundla is the main and important centre of scale making and nearly 55 per cent of the scale manufacturers are found in this place. Those artisans who were formerly engaged in the manufacture of swords and saddles have also switched over to scale making. Their craftsmanship is considered superb.

The origin of this industry in Savarkundla is only vaguely known. In the opinion of the well-settled veteran artisans, it seems to have been established some 200 years ago in Savarkundla and the surrounding villages of Pithavadi, Vavera and Mota Bhamodra. Somewhere in 1850, the father of Harjibhai Thakarsi Luhar of Bombay first saw the German made scale of M/s. William and Co. He took a note of this scale and talked about this to his nephews who were already working as blacksmiths in Savarkundla, and encouraged them to manufacture scales of this type on the basis of the sketch drawn by him. With the encouragement of his uncle Harjibhai and the assistance of his brother, Keshavlal Narandas manufactured one simple scale, which was improved upon later on. With the introduction of the Bombay Weights and Measures Act of 1931, the Maharaja of Bhavnagar also adopted in the same year a uniform system of weights and measures in his State, for all transactions. The compulsion to use standard scales resulted in an increased demand for them, which worked as an incentive to the craftsmen and an impetus to the craft.

SECTION II

CRAFTS AND CRAFTSMEN

Origin of Craftsmen

II.1 Skilled metal-smiths are known to have worked in this country long before the dawn of history. The Aryans as mentioned in the *Vedas*, knew various metals and their uses. Their artisans included besides carpenters, blacksmiths, coppersmiths and goldsmiths.

As regards the status of these craftsmen in the ancient period, Dr. Annand K. Coomarswamy writes:

> "In Vedic times, the *rishis* themselves are represented as preparing the sacrificial posts and altars; in Asoka's day, those who injured the royal craftsmen were liable to the punishment of death; while it has been a constant feature of Indian civilisation, as of all aristocratic and theocratic cultures, that the craftsmen should be endowed, receiving either royal or ecclesiastical patronage. Craftsmanship, like learning, being thus protected, and the craftsman holding an assured and hereditary position, can alone make possible the association with work of that leisure and affection which distinguish all the finest handicrafts.
>
> The practice of the arts has usually been confined to the members of hereditary castes. All craftsmen regard their art as a mystery, and look upon its traditions, handed down in pupillary succession, as invested with sacred and scriptural authority."[1]

Panchals are the traditional ironsmiths. About them R. E. Enthoven[2] records that, Panchals are supposed to mean five craftsmen who claim descent from Vishvakarma, the Framer of Universe. They follow five different crafts, these five sub-divisions belong to five exogamous *Gotras* or family stocks, viz., Sanag, Sanatan, Ab Ahabhun, Pratana and Suparna the members of which eat together and intermarry. The wealthy position held by workers in metals may have enabled the Panchals to uphold their claims to Brahman rites and status over a long period of time.

Caste-wise Distribution

II.2 There are about 300 establishments in Savarkundla manufacturing scales most of which belong to the Luhar community. There are a few artisans of other communities such as Koli, Kanbi, Kumbhar, Sagar and Bava. The total number of households covered by the present survey is 112 or 37 per cent of the total. Their distribution by community is as under:

STATEMENT I

Distribution of households by caste

Caste	No. of families	Percentage
1	2	3
Total	**112**	**100.00**
Luhar	94	83.93
Koli	6	5.36
Kanbi Patel	4	3.57
Kumbhar	4	3.57
Sagar	3	2.68
Bava	1	0.89

The term Lohars (Luhars) or blacksmiths according to Enthoven[3] is derived form the Sanskrit word *Lohakar* or workers in iron. Luhars of Gujarat are believed to be the descendants from Pithvo, who according to tradition was created by Parvati from the dirt of Shiva's back for forging weapons for use in wars waged by Shiva against two demons, Andhkar and Dhandhkar. The endogamous system of marriage is prevalent in this community. These Lohars are also called 'Deva Tanakhi'

1. Dr. Annand K. Coomarswamy, *The Arts and Crafts of India and Ceylon*, pp. 32-33, 1913
2. Enthoven R. E., *Tribes and Castes of Bombay*, Vol. III, pp. 157-159, 1922
3. *Ibid.*, Vol. II, pp. 384 and 390-392, 1920

meaning divine spark, which has a reference to fire. Fire is worshipped as a deity and is also indispensable for the work of this community. In Gujarat they also address one another as Luhar-Suthar which has its origin in the story of a Gurjar Suthar and his daughter who was asked by her father to prepare meals for a Luhar so that the work of sharpening his (Suthar's) tools might not be delayed. After the work was done he asked his daughter to accompany him, but she declined on the ground that since she had done a housewife's work for the Luhar she would remain as such in the Luhar's house. Her father was constrained to agree to this proposal. To commemorate this event, the custom of addressing relations connected by marriage as Luhar-Suthar came into force.

They have six endogamous divisions (1) Bhavnagri, (2) Khambhati, (3) Parjia, (4) Panchal, (5) Sirohia and (6) Surati who neither eat together nor intermarry. Besideds these, three more divisions are found in Kathiawar, viz., (1) Sorathia, (2) Machhu-Kanthia and (3) Jhilka. They have several exogamous divisions, some named after Rajput clans and others after places of residence.

The religious sects to which Luhars belong are Godiapanthis, Kabirpanthis, Margipanthis, Meherajpanthis, Ramanandis, Shaivas, Swaminarayans and Vallabhacharyas. They look to Brahmins with reverence and worship *gram devata*, i.e., village gods and goddesses. Their special goddess of worship is Bhavani. They regard their bellow as a symbol or home of *devi* and on festive days worship it placing it near a lamp fed with *ghee*. Most of them believe in witchcraft, exorcism and omens, good and evil. Their priests except in Kutch are Audich Brahmans, known as Luhargors. They consider it derogatory to their status to eat food cooked by Luhars. In south Gujarat and Kutch they privately eat fish and flesh and drink liquor, but elsewhere they are strict vegetarians.

This hereditary craft calls for strenuous work along with expert technique required for the traditional work. Formerly only 50 families including some migrants from rural areas started preparing swords and handles thereof. As stated earlier, a member of the family of Harjibhai Thakersi Luhar of Savarkundla originally started the work of scale making. Later on it was taken up by other families. Persons from other communities working as labourers at blacksmiths' furnaces have also settled in this craft. Migration is mostly from rural areas of this taluka and the neighbouring district of Amreli.

The number of households having this craft as their main occupation is quite substantial. While 93 per cent of the total households are engaged entirely in scale making the remaining 7 per cent practise this craft as a subsidiary occupation.

Two families traditionally engaged in this craft have left it, one of them having migrated to Bombay and the other to Akola. They are now engaged in selling finished goods of the craft, which they find more profitable. The craft has not spread to other places by migration of artisans, though it has spread and developed locally among families of different crafts, due to increased demand of scales.

Location of Workshop

II.3 Classifying the location of workplace in and outside the house it is seen that the number of households having the workshop inside the house is 75. Of these 6 workshops are located in verandah, 1 in the front portion of the house and the rest numbering 68 in some other portion of the house. General environments and hygienic conditions of the workplace are satisfactory. Each of the 57 households out of 75 has an area above 201 sq. feet, while fifteen have less than 200 sq. feet. Condition of light and ventilation in all these households except one is quite good. The number of households having the workshop away from the house is 37. None of the households has a workshop at such a distance as would hamper the efficiency or cause incovenience to the craftsman. All these families work in their own houses or workshops. Where the workshop is not separate from the house, all the processes of scale making are carried out in the establishment of the owner or in the house of skilled craftsman. 112 households engaged in this craft have 881 persons giving an average of a little under 8. 75.9 per cent of the households own their workshop and the rest 24.1 per cent work in rented premises.

FAMILY STRUCTURE

II.4 Classifying the family members according to age, sex and economic activity it is seen that out of a total of 881 persons, 278 are workers and 603 non-workers. Among workers, 270 earn their living from this craft and the remaining 8 (4 males and 4 females) from other occupations. Out of these 8 workers in other occupations, 7 belong to age groups varying between 20 and 59 years, while 1 male worker is aged between 10–14 years. 6 of these workers (2 males and 4 females) from 5 households are engaged in agriculture, 1 male is working as miscellaneous labourer and another male is doing service as stockman in power-house. Both of them belong to different households. Out of 270 persons engaged in this craft 264 are males and 6 females while non-workers comprise 217 males and 386 females. The age composition of these families shows that out of 278 earners, as many as 254 or 91.4 per cent belong to the working ages 15 to 59 as against 15 or 5.4 per cent below 15 years and 9 or 3.2 per cent of 60 years and over. Data given in Table IX reveal that the percentage of literacy amongst these households is 48.57 per cent (63.09 per cent males and 30.56 per cent females). Literate males in the working age group 15–59 number 212 or 69.24 per cent. There are only 5 males having secondary education and 2 matriculates. None of the females have received education beyond the primary level.

INCOME

II.5 The economic condition of the families engaged in this craft is reflected in the following statement which distributes 112 surveyed households according to annual income ranges.

STATEMENT II

Households by annual income

	Annual income range (in Rs.)	No. of households	Percentage to total
	1	2	3
	Total	**112**	**100.00**
1	Less than 1000	1	0.89
2	1,001–1,500	13	11.61
3	1,501–2,000	32	28.57
4	2,001–2,500	26	23.22
5	2,501–3,000	15	13.39
6	3,001–4,000	11	9.82
7	4,001 and above	14	12.50

Distribution of households by income range brings out that 41.07 per cent of the households have income less than Rs. 2,000, whereas 58.93 per cent have income above Rs. 2,000 which shows a fairly remunerative nature of this craft. Further distribution of households into those earning more than Rs. 2,000 shows that 14 households or 12.50 per cent are in the highest income range of Rs. 4,001 and above, and 11 families or 9.82 per cent fall in the income bracket Rs. 3,001–4,000. Of the remaining, 26 households or 23.22 per cent are in the income range Rs. 2001–2,500 and 15 or 13.39 per cent in Rs. 2,501–3,000.

Analysis of 46 households earning less than Rs. 2,000 reveals that only one family earns Rs. 900, 13 are in the income bracket Rs. 1,001-1,500 and 32 or 28.57 per cent falls in the range Rs. 1,501–2,000.

In general the above income distribution of households shows that about two-thirds or 65.18 per cent of households earn annual income ranging between Rs. 1,501 and 3,000, 12.50 per cent below and 22.32 per cent above.

6 to 7 master craftsmen from the Luhar community working in this centre have income around Rs. 10,000 per annum. They neither possess academic qualifications nor have they taken any technical training except in the craftsman's shop. They are hereditary artisans. Five skilled craftsmen who are also the main dealers earn more than Rs. 5,000 per annum.

EXPENDITURE

II.6 A detailed examination of the family budget was made by a special enquiry in respect of 28 families residing in different localities of the town to study the expenditure pattern of households. The Statement III shows the expenditure pattern by income range.

Out of the total expenditure incurred by the 28 households surveyed for the purpose, a major portion of 46.79 per cent is spent on foodstuffs, whereas clothing accounts for 19.92 per cent. These two items of necessity thus comprise 66.71 per cent of the total expenditure. Expenses on drinks and fuel are somewhat equal and claim 11.35 and 11.39 per cent respectively.

STATEMENT III

Expenditure pattern

Income range	No. of households in different income ranges	Percentage of households in different income ranges to total	Expenditure on								
			Food-stuffs	Drinks	Fuels	Clothing	House rent	Travelling	Recreation	Education	Total
1	2	3	4	5	6	7	8	9	10	11	12
Total	**28**	**100.00**	**46.79**	**11.15**	**11.39**	**19.92**	..	**5.72**	**2.20**	**2.83**	**100.00**
1,001-2,000	15	53.57	47.54	10.07	12.49	21.35	..	4.88	2.18	1.49	100.00
2,001-3,000	10	35.72	48.61	12.64	10.35	17.50	..	5.69	1.90	3.31	100.00
3,001 and above	3	10.71	40.77	10.73	10.73	21.46	..	8.05	2.90	5.36	100.00

Expenses on travelling, education and recreation comes to 5.72 per cent, 2.83 per cent and 2.20 per cent respectively. All the 28 households live in their own dwellings.

The pattern of expenditure by income range reveals a declining trend in the expenses on cereals and increasing trend on education in case of 3 households falling in the highest income bracket. Two income ranges, viz., Rs. 1,001-2,000 and Rs. 3,001 and above record a very little variation in expenditure on drinks and clothing which is higher than that incurred by the second range of Rs. 2,001-3,000. Expense on fuel is higher in the lowest income group than in other two ranges which show a slight variation between them. The expenditure on travelling and education is found to increase with the rise in income.

HEALTH, HAZARDS, HOBBIES AND RECREATION

II.7 Though the work of manufacturing scales is fairly strenuous especially to hands and eyes, it does not appear to cause any disabilities. The craftsmen have hardly any recreation excepting occasional cinema shows, when exhibited in the town. Tea and *bidi* are the items they resort to for diversion and respite. Since most of them are Hindus, they celebrate Hindu festivals like Mahashivaratri, Gokulastami, Divali, Holi, etc. They are worshippers of goddess Bhavani and celebrate Navaratri festivals with special zeal and devotion.

SECTION III

RAW MATERIALS

Raw Materials

III.1 The raw materials required for preparation of scales are (1) iron bars and (2) oil paints besides coal, used as fuel. The size of the iron bars used for the purpose varies according to the dimensions of beams which have (1) length between the two ends varying from 150 mm. to 2,000 mm., (2) depth at the centre ranging from 30 mm. to 200 mm., and (3) thickness of the plate at the centre knife-edge from 4 mm. to 32 mm. For the purpose of moulding, a good quality of iron and coal are needed. Raw materials are generally purchased on cash payment from private dealers in the local market or from Bhavnagar, Rajkot and Bombay. Purchases on credit basis are usually avoided since they entail payment of heavy interest. Basic raw materials are purchased according to requirements which, in case of iron, come to 2 tons for scale making and 1 ton for other subsidiary crafts per day. The yearly requirements come to 480 tons for scale making and 240 tons for other subsidiary crafts at the rate of 20 working days in a month. The average quantity on hand on 3rd December, 1964 varied from 15 kilograms to 2 quintals.

Coal is imported directly from the coal mines of Jharia by the permit-holders such as cooperative society and local coal depots which in turn distribute it to the artisans. Good quality of oil paints also form part of the essential raw materials required since the scales are required to be painted before they are put in the market. The colours generally used are red, green, yellow, white, golden and black made by Messrs Opcolite Asian Oil and Paint Co., Bombay.

The units of measurement in iron and coal are kilograms, quintals and tonnes. The price of iron was around Rs. 35 to Rs. 37 per 50 kg. (or 1 cwt.) and of coal Rs. 80 per tonne, in the beginning of the year 1963.

Difficulties Experienced

III.2 Difficulty is experienced in obtaining the raw materials which are not available in the required quantity. For procuring iron the artisans have to depend upon the registered stockist. Many a time the artisans are unable to purchase their requirements on account of paucity of funds, non-availability of the requisite type of iron, and the short duration and long distance from which the material is to be moved.

It is reported that the difficulty in obtaining raw materials at controlled rates has increased particularly after the Chinese aggression. Craftsmen do not have any hoarding capacity and, therefore, cannot stand in competition with industrialists. It would be in the interest of the industry if iron is supplied in adequate quantity at controlled price so that craftsmen may not have to shift to other pursuits.

Type of Fuel and Power used

III.3 Coal and electricity are used as fuel and power. While coal is for the most part used for heating purposes, the use of electricity which is not extensive, is limited to drilling, shaping and embossing the firm's name and trade mark. Coal is invariably used by all the furnaces while electric power is used for the purposes aforementioned by about 8 master craftsmen and half a dozen big manufacturers all of whom hardly form 5 per cent of the total scale manufacturers in Savarkundla. Most of the dealers using electricity have their workshops on either side of the river Navli. Coal is thus an important fuel in scale manufacture. Obtaining hard coke at controlled rates is as difficult as procuring iron.

Despite the present hardship in the procurement of coal and iron, the craft is well progressing as its products are required for household and commercial purposes alike and their demand is more or less steady.

SECTION IV

TOOLS AND TECHNIQUES

Tools and Implements

IV.1 The implements required for the industry are hammer, different types of files, bellows, iron-hoe, vice, proper support, anvil, tongs, scrapers, punches of various shapes, and drilling machine. Hammers ranging from 1 lb. to 8 lbs. of requisite length, breadth and thickness are used. Tata made hammer of 8 lbs. which is 7" in length and 2.5" in breadth with a wooden handle of 3' is considered to be the standard which is generally used in this industry. Various files used are flat, square, round and oblong, a special file being required for polishing. The average length and thickness of the files is 1.5' and 0.3" respectively. The furnace is run by a bellow which measures between 1.5' to 4' in length. An iron-hoe is also required to put coals in the furnace. The vice is a tool for gripping any particular part of the scale. It weighs from 2 to 6 kg. and the diameter of the vice varies from 2" to 4". When one end of the beam is gripped in the vice its other end is put on a proper support in the hollow space. This prop is kept beside the vice, as it facilitates polishing. Besides this, there is another support weighing about 50 kg., $1\frac{1}{4}$' in length and 6" in breadth, used for forging iron rods. The artisan strikes the piece of hot iron on the anvil with a hammer to give the desired shape. The anvil weighs 2 cwt. and measures 3'x5" in length and breadth. About 4 to 5 types of tongs are used for lifting or gripping different parts of the scale. The two legs of the tongs are joined by a pivot or hinge and the average length of the tongs is $1\frac{1}{4}$' to 2'. Various types of chisels and about half a dozen punches of different types are used to pierce and perforate by a forward thrust. Lastly, the drilling machine is also important. Here also a small support is needed while drilling shaped articles.

Tool-Makers

IV.2 Most of the tools connected with the craft are manufactured locally by the craftsmen of Mohammedan community. 131 families are engaged in this work. Two hundred skilled craftsmen and 290 unskilled labourers are engaged in preparing these tools. Over and above the skilled and unskilled workers there are 6 traders, 4 salesmen and 30 managerial and accounts personnel engaged in the craft of tools making. All of them reside within a distance of 1 mile from the place of production. Major tools, e.g., big hammer, anvil, vice, files for polishing, etc., are purchased from big shops and those manufactured by Tata Iron and Steel Company and other companies are always in demand. Only two craftsmen utilise foreign machinery. Major tools give service on an average for 10 years but smaller ones last only for 3 to 5 years. An ordinary craftsmen with modest means invests on an average Rs. 500 in tools and implements.

Price of Tools and Implements

IV.3 Except in the case of one or two processes wherein mechanisation has been introduced during recent times, the implements required are those which are traditionally in use and locally available and such as can be made by the craftsman himself or the local artisan. They are simple and do not cost much as will be seen from the following statement.

STATEMENT IV

Implements and their value

Implements	Value (in Rs.)
Anvil	300
Bellows	200
Files set	30
Drill	25
Tongs	15
Prop	12
Vice	12
Sledge Hammer	12
Hammer	10
Scraper	9
Punch	8
Total	**633**

It is only at the initial stage that a sizeable amount of capital is required to be invested in the purchase of tools.

Stages of Production

IV.4 Scales have to pass through various *stages of production wherein the raw material* is processed by the application of different techniques. To begin with, appropriate marks are made on the iron bars with the help of a iron rule, according to the required size. The bar is then cut with the help of a chisel and hammer according to the marks. This process which is fundamental in the making of scales calls for a proper understanding of the entire composition. The marks should be so placed that the curves are used to advantage and the various parts cut in such a manner as to avoid any wastage of iron. The edges of iron pieces thus formed are heated in the furnace and hammered into the required shape. The craftsman then reduces the thickness by heating and hammering again and again. He also decides the weight of the scale and concentrates on accurate balancing. Though the shaping of the beam is done through the forging method, it guarantees as much accuracy as is obtained by machine-flame-cutting and ensures strength as in casting. In machine-flame-cutting, the beam is automatically cut by an oxygen jet not subject to human errors. The beam checks and end-shakles of Avery Beam Scales are cut by this method. But in Savarkundla the whole balance is streamlined by a little forging and scraping here and there. Other parts like brackets, round hook, pointer, loop suspending swivel and hooks are also smitten by hand, beaten and filed till the required shape and size are achieved.

IV.5 The processes followed at various stages for preparing a flat beam scale of 4′ in length with a weighing capacity of 100 kilograms are given below.

Cutting the Bar or Pato and Fixing the Dhari or Axle

IV.6 In the first instance, an iron bar measuring 4′ in length and 5″ in breadth and ½″ or 12 mm. thick is cut by drawing an appropriate outline on a cold bar 18′ long having the above mentioned breadth and thickness. The sketch is drawn in such way that 7 scales can be manufactured from it as against 4 beams rendered possible in machine-flame-cutting. The cut beam is then heated in the furnace till it is red hot and becomes malleable. A hole is then bored *with a sledge hammer at the centre of the beam* to fix *dhari* or the axle, and a triangular piece of iron (*ditiyun*) is welded in the centre below the lower level of the beam by heating it at about 3,000° centigrade.

Shaping

IV.7 The ends of the beam are constantly forged till a round shape with the required thickness is secured. Steel is forge-welded at the end-rings of the beam scale to stand the weighing capacity without breaking. This is known as *ta devo*. The beam ends are again heated for boring holes and bent into the shape of a swan's neck with the help of a round iron bar. The last stage consists of levelling the edges with the help of files. Here also the beam is required to be heated twice.

Brackets

IV.8 For preparing the bracket or *toraniyun* two iron bars, each 8″ long, ½″ broad and 15 mm. thick, are taken. They are forged to flatten their lower edges wherein square holes are bored. A cross head (*ganth*) which forms a pivot in the scale is then passed through the hole already bored in the middle of the beam.

In the centre of the cross head a hole is bored so that it can be fixed in the middle of the beam. The outer edges of the cross head are made round and fixed with screws. The extended edges beyond the screws are passed through the square holes on either side of the bracket. The upper edges of the bars are welded by placing a horizontal iron piece over them. In the centre of the horizontal bar which is welded, a hole is bored through which a loop suspending swivel (*Bhammar Kadi*) is passed and a hook or *ankado* suspended through the swivel.

A pointer or *suyo* is fixed at right angle in the hole bored and grooved in the centre of the upper level of the beam.

The knob connector (*latkaniyun*) is hung at the lower edges of the brackets to protect the latter from being deshaped in the event of scales used beyond its weighing capacity.

The various parts of the scale manufactured separately are then assembled and fitted at appropriate places. The balance, thus finished is tested for precision and equilibrium by adopting the weighing procedure discussed in the following paragraphs, and the defects if any, are rectified.

Weighing Procedure

IV.9 The *Encyclopaedia Britannica* describes in detail the weighing procedure for testing the balances as under :

> "The most obvious method of using a balance is known as direct weighing. The material to be weighed is put on one pan with sufficient known weights on the other pan so that the beam will be in equilibrium. The difference between the zero reading and the reading with the pans loaded indicates the difference between loads in scale divisions. This difference may be evaluated by comparison with the deflection resulting from a small known weight being added to one of the loads. Such a direct weighing requires that the arms be of equal length. New analytical balances are often required to have the two arms equal within one part in 100,000 to obtain precision in weighings to that extent.
>
> When the error resulting from unequal arms is greater than the required precision, the substitution method of weighing may be used. In this method counterpoise weights are added to one pan to balance the unknown loads on the other. Then known weights are substituted for the unknown loads. This method requires only that the two arms of the beam maintain the same lengths during the weighing. Any effect of inequality is the same for both loads and is, therefore, eliminated.
>
> For higher precision the loads should be weighed twice and reversed on the pans for the second weighing. Such a method, known as transposition weighing, in effect makes the balance twice as sensitive as compared with the direct or substitution weighings. Also, if the zero point or the arm ratic is shifting in one direction then the average of two reversals will tend to eliminate these effects. A series of transpositions may be made to increase the precision.
>
> Since the balance will respond to any force acting on the beam or pans the observer must assure himself as a part of the weighing procedure that any extraneous forces have smaller effects than the required precision. Causes of such disturbances include air currents, heating effects, changes in relative humidity, magnetic influences, vibration, air buoyancy effects, arrestment and release, and swinging of the pans. For precise work the balance should, therefore, be mounted on a rigid support free from vibration, in a room with very constant atmospheric conditions."[1]

Testing Method in Savarkundla

IV.10 Balance in Savarkundla is tested by direct weighing method. Heavy scales are lifted with the help of a chain, while other scales are mounted on a rigid support to test their precision. Load is put in both the pans according to the capacity of the scales to ascertain the equilibrium of the beam. Thereafter very small known weights are put in one pan to locate the testing error. If there is deflection on the other side and the beam reverts to the equilibrium, such error is permitted provided it is within the prescribed limit laid down under Rule 7 of the Bombay Weights and Measures (Enforcement) Act, 1958, for 'C' class beam scales, used in weighing grain, grocery, etc. The method prescribed in the *Encyclopaedia Britannica* for obtaining higher precision is for 'A' and 'B' classes of beam scales, i.e., those used for fine chemicals and for precious stones and metals respectively. But these are not manufactured in Savarkundla.

The balance thus tested for accuracy and precision is then passed on for colour. This is the finishing touch and the last manufacturing

1. *Encyclopaedia Britannica*, Vol. 2, p. 951, 1955

process. The painter gives scarlet, green, yellow, white, black and golden colours matching the size and type of the balance. The name of the firm, or symbol or trade mark such as *mena* (Indian Jay), 'crocodile' or '3 Key brand' are also marked with oil paint. The balance is then complete.

Improvement in Techniques and Processes

IV.11 Scale making generally entails manual work and there is no variation in the various processes that were followed in the past. However, of late a few artisans make use of improved tools, e.g., electric drilling machine, welding machine, lathe, etc., since there is precision in their performance. The Small Industries Service Institute,[1] Ahmedabad, established on 27th February 1961 under the auspices of the Central Small Industries Organisation, Ministry of Commerce and Industry, Government of India, has, besides the main institute, a branch at Rajkot and five extension centres in the State at the following places for the trades mentioned against them:

Place	*Trade*
Nadiad	Machineshop, carpentry, forging, heat treatment
Jamnagar	Electroplating
Bhavnagar	Machineshop, heat treatment, foundry, sand testing
Savarkundla	Forging and blacksmithy
Udhna (Surat)	Machineshop, mechanical testing, foundry, sand testing

The extension service rendered by this Institute to small scale units in Gujarat is widespread in scope. It helps the prospective entrepreneurs in selecting suitable industries and in enhancing the productivity of existing small units. Technical assistance programme at the institute level includes giving advice on selection of raw materials, designing of tools, preparation of blue prints, etc. In the follow-up programme, technical officers visit the factories from time to time to help overcome manufacturing defects and effect economy in fuel and raw material. Services such as repairs of machinery, physical and chemical testing have also been provided.

Extension Service Centres

IV.12 The extension service centres are provided and located in the areas where small units are well concentrated or where there is a potential for small industries. The extension centre at Savarkundla caters to the needs of manufacturers engaged in forging and blacksmithy. The workshop attached to this centre, besides providing training in improved techniques, is equipped with testing facilities and machinery required for various processes which an average small scale unit can individually ill-afford to possess. For disseminating knowledge of improved methods of production in blacksmithy, mobile workshop vans ply in remote and interior areas giving demonstrations and training in the uses of machinery and techniques of production.

The Small Industries Service Institute gives tools and machinery on hire to the manufacturers. The prescribed rate for of hire per major tool used in forging and blacksmithy is Rs. 2-25 P. per hour, while the rate for profile cutting machine is Rs. 15.50 per hour. Dealers have taken advantage of the machines about 278 times during the year, which is quite nominal. The reason for such poor response according to the local officer is that artisans are not interested in increasing their production even though the advantages accruing from the use of machinery are fully explained. This, however, appears to be paradoxical and not supported by the artisans who say that they find it costlier to use these machines as there is a greater wastage of raw materials. For example, from an iron bar of 18' only 4 beam scales of 4' in length can be cut on the machine as against 7 beam scales of the same size by forge method. These are hereditary artisans and have sufficient confidence in their inherited skill. They do want more and speedier production but not at high costs. They cannot afford to pay such heavy fees to the Service Institute. By and large it can be said that there are distinct advantages in working on machines, viz., accuracy in cutting is greater and the method of shaping the beam is more precise than in case of those manufactured by forge method. Automatic sledge hammer, lathe machine, power hack-saw,

1. Government of Gujarat, *Industrial Bulletin*, Vol. III, October, 1964, No. 4

drilling machine, grinding machine, profile cutting machine, etc., are made available on hire to local artisans on payment of prescribed fees. Moreover, artisans also get the help of technical know-how in operating these machines. Modern techniques are being gradually adopted by the artisans who are getting themselves acclimatised to the use of power machines in the manufacture of scales.

Designs and Decorative Motifs

IV.13 Two types of designs, viz., 'swan neck' and 'dutch-end' are in use in scale making. The craftsmen do not report any taboo against adopting other designs. Since the Government has prescribed standard size scale weights they find it difficult to introduce more decorative motifs. Moreover, these articles have more utility value than decorative with the result that the greater emphasis is on durability and accuracy rather than ornamentation. However, the use of oil paints in multi-coloured painting of the scale differentiates the past from the present method of decorations.

SECTION V

FINISHED GOODS AND MARKETING

SIZE, SHAPE, ETC.

V.1 SCALES ARE required to be manufactured in the prescribed dimensions. It is necessary and compulsory under the provisions of the Bombay Weights and Measures (enforcement) Act of 1958 to obtain a licence for the manufacture of scales. The licence is issued for a period of one year and renewed thereafter on payment of a licence fee of Rs. 25 to the Industries Department of the State. The statement that follows give the licences issued at Savarkundla during 1961 to 1965.

Year	*No. of manufacturers*
1961	55
1962	59
1963	61
1964	296
1965	101

Artisans not possessing the manufacturer's licence cannot sell their products through authorised manufacturers and dealers.

After the scales are manufactured in finished form by the authorised manufacturer, they have got to be examined and stamped by the Inspector of Weights and Measures before they are put to sale.

FEES

V.2 Annual receipts by way of fees for stamping amount to Rs. 50,000 (approx.). The rate of fees is 0-75 P. to Rs. 6.00 varying according to the weighing capacity of scales. Beam scales with weighing capacity between 1 to 10 kg. are manufactured in largest numbers for which the stamping fee is Rs. 1.50 per piece. Taking an average of Rs. 1.50 per scale it can be said that the number of scales sold in the State works out roughly to 33,333. Stamping on scales by the authorities in itself implies that the scales are manufactured according to the leading dimensions of beam laid down for the respective classes. The leading dimensions for Beam Scales, Class 'C' (swan neck type) prescribed by the State Government are as under:

Leading dimensions of beam for beam scales (Class 'C' swan neck type)

Capacity	Length between the ends in mm.	Depth at the centre in mm.	Thickness of the plate at the centre knife-edge in mm.
1	2	3	4
100 g.	150	30	4
200 g.	200	40	5
500 g.	300	40	6
1 kg.	350	45	6
2 kg.	400	45	6
5 kg.	500	70	6
10 kg.	600	80	6
20 kg.	750	108	6
50 kg.	900	116	8
100 kg.	1,200	138	14
200 kg.	1,350	148	16
300 kg.	1,650	154	18
500 kg.	1,800	178	25
1,000 kg.	2,000	200	32

V.3 When the scales are to be sold outside Gujarat State, the procedure adopted is a little different. The authorised manufacturer holding a licence to manufacture scales sends goods to his agents who are duly approved by the Government of the State where the scales are to be sold. These agents call for the finished products from the manufacturer and put them in the market after undergoing the procedure of examining and stamping of the scales according to the rules obtaining in that State.

SALE PRICE

V.4 The price of a scale ranges from Rs. 40 to Rs. 100 according to size. The percentages of wholesale and retail sale were 80 and 20 respectively during the year 1961 and maintained more or less the same proportion in February 1963. Finished products are generally not stored

by the craftsmen as their financial capacity is weak.

Location of Markets

V.5 As production is normally undertaken with an eye on the pending and expected orders, large stocks of products do not get accumulated with the manufacturer. The time lag between production and disposal of scales is only 15 days and no special measures are, therefore, necessary for preservation and storage of goods.

Outside Gujarat State scales of Savarkundla are generally sold in Maharashtra, the Punjab, Rajasthan and West Bengal. As stated earlier, the scales are manufactured by authorised manufacturers, and the sales are effected either directly by the dealer or through his authorised representative in other States. Local sales are effected only on cash payment while in the case of upcountry sales in and outside the State, the terms and conditions of disposing of finished goods are decided by the agent. The goods are transported by rail as well as by road.

Assistance by Cooperative Society

V.6 During the year 1960–61 the local cooperative society gave financial assistance in the form of loans to 10 members to the extent of Rs. 13,963 for marketing their goods. The assistance ranged between Rs. 100 to Rs. 1,700. The society had also engaged a salesman to canvass and sell goods of its members and help them augment their sales. It was not possible for the cooperative society to satisfy all the needs of its members, as many a time they did not have enough resources of labour and materials in the nick of time.

Value and Volume of Finished Goods

V.7 Savarkundla alone is reported to manufacture nearly 60 per cent of the total beam scales manufactured in India. It also manufactures counter balances. It has not so far taken to the manufacture of spring balances. Of the total output only 20 per cent is sold in Gujarat and 80 per cent outside the State. Of late, balances are exported to foreign countries like Aden, Ceylon and Burma. As regards goods exported outside India, Government of India have to certify 62 per cent hardness per piece to the importing country. This hardness is maintained by the export manufacturers.

The value of finished products during the year 1963-64 amounted to Rs. 34 lakhs approximately. Statistics as to the number of scales disposed of during the year are not forthcoming since all the craftsmen do not maintain up-to-date accounts, but on a rough estimate 9 per cent of goods remained unsold at the close of the year.

Problems of Marketing

V.8 Small artisans generally manufacture goods on behalf of big dealers. On the basis of the information compiled from 1961 Census Houselists, the number of establishments at Savarkundla practising scale making as household industry having less than 5 workers is 133 which form 43.3 per cent of the total scale making units in that town. These artisans with meagre means of livelihood reside on the outskirts of the town, viz., Jamadar Vada and Koli Vada. Their goods are purchased by the larger dealers, most of whom have a grievance against the levy of sales tax. In a way registration for sales tax and issue of a licence for the manufacture of scales under Section 13 of the Bombay Weights and Measures (Enforcement) Act, 1958 are inter-related. Avoidance of one brings difficulty in respect of the other. The purchases made from small dealers are shown as unregistered dealer's sales in the books of accounts of the big dealers presumably with a view to avoiding tax on profit which is estimated by the taxing authorities at 30 to 35 per cent in case of goods manufactured by them as against 10 to 12 per cent in resale. For all practical purposes the small dealer works for and on behalf of the large establishment as the latter supplies to him all the materials he needs and pays labour charges only. Now when the scales are not of one's own manufacture, they are not stamped by the Industries Inspector as the rules for stamping require that only those scales which are manufactured by the artisan himself can be stamped. Small artisans do not come forward as manufacturers since they apprehend that they will be liable for sales tax. The very idea of maintaining books of accounts, recording purchases, etc., in accordance with the system prescribed by the Sales Tax

Department frightens them. This difficulty is experienced mainly in respect of sales effected in Gujarat State.

SALES OUTSIDE GUJARAT

V.9 As regards sales outside Gujarat State, the difficulty arises not from other State Governments but from the agents appointed and approved by them. Government of Gujarat has entered into agreements with different State Governments whereunder they appoint agents either for the State as a whole or for each district or region according to the terms and conditions entered into by each State. Since these agents enjoy a monopolistic position, they exploit their position, prefering goods of one manufacturer to those of anothers or withholding sales or compliance of instructions of their principal, as the manufacturer himself cannot directly sell his products to the consumer of other States, but only through his approved agents. There is a restriction as to the number of agents to be appointed in other States, without any reciprocal restriction as to the number of principals an agent can have. The difficulty is experienced mainly in Maharashtra where only two dealers are approved for the whole State unlike Madhya Pradesh, Andhra Pradesh and others where agents are appointed district-wise or tractwise. Interests of manufacturers often conflict. This may be one of the reasons for their inability to unite to counteract the unscrupulous practices of the agents.

V.10 Another difficulty relates to the implementation of the provisions of the Bombay Weights and Measures (Enforcement) Act of 1958 with the introducing of the metric system of weights and measures. Scales are to be manufactured according to the leading dimensions of beam laid down for the respective classes of beam scales. No laxity is permitted in the interpretation of the Rules, as the letter of the law has to be rigidly followed by the local authority in implementing the penal provisions of the Act. This sometimes causes discontent among the artisans. For, the manufacturers are not acclimatized to the stricter enforcement of the provisions of the Act and Rules made thereunder. Prior to this Act, the Bombay Weights and Measures Act of 1932 adapted and applied to Saurashtra and Kutch was in force till 31-10-1956, and continued to remain in force even after the reorganisation of States and formation of the composite State of Bombay, till 31-3-1958. The Weights and Measures Act of 1932 was liberal as compared to the Act of 1958 inasmuch as the word 'dealer' was used in the former enactment instead of the present term of 'manufacturer'. It was perfectly legal, therefore, for a big dealer in the past to sell his own products as well as to purchase goods of small manufacturers for resale. Holding of manufacturer's licence and its renewal every year is compulsory under the Act of 1958. Non-compliance of this condition means that the goods manufactured by a dealer are not made by an authorized licence holder, and so the scales manufactured by him cannot be stamped. Small manufacturers find it rather difficult to comply with the intricate formalities associated with the licence procedure of stamping and submission of periodical returns. They, therefore, have their recourse to sell their products either to large manufacturers or to outside agents who manage to get them stamped before sale.

V.11 Savarkundla being the only centre of this industry in Gujarat it has for all practical purposes monopolistic advantages, though it can hardly stand competition with large scale units unless Government gives some concession as in the case of handloom products. The main difficulty experienced by the craftsmen is the problem of sales tax. Under the present Sales Tax Act the manufacturer is required to pay tax on the purchase of raw materials and gets refund of tax on the sale of finished products either in the State or outside. However, iron and coal which are chief raw materials of the craft are considered restricted items on which no set-off of the tax paid is given under the Sales Tax Act. At the time of assessment, such set-off is given to the manufacturer on production of vouchers to be recorded in the purchase register maintained in the manner prescribed by the sales tax authorities. The manufacturer has to establish the value of raw materials used in manufacture by showing day to day stock in the purchase register. The craftsmen being mostly uneducated are

not used to the system of maintaining regular books of accounts in the manner required, with the result that many a time they are unable to establish their claim for refund, and thus render themselves liable to double taxation—though not contemplated under the Act—as the dealer pays tax once on the purchase of raw material and then on the sales of finished goods. It has, therefore, been suggested by various sections of the mercantile community that suitable changes should be made in the application of the Sales Tax Act to ensure that the trade of the State is not diverted to neighbouring States, but is encouraged and developed so as to yield greater tax returns. As regards the sales tax artisans feel that handicraft products should be completely exempted and/or the prescribed limit of annual turnover for compulsory registration of manufacturers which is at present Rs. 10,000 should be raised, and the loss accruing therefrom made good from goods manufactured by large industries. Marketing is a complicated field where traders rush in and craftsmen fear to tread. Hence the big morsel of profit goes to the trader rather than to the craftsmen.

SECTION VI

ECONOMIC CHARACTERISTICS

Source of Capital

VI.1 The capital required for investment varies from Rs. 500 to 5,000 according to the size of unit. As on 28-2-63, the circulating capital in the craft according to acknowledgeable persons was Rs. 8.97 lakhs approximately. The scales produced numbered about 1.12 lakhs and the value of the output was Rs. 14.91 lakhs. The capital is mainly provided by money-lenders, bankers and the Government. The rate of interest charged is up to 12 per cent.

VI.2 During the cooperative year 1959-60 an amount of Rs. 10,000 was received by Laxmi Udyog Cooperative Society Ltd., Savarkundla, as working capital loan at $4\frac{1}{2}$ per cent interest from the Industrial Cooperative Bank, Rajkot. The loan was repaid in the year 1962-63. Besides this, 3 households received Rs. 7,000 by way of loan for development of business which resulted in increased production.

VI.3 The Cooperative Department of the State Government gave Rs. 600 and Rs. 422 during 1960-61 and 1961-62 respectively as subsidies on the managerial expenditure incurred by the society during the last preceding year. During the year 1963-64 no craftsman received loan or subsidy from the Government.

Assistance given by the society for the purpose of purchasing raw materials during 1960-61 to its members was to the tune of Rs. 9,827-50 P. The amount of loan ranged from Rs. 70 to 1,700 and was repayable within one month from the receipt of the amount. Ten members were benefited by this loan.

Skilled and Semi-skilled Workers

VI.4 Scale industry of Savarkundla mainly depends on man-power, and the help of electrical or other modern machinery is very sparingly taken. All the stages of production bespeak of the workmanship, intelligence, precision and adroitness of the craftsman. The man-power employed in this industry at Savarkundla can be divided into skilled and unskilled. The skilled artisan prepares different models of scales including important parts, e.g., beam, suspending swivel, axle for the centre (fulcrum), bush brackets, knob-connector, and end-shackles and looks after the last important phase of assembling in a manner that would maintain equilibrium of the scale. The unskilled or ordinary artisan operates the bellows to run the furnace, puts coal in the furnace, strikes the hammer and does such other ancillary work. Each shop has on an average 2 to 3 skilled craftsmen. They are hereditary artisans skilled in their craft, and according to them, do not require any further technical training. In busy season they work for more than 8 hours, while in slack season for 5 to 6 hours. The average earning per worker per day is Rs. 4 and the average number of working hours per day is 8.

Cost of Production and Earning

VI.5 The following break-up of sale value of the finished product will show the cost of production and earnings.

A-Cost of Production

(1) Raw materials	65.00 per cent
(2) Fuel and power	10.00 per cent
(3) Rent and taxes	7.00 per cent
(4) Transport charges	4.00 per cent
B-Profit	14.00 per cent

Iron and coal, the main items for the manufacture of scale are controlled commodities. The distribution of iron-bars, sheets and wires is regulated by the Government of India and channelled through registered stockists. Hard coke is purchased directly from the collieries at Jharia in West Bengal by the permit-holders, viz., the local coal depots, cooperative society, etc.

These raw materials are available at controlled price to permit-holders only. Permit for iron is issued by the Controller of Iron and Steel and that for coal by the Director of Industries. While issuing permits care is taken to ascertain from the applicant that raw materials supplied at the controlled price are not resold, or used for purposes other than manufacture. The manufacturer, however, has many a time to take recourse to open markets as there is a paucity of goods supplied through these agencies and as the material allotted sometimes does not conform to the required type or quality. Difficulty is also experienced in timely having these raw materials when there is a shortage of wagons and/or dislocation of goods traffic. Procurement of all these raw materials swells up the bill of production. The statement given below shows the cost of production and earning.

STATEMENT V

Cost of production, sale and earning

Size of beam scale	Quantity of raw material required (in lbs.)	Cost of raw material@ 0-50 P. per lb.	Cost of processing@ 2-12 P. per lb.	Total cost	Selling price	Net earnings	No. of man days* required to manufacture a scale
1	2	3	4	5	6	7	8
1.5′ x 2.5″	8	Rs. 4	Rs. 17	Rs. 21	Rs. 25	Rs. 4	1
5′ x 6″	9	Rs. 45	Rs. 191	Rs. 236	Rs. 250	Rs. 14	1.37

*1 man day=8 hours

For a beam scale 1.5′ x 2.5″ nearly 8 lbs. of iron worth Rs. 4 at the rate of 0–50 P. per lb. is required. The cost of conversion into finished products which includes among other things, labour charges, price of coal consumed, and depreciation charges of tools and implements works out to about Rs. 2-12 P. per lb., i.e., Rs. 17 for 8 lbs. of iron. The average sale-price of a beam scale of this size is Rs. 25. Hence the average earning per article works out to Rs. 4 only. In a beam scale of bigger size, viz., 5′ x 6″, the average earning per piece is Rs. 14, as the average sale-price of an article of that size is Rs. 250 and requires nearly 90 lbs. of iron to make it. The cost of raw materials per lb. at a rate of 0-50 P. per lb. works out to Rs. 45 and the cost of conversion into finished products at a rate of Rs. 2-12 P. would be Rs. 191 for 90 lbs. Generally, it is noticed that five artisans can manufacture 5 beam scales, each measuring 1.5′ x 2.5″ in a full working day of 8 hours, whereas 4 pieces can be manufactured in case of a beam scale, measuring 5′ x 6″ by the same number of artisans during the same period.

The number of households not getting sufficient work or reporting production less than full capacity is 70. The reason for insufficient or low production in these units is due either to non-availability or inadequate supply of raw materials during the monsoon. If the idle capacity in slack season is utilized they can produce more. In the opinion of the master craftsmen, the present level of production is only about two-thirds of the total capacity from the point of view of investment.

WAGE STRUCTURE

VI.6 Owing to the diversified and to some extent specialised nature of techniques and processes involved in this light engineering industry, there is no labour problem. Most of the units are run entirely by the labour of family members only. The daily wage rate in case of hired labourers varies from Re. 1 to Rs. 5 according to the technique and skill involved. Artisans work for 20 days in a month. Children below 15 get Rs. 20 to 45 per month, while an adult skilled labourer earns Rs. 100 per month. Only male workers are engaged in the craft. No bonus is paid to the labourers. Only 18 households engage hired workers and there is none depending solely on hired workers. About 32 hired workers are employed in the craft. They mostly come from Sagar, Kanbi, Kumbhar and Sipai communities.

SECTION VII

ORGANISATIONAL CHARACTERISTIC

Organisational Pattern

VII.1 This industry demands a high degree of proficiency and skill rarely found in artisans of castes other than Luhars. The strenuous nature of the work has precluded the entry of outsiders in this industry without initiation and probation as an apprentice. Luhars of Savarkundla are used to physical strain, a quality that has come down through generations. Luhar community of Savarkundla holds a near-monopoly of making beam scales and virtually acts as a guild or an association for mutual aid in achieving economic gains, social status and professional rights. This helps to strengthen the structural organisation of the industry and enables the craftsman to stabilise himself in the industry and maintain hereditary skill which is handed down from father to son in the same community which is Luhar. The workshop serves as an ideal training school for those of the younger generation who help the workers by doing odd jobs and gradually bloom into accomplished artisans. Their social contacts are kept alive by arranging a community dinner on marriage occasions of religious festivals.

VII.2 This craft has no separate trade guild or *panchayat* for each individual process on the craft. Inspite of diversified and to some extent specialised nature of various operations in the industry, the organisational pattern is not complex. Though all the processes are carried out separately in the workshop by skilled artisans, they are dovetailed in an organised manner in the set-up of the industry. All the establishments carry out all the processes from refining of raw materials to the production of finished articles. The factory owners run their establishments either with the help of family members with or without hired workers. Out of 112 households engaged in this craft, only 18 employ hired workers, while the remaining 94 households run the craft with the help of family members only. There is a general practice of remunerating skilled workers according to their output on piece-work basis. They work under or for an establishment where they find the conditions suitable or favourable. As there is no frequent change over from one employer to another, the relations between the employer and employee are happy and endure for a fairly long time.

Cooperative Society

VII.3 Procurement of raw materials and advancing of loans to members for developmental purposes are the main phases of this industry which have been recently brought under the purview of cooperative activity. A cooperative society named Laxmi Udyog Cooperative Society Ltd., Savarkundla, registered under No. P. 4431 on 27th July, 1959 is managed by Shri Morarji Dhanji with the help of local dealers. The area and scope of activity of the society is limited to Savarkundla town. It lends assistance to its members in the manufacture of beam scales. This society is formed of 17 members comprising 15 Luhars, 1 Patel and 1 Brahmin well-wisher. 274 shares of Rs. 10 each have yielded Rs. 2,740 by way of share capital. During 1959–60, the society received Rs. 10,000 as a loan for working capital at 4½% interest from the Industrial Cooperative Bank, Rajkot which was repaid in 1962–63. It also received subsidies from the State Government during 1960–61 and 1961–62 to meet managerial expenses.

During the year 1960–61, 10 members received assistance from the society for purchasing raw materials and marketing their goods to the tune of Rs. 9,827-50 P. and Rs. 13,963 respectively. It made a profit of Rs. 322-21 P. in the year 1960–61 though it incurred a loss of Rs. 1,275-91 P. in the preceding year.

VII.4 The cooperative society has not been so far able to make any rapid progress. The

society has increased neither its membership nor its business since 1960-61. Of late it is becoming more or less inactive. The reasons for its inability to enlist cooperation from local artisans may be summarised as under:

(i) Cooperation is confined merely to the purchase of raw materials and giving of some financial aid to members and not to production.

(ii) Development of small scale industries requires various promotional activities such as issue of essentiality certificates for procurement of raw materials, issue of permits for steel and coke and financial assistance. The artisans feel that the Directorate of Industries takes a considerable time to issue the essentiality certificate and thereafter there is further delay in the issue of licence by the licensing authorities. The feeling of the members is that the cooperative society is unable to expedite in these circumstances.

(iii) Due to the improvement in the supply of steel and hard coke and their availability in the open market the need and importance of the society have diminished. Even when these commodities were under statutory control, members were required to bear the administrative charges of the society for procurement of steel and hard coke. This inflated their purchase price without procuring all their requirements, part of which had to be obtained from other sources.

The society is also unable to give effective help in respect of finance, which is the greatest handicap of this small scale industry. It is unable to obtain initial finance against assets held by the members. It needs clear titles and valuation of the assets of the applicant with the result that the prospective loanee is put to considerable inconvenience.

ARTISANS' ASSOCIATION

VII.5 During the period of controls manufacturers experienced numerous hardships in obtaining the allotted quota of iron and steel and later on of hard coke. The whole day was wasted in attending Government Offices, going to the stockist and yet one could not get the raw materials according to one's needs or requirements. It was, therefore, felt necessary to have an association which could protect the legitimate interests of the manufacturer. This need became acute after the adoption of the metric system of weights and measures and the enactment of the Bombay Weights and Measures (Enforcement) Act, 1958.

VII.6 With a view to protecting the interest of artisans and improve the quality of the products to meet the requirements of modern markets and giving impetus to the scale making industry, Shree Savarkundla Kanta Udyog Karigar Association, Savarkundla was formed on 16th July, 1964. The convener of the first meeting for the formation of the association was Shri Mathuraprasad Aditram Mehta, a retired Government servant. There are 150 member firms in the association. Its area of operation is limited to Savarkundla town. The entrance fee is Re. 1 and the annual subscription is Rs. 5. The office bearers are (1) President—Rana Tribhovandas (2) Secretary—Balvantray Gandhi and (3) Joint Secretary—Jadavray Narandas Makvana.

The Executive Committee consists of 16 members. The association had set up its stall at the Congress Session held at Bhavnagar in 1961 to exhibit and advertise the types and qualities of scales manufactured in Savarkundla. Attempts were made by the association without success to standardise some of the finished products but the Indian Standard Institute did not approve the specimen sent to it stating that handicraft products cannot be standardised with precision. It had requested the Secretary, Indian Standard Institute, to hold the meeting of All-India Conference of Controllers of Weights and Measures at Savarkundla. The association intends to press its points regarding the standardisation of certain beam scales, if and when the conference is held at Savarkundla.

TRAINING

VII.7 Training is generally received in the traditional manner from father to son. There is no professional institution which imparts scientific training for the craft. Artisans suffer from

complacency and feel that they do not require any further technical training, since they are hereditary artisans themselves. However, the local branch of the Small Industries Service Institute opened by the Government of India has a bearing on the development of the craft. It functions as one of the five extension centres of the Small Industries Service Institute. It gives training in forging and blacksmithy and makes available on hire heavy machines and costly electrical tools and machines to local artisans on payment of prescribed fees. The institution also imparts training in the technique of operating these machines.

SECTION VIII

CONCLUSION

Characteristic Features

VIII.1 Some of the distinguishing features of the industry may be examined below.

(1) The entire industry is labour intensive. This is one of the reasons why there is no participation by women folk who can work merely as unskilled labourers.

(2) It is essentially a household industry which is worked by the labour of family members and hired workers wherever necessary. Households having the workshop located in the house are more than double those away from the house. Even in some of the latter type of units, part of the premises is utilised for taking rest during leisure hours, or treating the customers and visitors.

(3) No household works with hired labour alone. Labourers are hired to work side by side with family workers. Only 18 out of 112 establishments employ 32 hired workers giving an average of less than 2 hired labourers per establishment.

(4) Another distinguishing feature of this industry is that while it is the principal occupation of the majority of households engaged therein, it also supports a number of other blacksmith families in the villages surrounding the town engaged in making tools and implements connected with the craft. Such households also supplement their income by working in this craft on piece-work basis, e.g., preparing axles, polishing, levelling of beams, etc.

Future

VIII.2 Scale making is essentially a Small Scale Industry. The role of small industries in the nation's economic planning was stressed by the Government of India in its Industrial Policy resolution dated the 6th April, 1948 which states:

> "Cottage and Small Scale Industries have a very important role in the national economy, offering as they do scope for individual village or cooperative enterprises and means for rehabilitation of displaced persons. These industries are particularly suited for the better utilisation of local resources and for the achievement of local self-sufficiency in respect of certain types of essential consumer goods".

This policy statement was reiterated in the Second Industrial Policy resolution dated 30th April, 1956. Emphasis has been rightly laid in the Third Five Year Plan on the need for development of the small scale sector which has a very good employment potential.

In some ways scale making of Savarkundla is unique even among Small Scale Industries. While it does not require or involve artistry on the part of the artisan, it calls for scientific accuracy in execution without which the product will have no value. Secondly the artisans produce for trade and industry rather than for the consumer. Moreover, the centre accounts for the bulk of the country's production on household basis. The implementation of the following suggestions will go a long way towards further development of this unique industry.

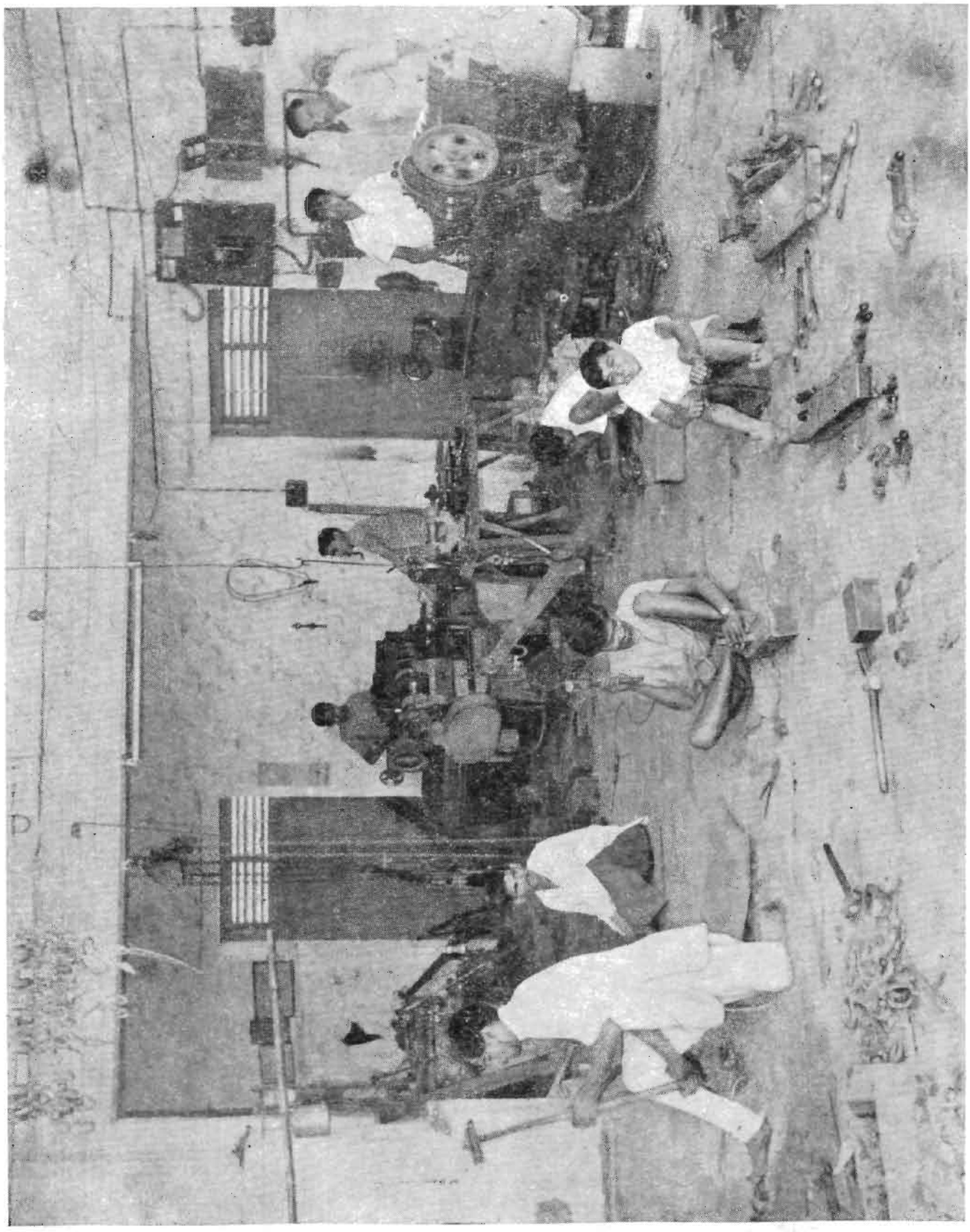
The combined efforts of both the Government and manufacturers can help much to increase production. Manufacturers feel that maintenance of registers and filling of returns under the Income Tax and Sales Tax laws are handicaps in stepping up production. The procedure for implementing these acts as well as the Bombay Weights and Measures (Enforcement) Act, 1958, in respect of granting licence for manufacturing scales and stamping them, should be simplified. Availability of raw materials, viz., iron and coke should be ensured at Savarkundla instead of issuing permits for distant places. Added facilities should be made available for providing finance needed for procuring raw materials, construction of workshop, purchase of machines, tools and appliances and effecting improvement in the industry, through institutions

like the District Cooperative Bank. Facilities of marketing should also be afforded.

VIII.3 Manufacturers on their part should, as far as practicable, make use of modern machines so as to reduce the cost of labour and other ancillary expenses and to reach optimum production.

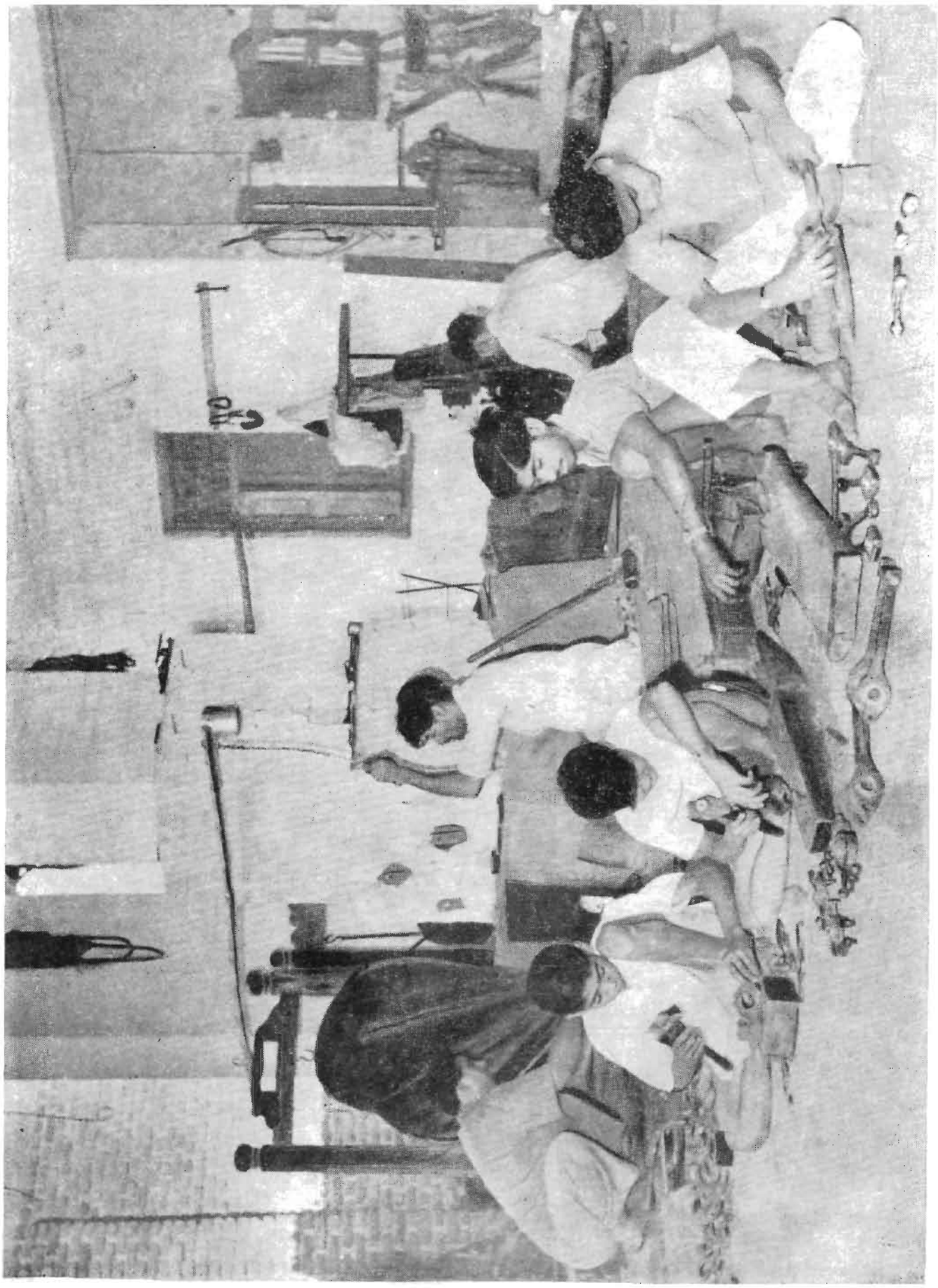
Wide publicity of their goods, canvassing through their own agents and opening of stalls at industrial exhibitions or emporia would go a long way in pushing their sales. Shri Savarkundla Scale Industry Artisans Association was formed in July 1964. 150 firms are members of this association. Steps should be taken to increase its membership, so that the association can effectively safeguard and promote the interests of the artisans and eliminate intermediaries especially by arranging export of goods outside the State on their own.

Even in existing circumstances the finished products are in great demand. Systematic steps to increase production and reduce costs, greater efforts for marketing, and facilities of regular service after sale in respect of repairs and replacement of parts would greatly improve the future of this industry. There is acute need, however, to reorient the industry on modern lines, retaining at the same time the innate skill of the artisans in order to steer the industry safely through the vortex of cut-throat competition of large scale manufacturers.



General view of the workshop

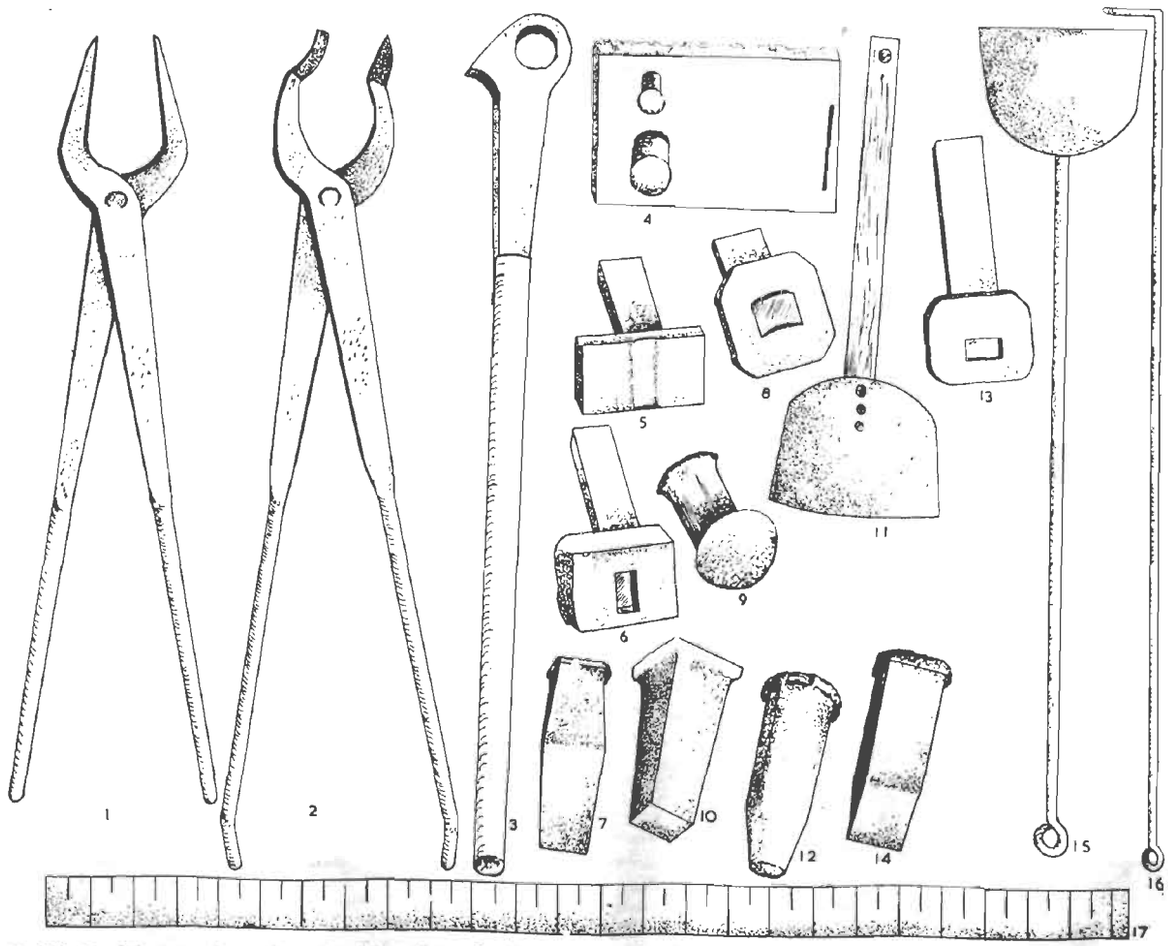
PLATE II



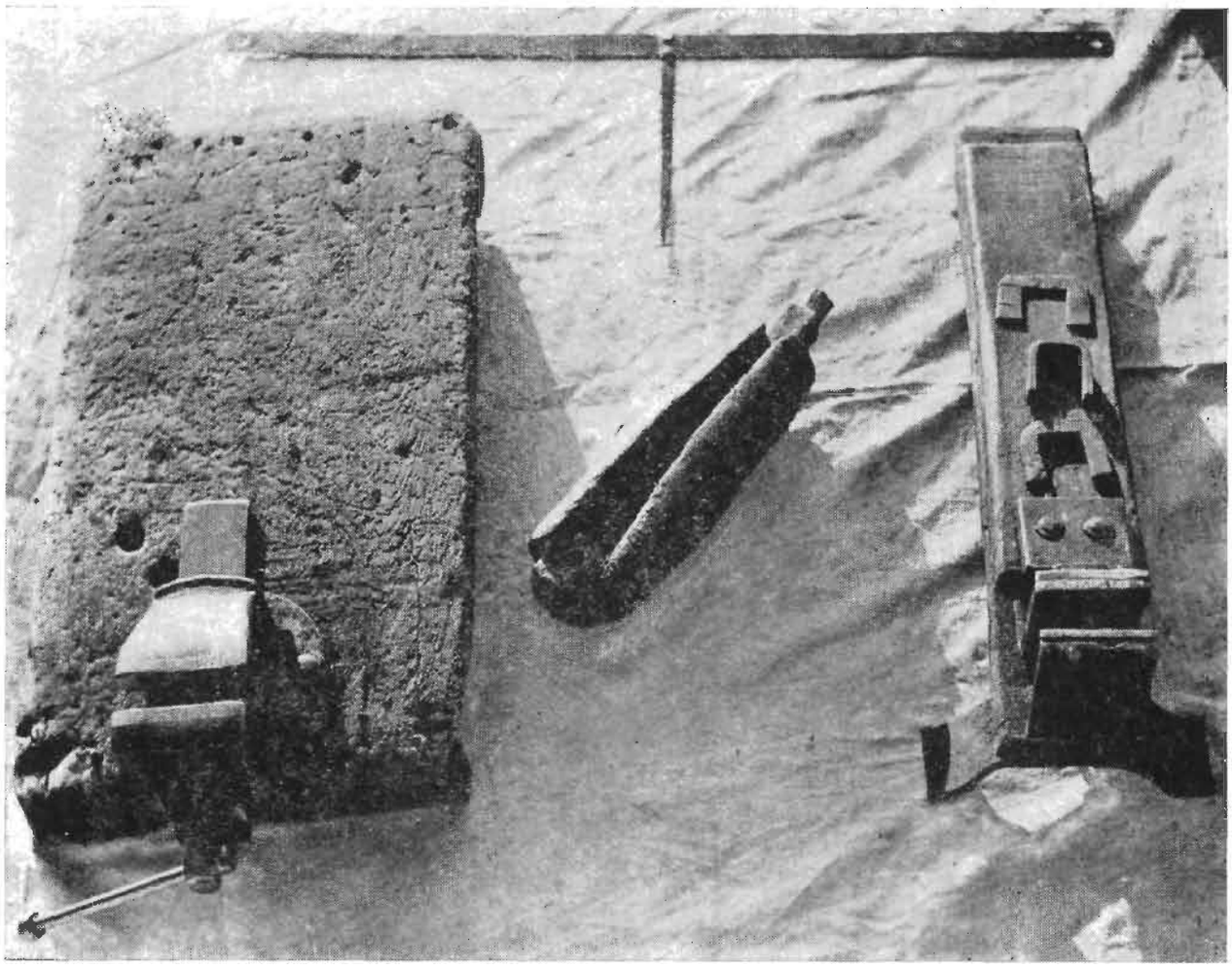
Artisans at work



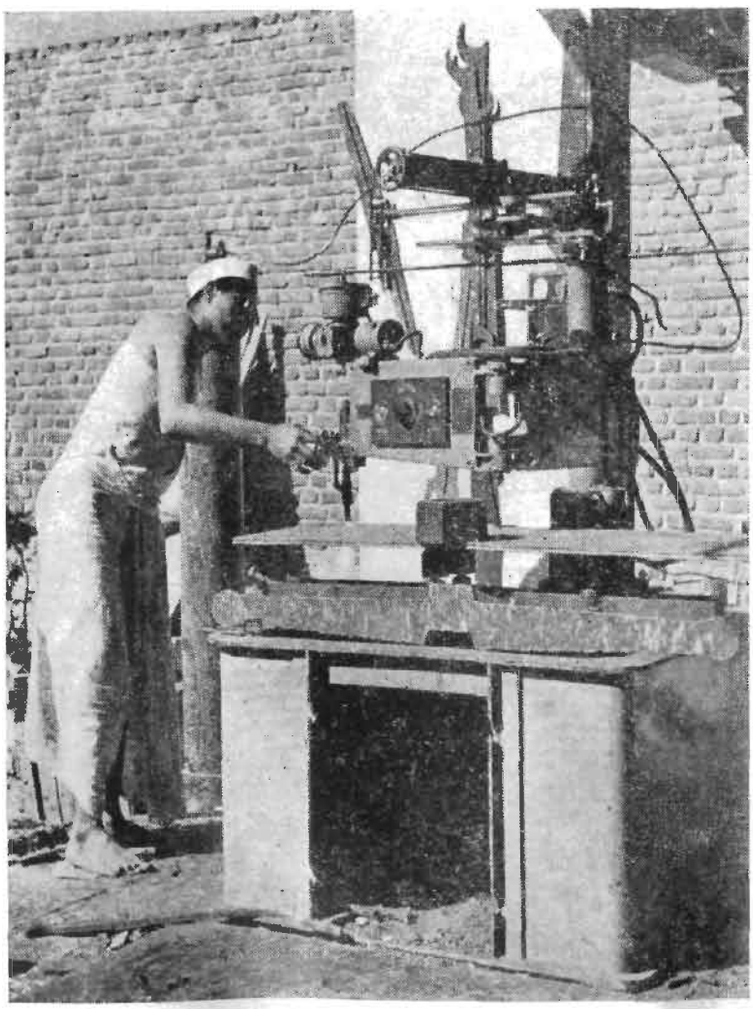
1. Pincers (chapta wali sansi); 2. Square file (choras atardo); 3. External screw engraver (pech patli); 4. Pincers (lagni sansi); 5. Round punch (gol venu); 6. Internal screw engraver (tap); 7. Chisel (sini); 8. Square punch (choras venu); 9. Hammer (hathodi); 10. Screw spanner (panu); 11. Round bolt (gol kundli); 12. Square bolt (choras kundli); 13. Iron strip with a bore (chavu); 14. Flat file (chapti kanas); 15. Hammer (ghan)



TOOLS: *1 & 2. Pincers (sansi); 3. Handle; 4. Lever; 5, 6, 8, 9, 10, 12 & 13. Punches; 7 & 14. Chisels (sini); 11 & 15. Shovel (pavdi); 16. Iron rod with a crooked point (lohario); 17. Measure (map pati)*



1. Level (tarkatak); 2. Iron vice (sighro); 3. Wooden vice (lakdano sighro); 4. Combined iron and wooden vice



Profile cutting machine



The bellows furnace

Modern blow furnace

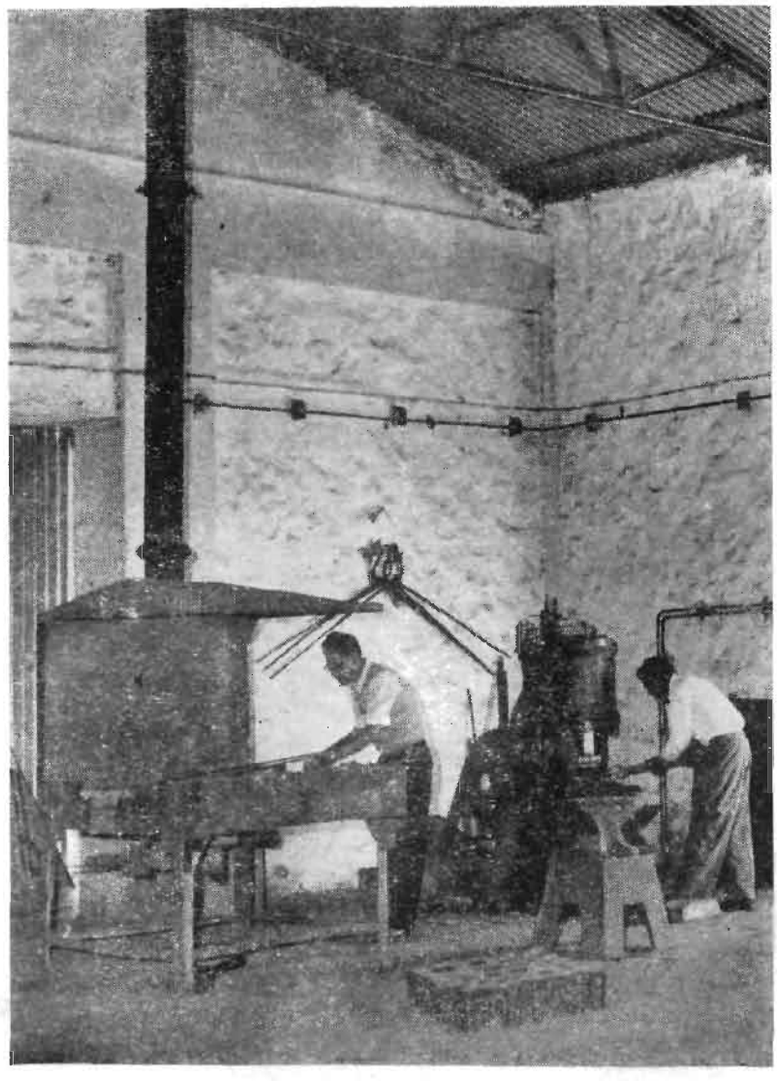
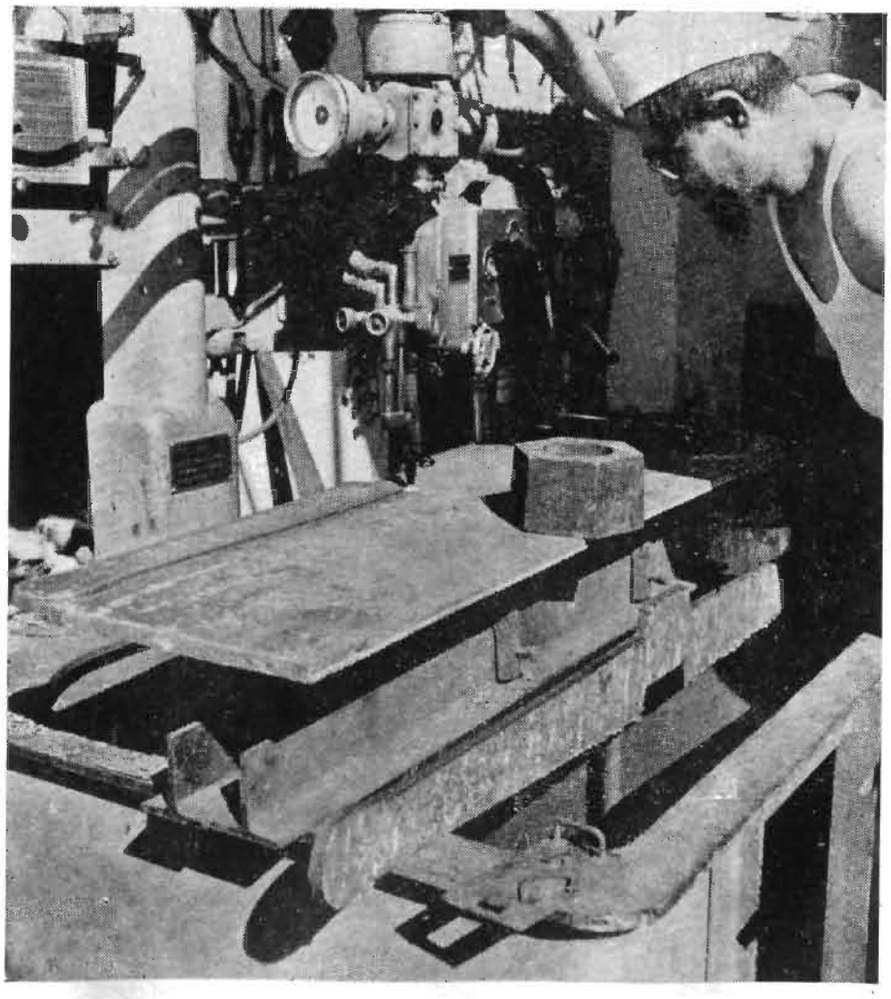


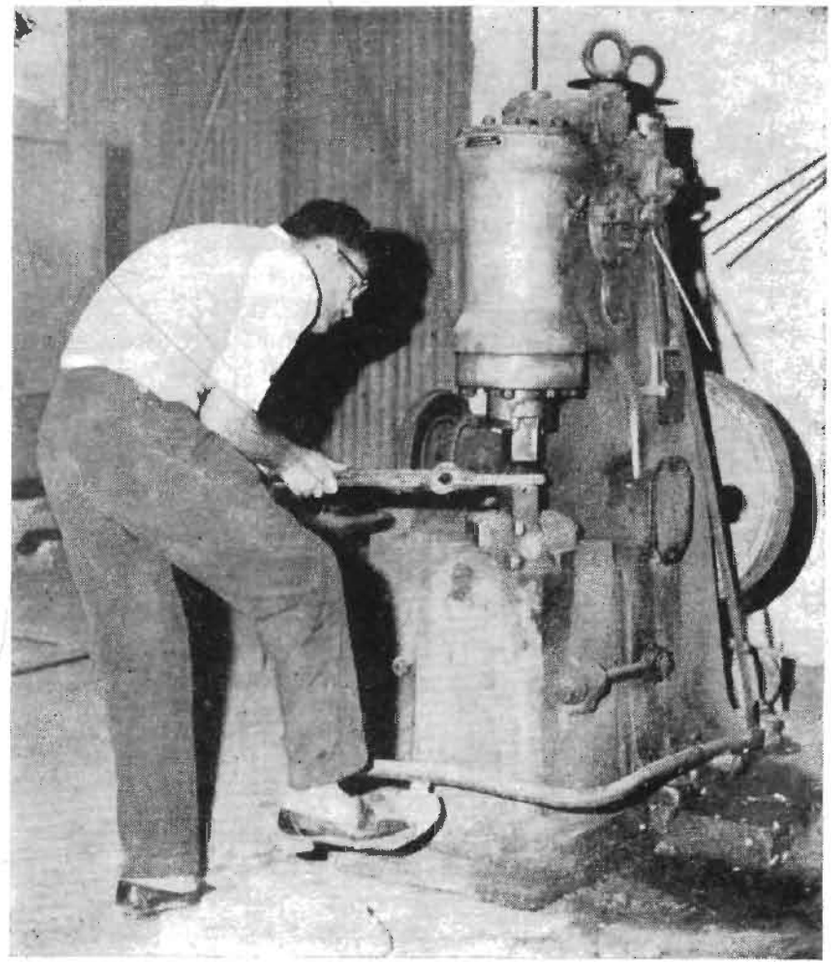
PLATE VI



Hand operated cutting machine



Electrically operated profile machine

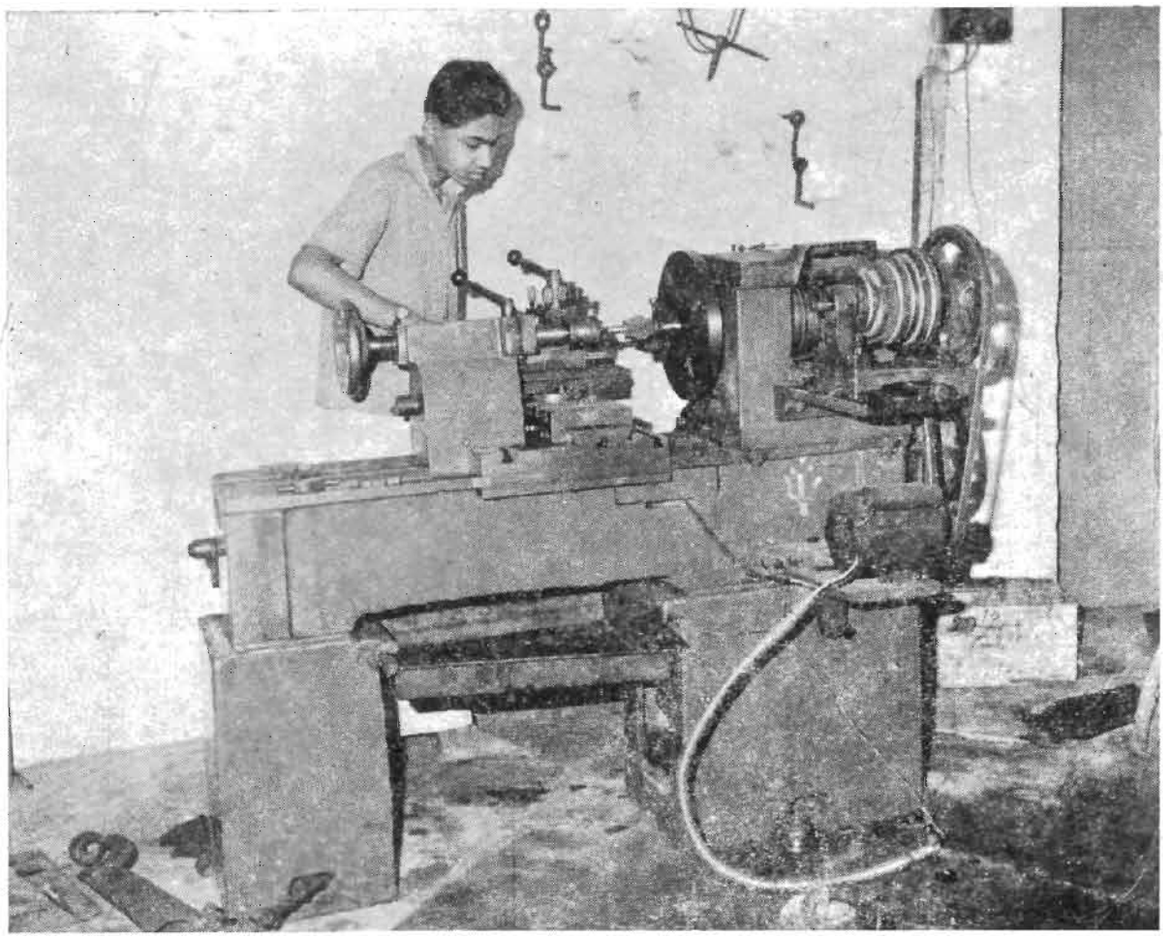


Electrically operated pneumatic hammer

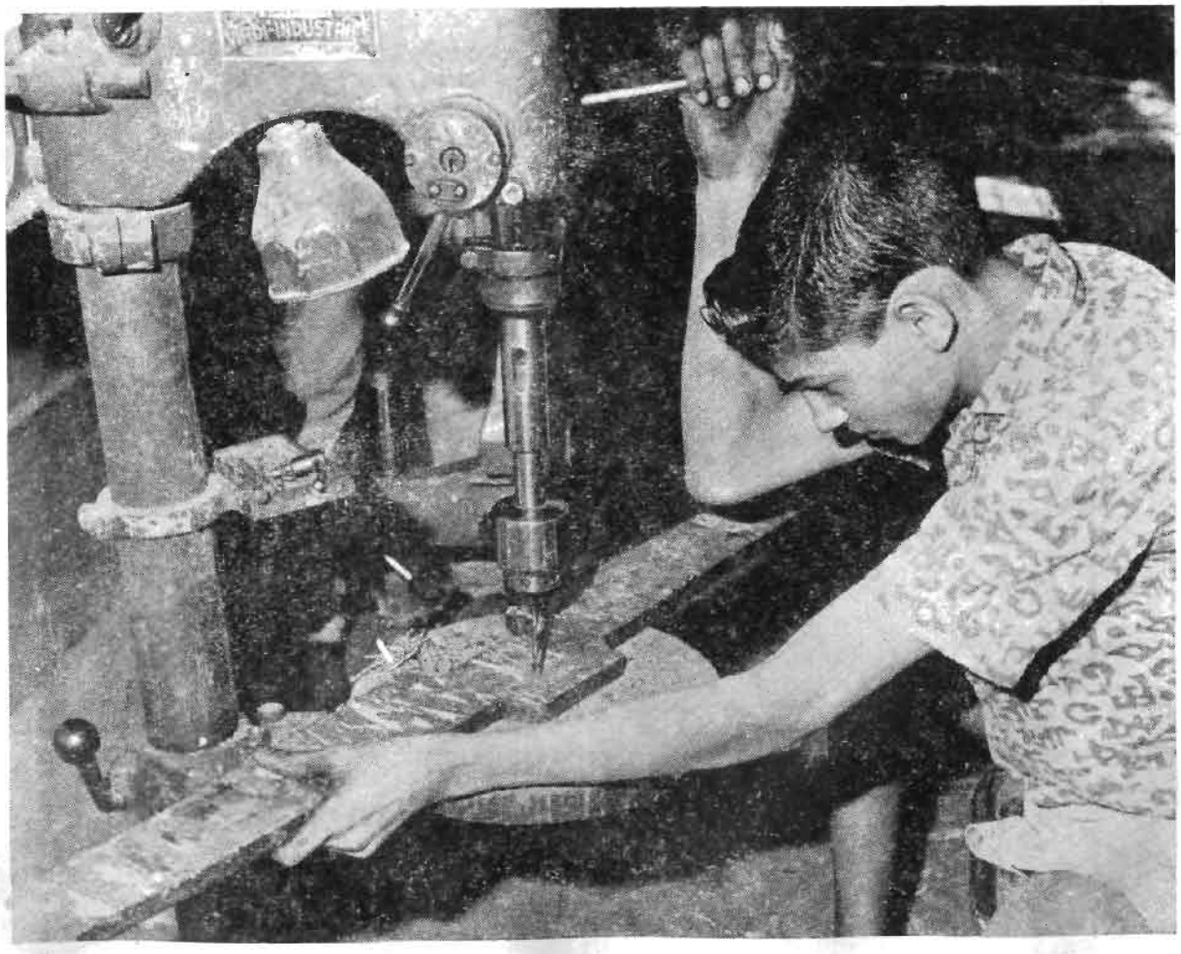


Hammering by hand

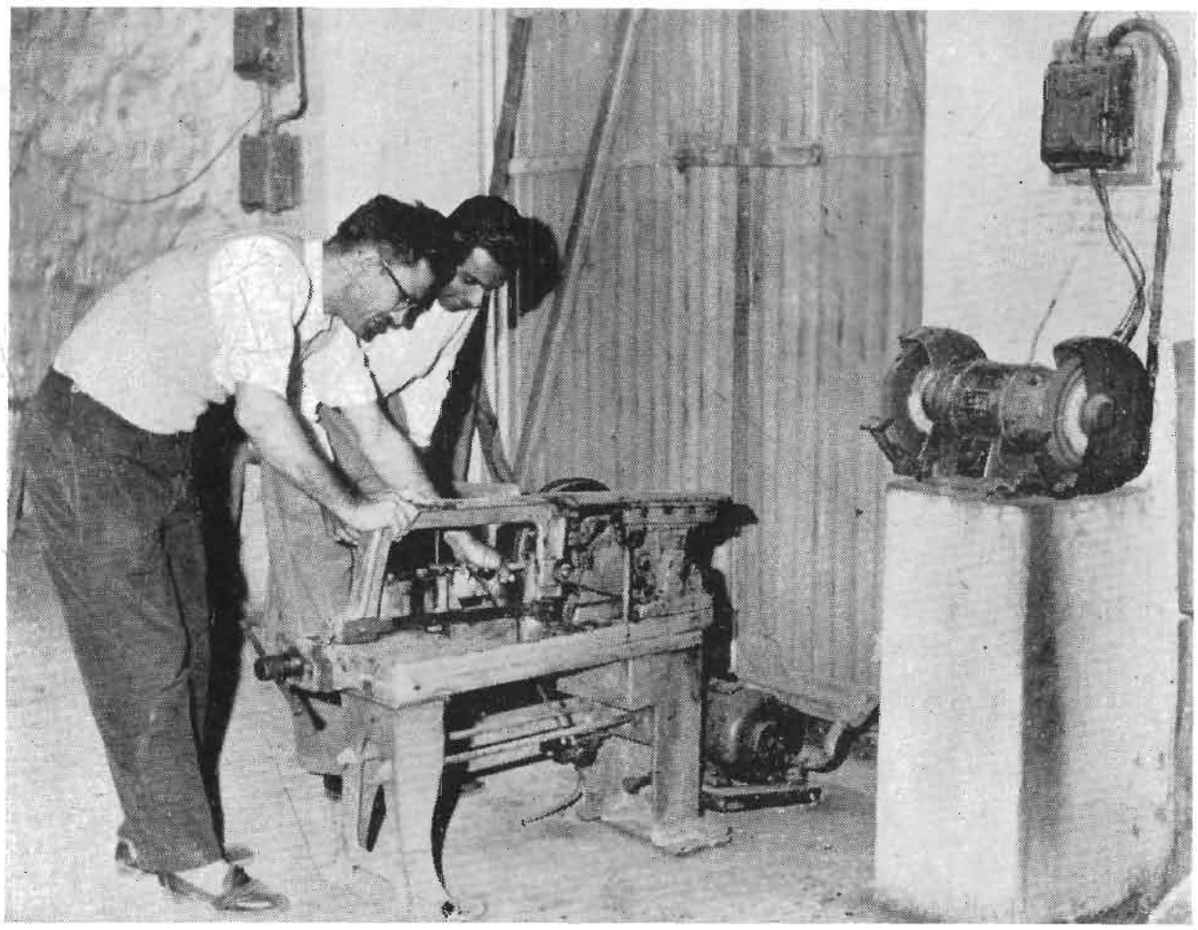
PLATE VIII



Electrically operated lathe



Electrically operated drill



Electrically operated hack-saw machine



Making grooves in the centre of an upper level of the beam

PLATE X



Bending hooks

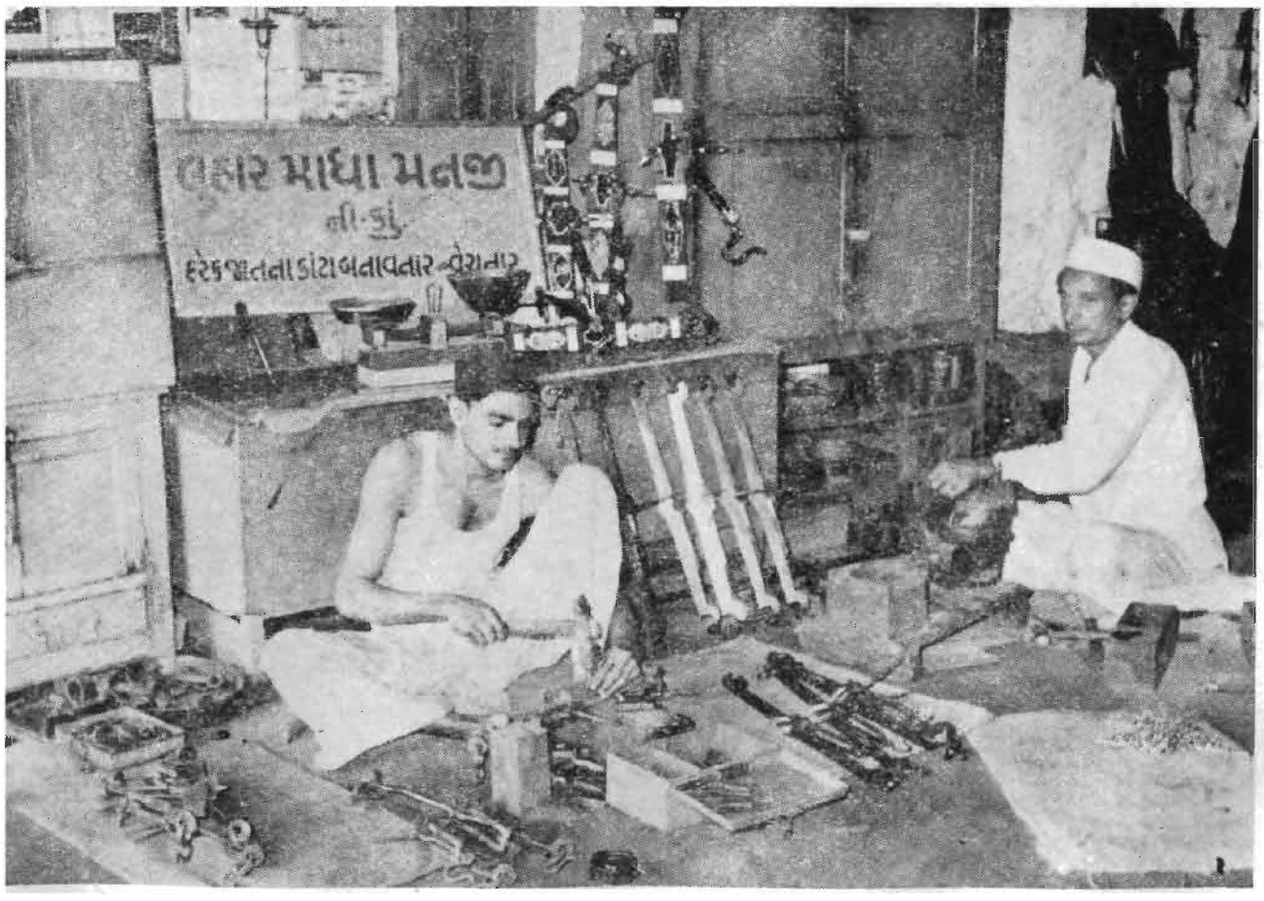


Stamping the trade names on the beam

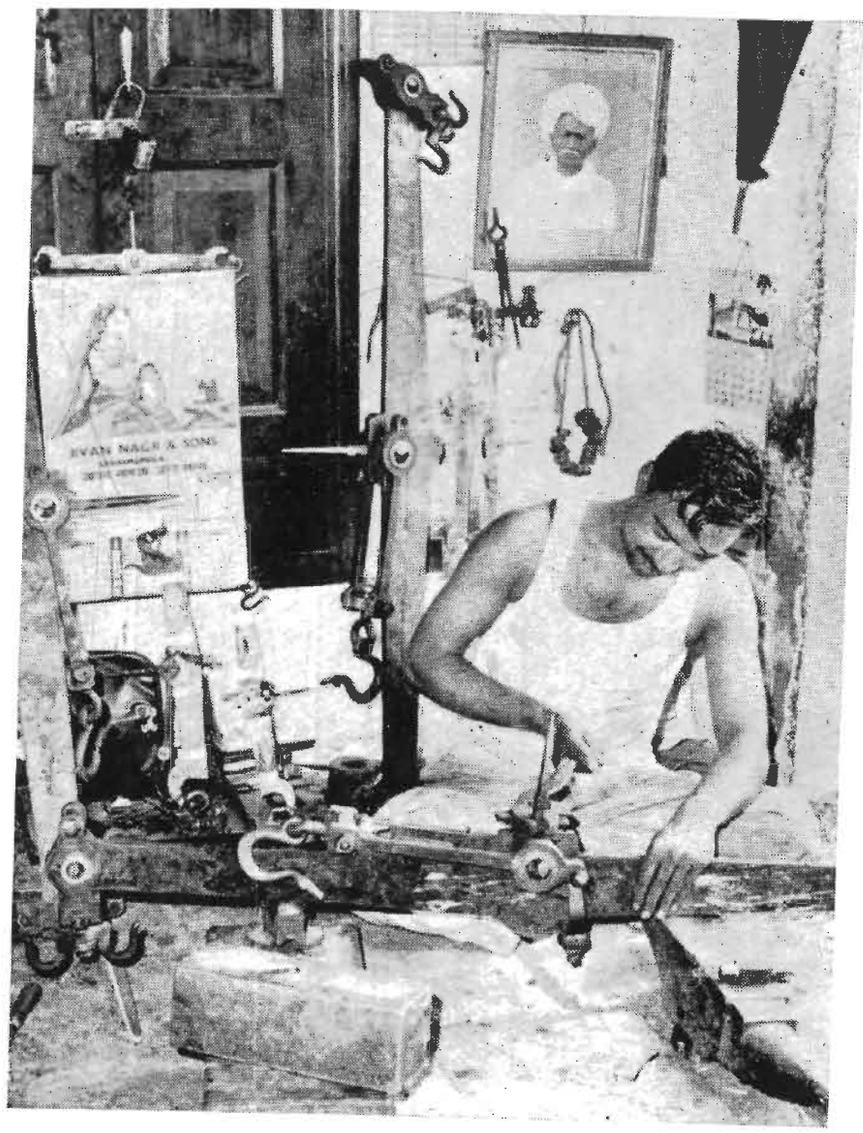
PLATE XII



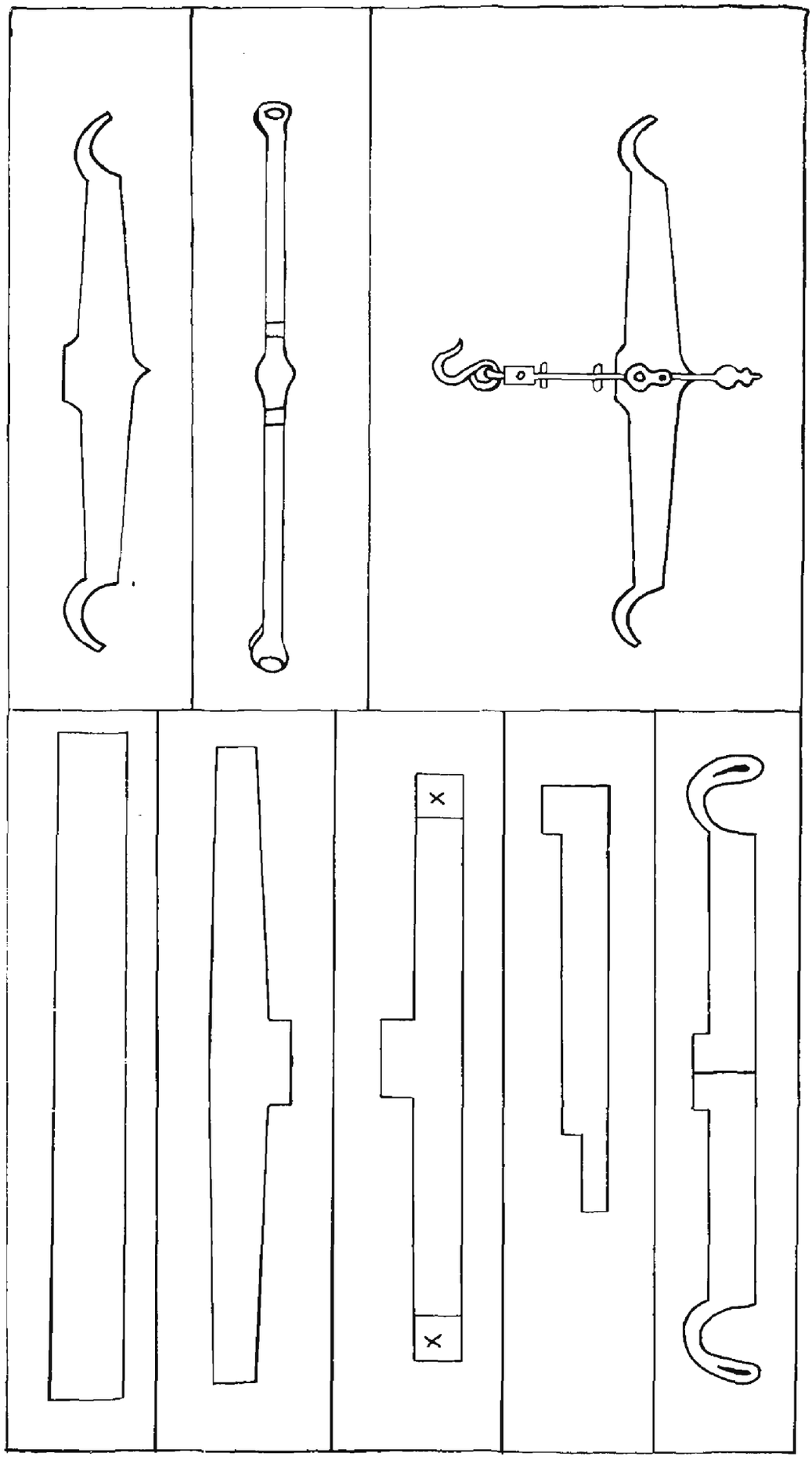
Grinding of parts



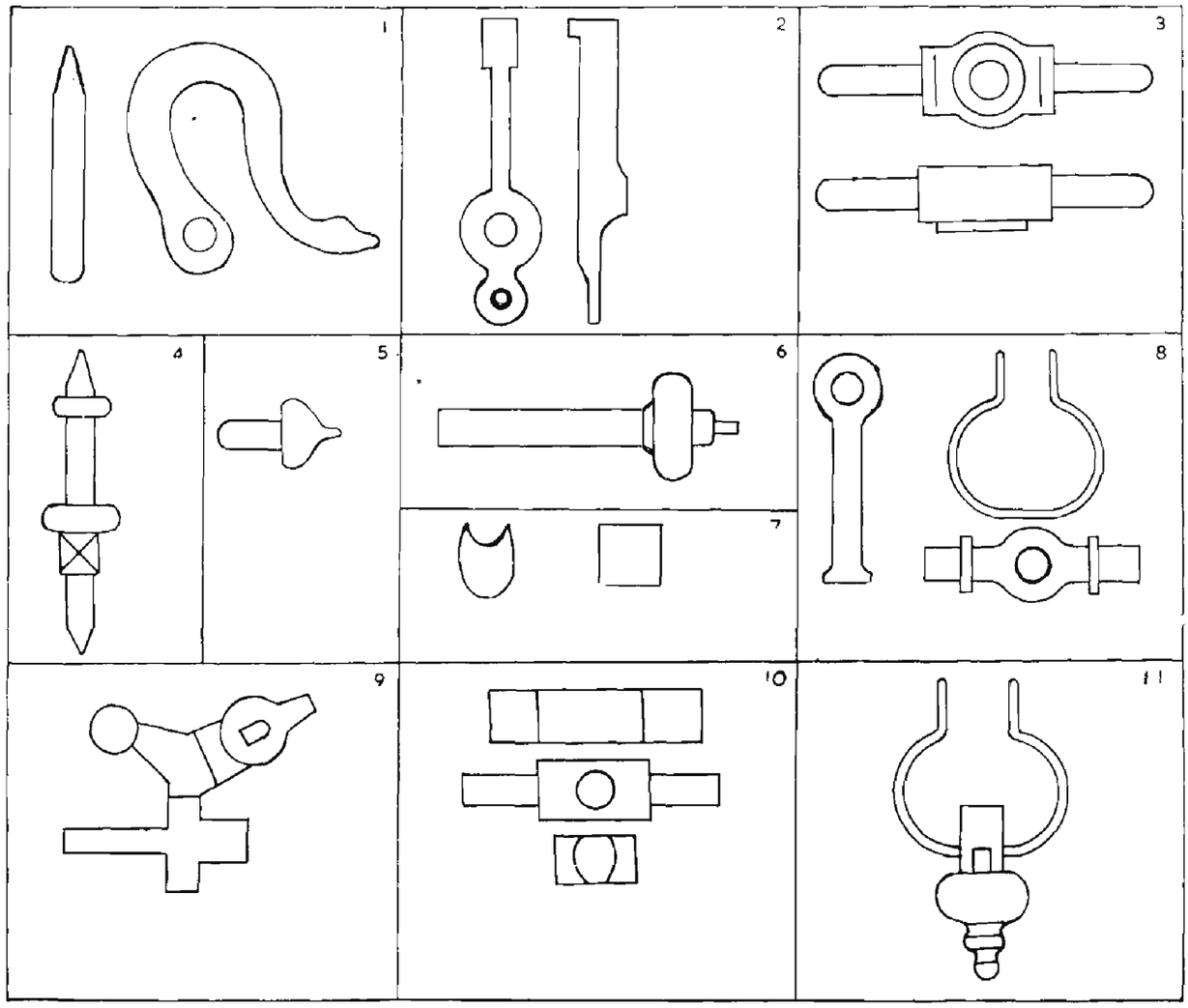
Assembling the parts



Fixing the pointer in the centre of the beam

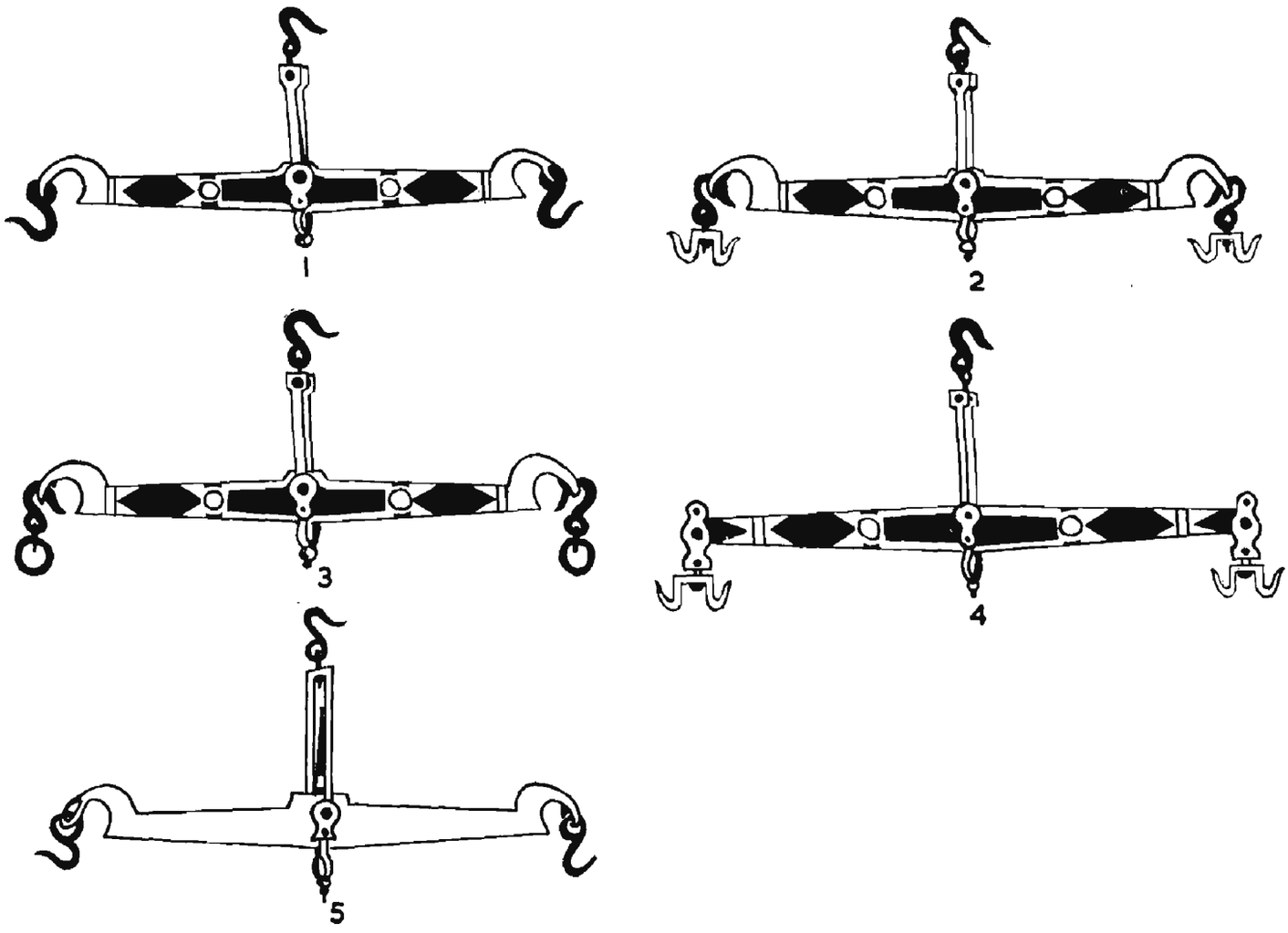


From iron bar to finished beam



DIFFERENT PARTS OF BEAM SCALE

1. Hook (ankdo); 2. Bracket (toraniyu); 3. Cross head (toraniyani ganth); 4. Pointer (suyo); 5. Screw connector (bordu); 6. Loop suspending swivel (bhammar kadi); 7. Triangular piece of iron (ditiyun or thesi); 8. Knob connector (latkaniyun); 9. End-rings (naku); 10. Axle (dhari); 11. Knob connector—complete (akhu latkaniyun)

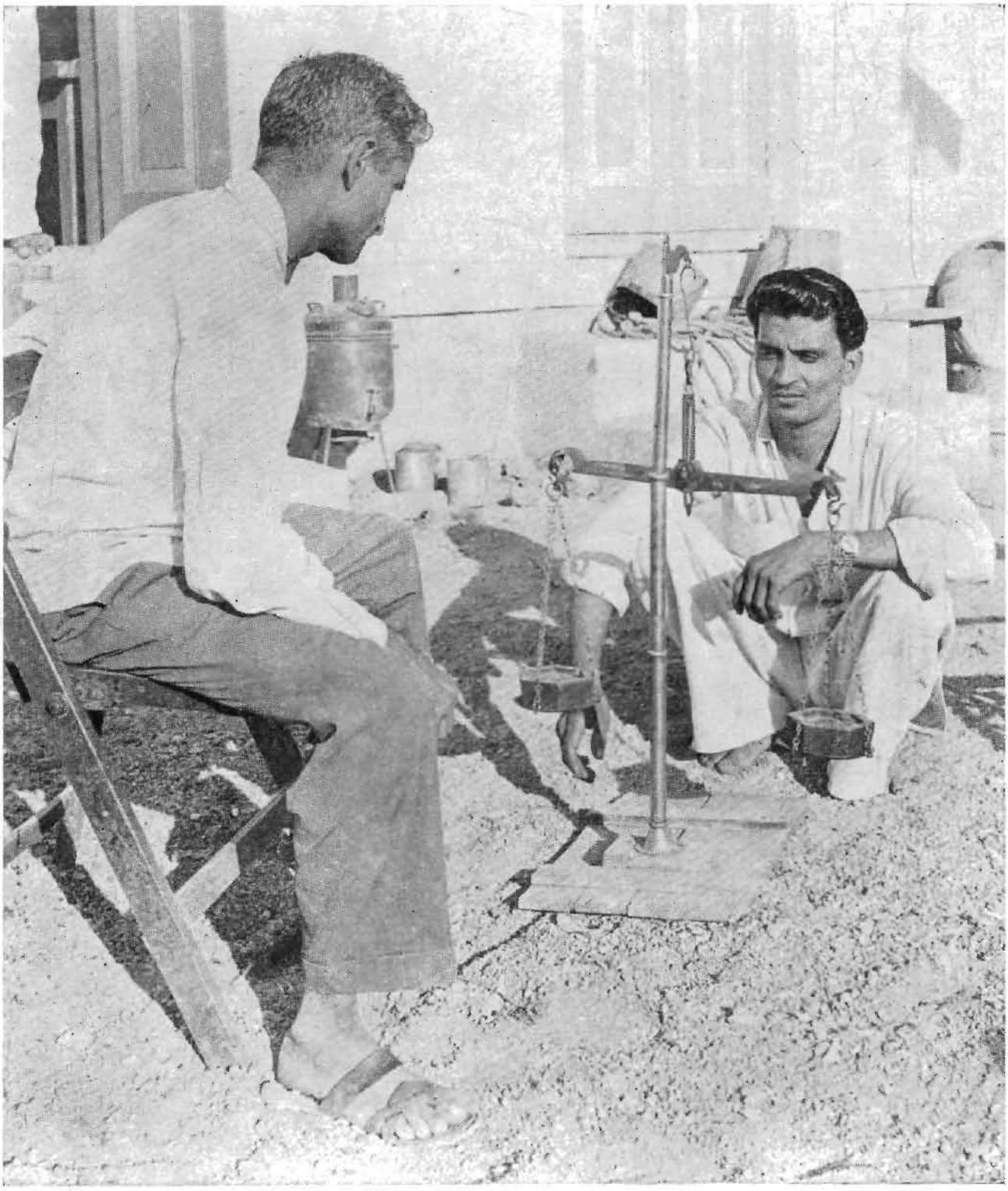


DIFFERENT TYPES OF SCALES

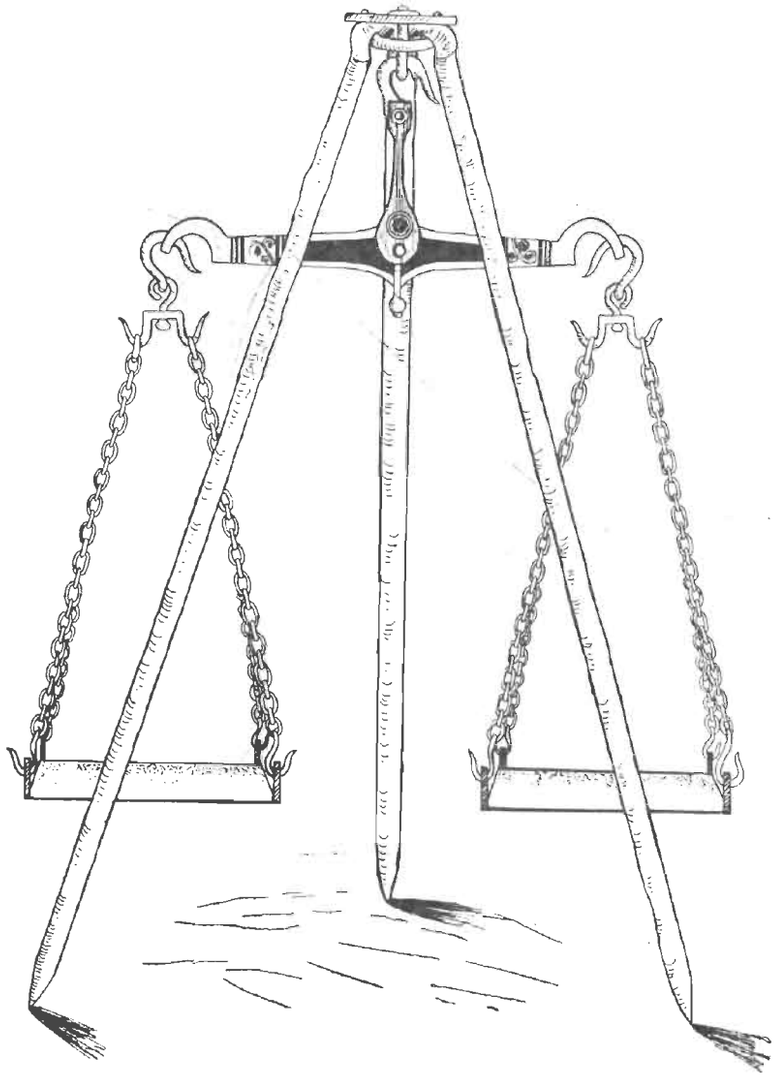
1. Fixed hook; 2. Double hook; 3. Bhammar Kadi; 4. Tin dhari; 5. Chapti dandi



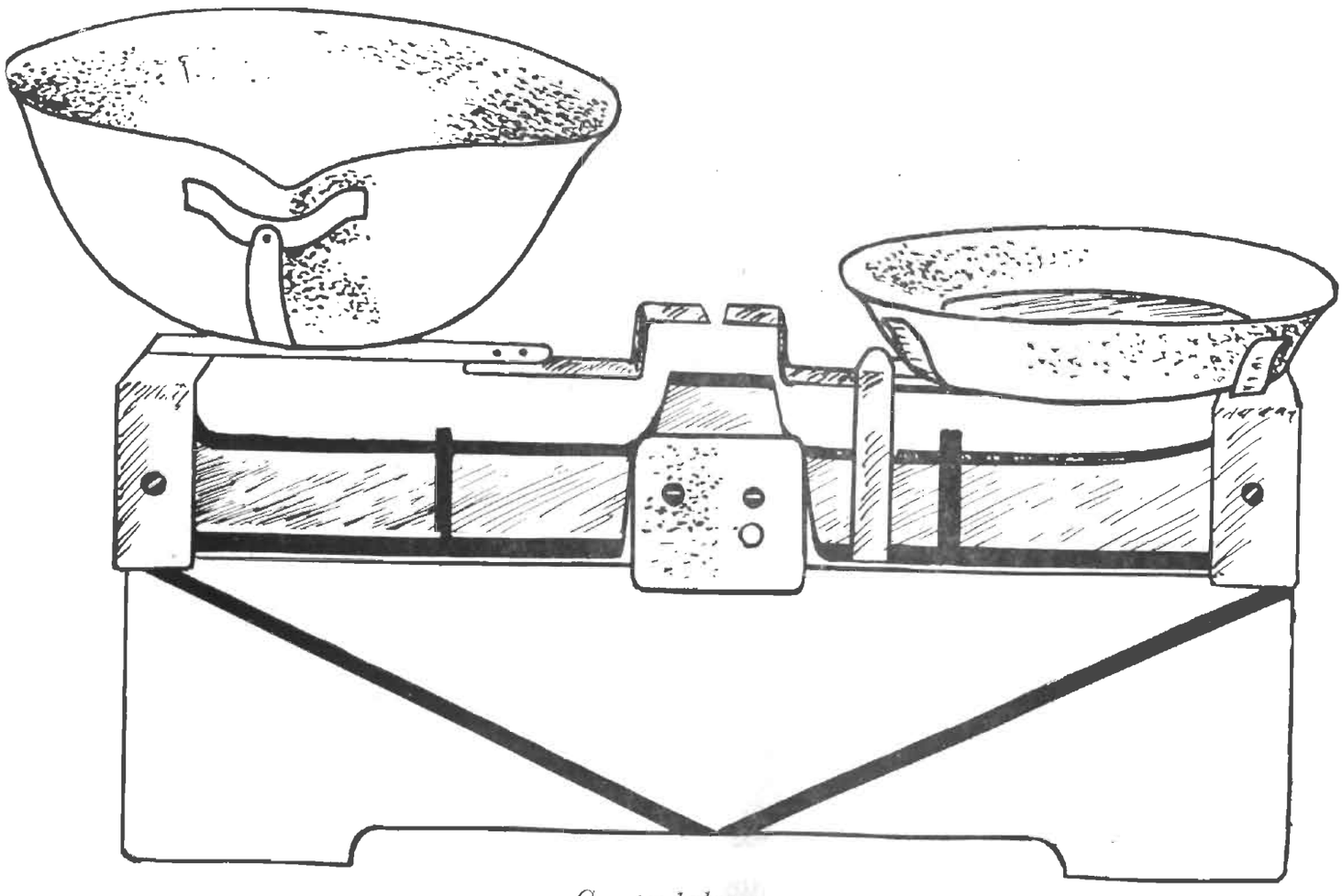
Painting and decorating



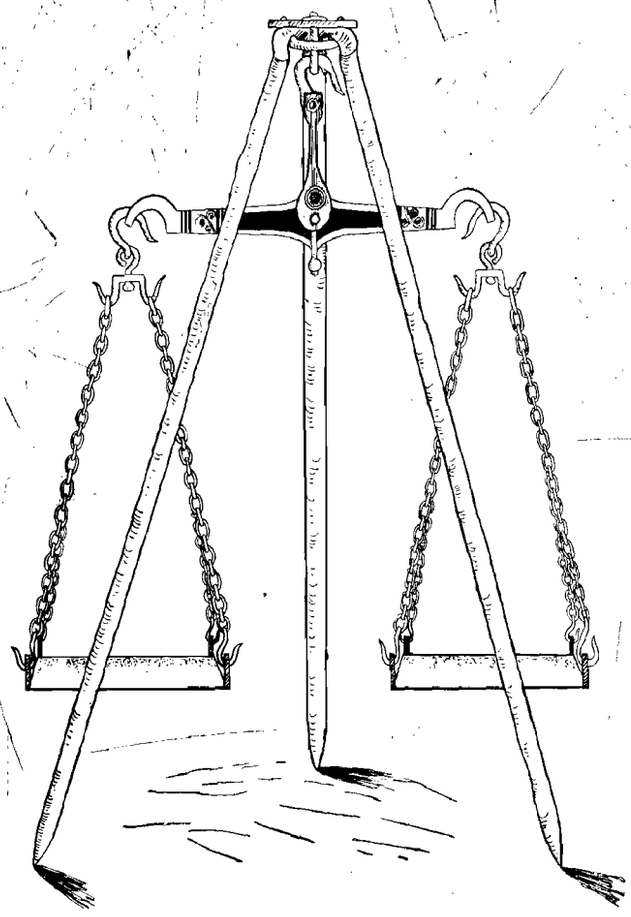
Testing for accuracy



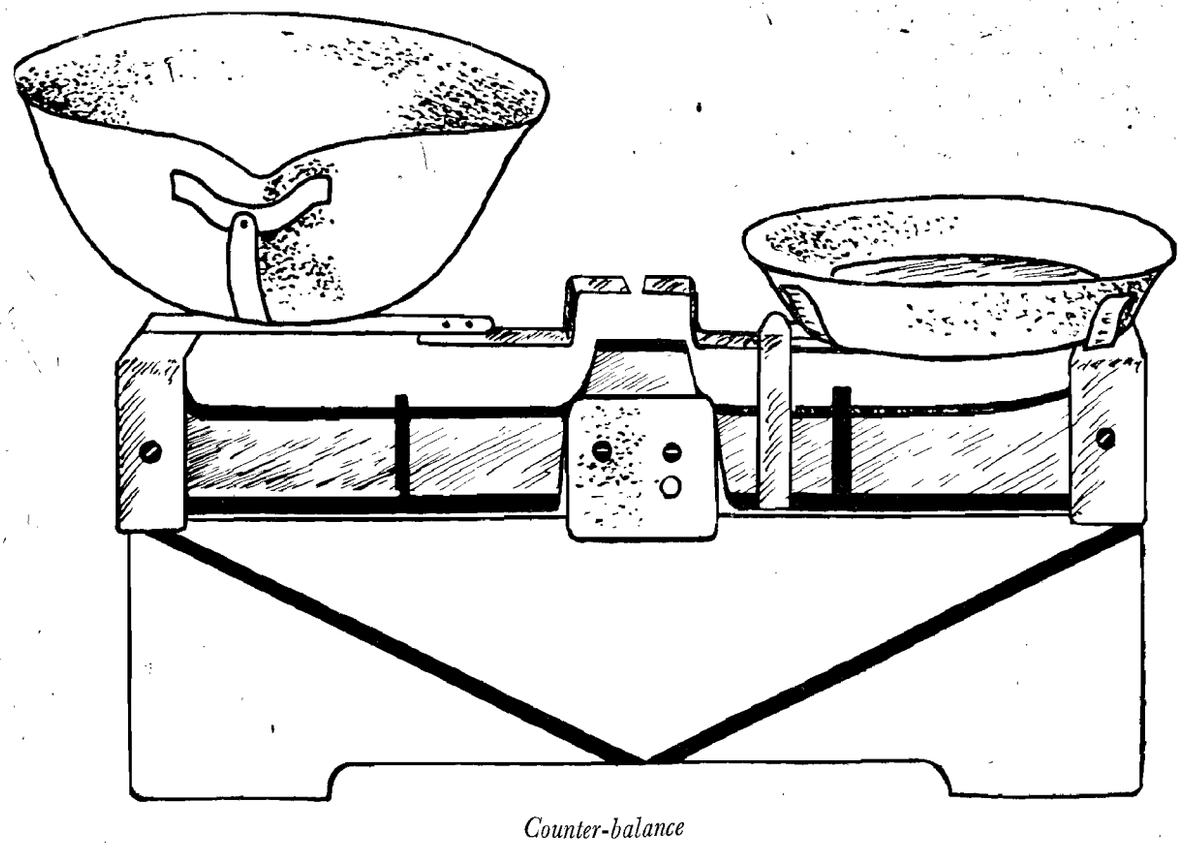
Beam scale



Counter-balance



Beam scale



Counter-balance

APPENDICES

APPENDIX I

TABLE I

Number of family workers employed in production in surveyed households

Name of the craft	Town	Number of households surveyed	Number of persons employed in production		
			Persons	Males	Females
1	2	3	4	5	6
Scale making . . .	Savarkundla	112	270	264	6

TABLE II

Distribution of artisan by caste

Caste	Number of families	Number of adult workers in the craft			Number of families working under cooperatives
		Persons	Males	Females	
1	2	3	4	5	6
Total	**112**	**270**	**264**	**6**	**15**
Luhar	94	235	229	6	15
Koli	6	11	11	..	..
Kanbi	4	11	11	..	..
Kumbhar	4	6	6	..	..
Sagar	3	3	3	..	..
Bawa	1	4	4	..	..

TABLE III

Raw material

Name of articles	Main raw material		Subsidiary raw material	
	Material	Place from which imported	Material	Place from which imported
1	2	3	4	5
Iron scales	Iron, steel	Jamshedpur	Oil paints	Bombay

NOTE :

These materials are generally purchased from private dealers in the local market or from Bhavnagar, Rajkot and Bombay.

TABLE IV

Designs

Name of the articles	Name of the design	Number of households by sources of designs: Traditional	Self designed	Middle man who undertakes marketing	Design centre	Co-operative sale society	Other sources (specify)	No. of centres engaged in manufacture	Colour used: Name of colour
1	2	3	4	5	6	7	8	9	10
Iron scales									
	1 Fixed hook	..	*112	..	..	..	..	One (town)	Oil colours like green, silver, red, white, etc.
	2 Double hook								
	3 Tin dhari								
	4 Bhammar kadi								
	5 Dandi								
	6 Counter balance								

* All these households have adopted a common design as shown in column 2.

TABLE V

Consumption and sale of products

Total No. of surveyed households engaged in the craft	Number of households producing for: Household consumption only	Ceremonial purpose	Household consumption and sale	Sale only	Personal use only	Fair, open market, etc.	No. of villages where there are cooperative sale society
1	2	3	4	5	6	7	8
112	..	..	..	112	-	..	..

TABLE VI

Cost of production, sale price and earnings

Article	Cost per lb. of raw material	Cost per lb. of conversation into finished products	Average sale price of finished goods	Average earning per article	Average earning per worker per day	No. of man days* required to manufacture a scale
1	2	3	4	5	6	7
Iron scale						
(i) 1½" x 2½" (8 lbs.)	Re. 0.50	Rs. 2.12	Rs. 25.00	Rs. 4.00	Rs. 4.00	1
(ii) 5" x 6" (90 lbs.)	Re. 0.50	Rs. 2.12	Rs. 250.00	Rs. 14.00	Rs. 4.00	1.37

* 1 man day=8 hours

TABLE VII

List of very skilled craftsmen of each community

Town	Craft	Caste	Name of the skilled craftsmen
1	2	3	4
Savarkundla	Making of iron scales	Luhar	Karsanbhai Madhavbhai
			Arjan Valji
			Morarji Dhanaji
			Jivan Nagji
			Bhagwanji Jivanji
			Kuraji Nathu
			Madha Manji
			Mulji Naran
			Mulji Trikam
			Jayram Trikam
			Bavchand Hirji
			Vanmali Arjan
			Chhaganji Dhanji
		Sagar	Popat Makka
		Kumbhar	Ramaji Velji
		Kanbi	Valji Shamji
		Koli	Kalu Puna

TABLE VIII

Distribution of family members according to age, sex and earning status

	Total persons				Males				Females			
	Earner				Earner				Earner			
Age group	In this craft	Other occupation	Non-earner	Total	In this craft	Other occupation	Non-earner	Total	In this craft	Other occupation	Non-earner	Total
1	2	3	4	5	6	7	8	9	10	11	12	13
0- 4	...	..	126	126	..	..	74	74	...	..	52	52
5- 9	1	..	124	125	1	..	72	73	..	..	52	52
10-14	13	1	97	111	13	1	51	65	..	..	46	46
15-19	42	..	48	90	41	..	9	50	1	..	39	40
20-24	48	1	49	98	48	...	4	52	..	1	45	46
25-29	34	2	33	69	32	1	1	34	2	1	32	35
30-34	35	...	34	69	33	..	..	33	2	..	34	36
35-44	58	2	46	106	57	1	1	59	1	1	45	47
45-59	30	2	35	67	30	1	2	33	..	1	33	34
60 and above	9	..	11	20	9	..	3	12	..	..	8	8
Total	**270**	**8**	**603**	**881**	**264**	**4**	**217**	**485**	**6**	**4**	**386**	**396**

TABLE IX

Literacy according to age and sex in surveyed households

Age group	Persons							Males							Females						
	IL	L	P	S	M	Above matriculation	Total	IL	L	P	S	M	Above matriculation	Total	IL	L	P	S	M	Above matriculation	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
0- 4	126	..	..	..	..	..	126	74	..	..	..	..	..	74	52	..	..	..	..	..	52
5- 9	66	29	30	..	..	..	125	36	18	19	..	..	..	73	30	11	11	..	..	..	52
10-14	26	41	42	2	..	..	111	16	21	26	2	..	..	65	10	20	16	..	..	..	46
15-19	13	58	18	1	..	..	90	3	34	12	1	..	..	50	10	24	6	..	..	..	40
20-24	49	26	23	..	..	..	98	10	22	20	..	..	..	52	39	4	3	..	..	..	46
25-29	37	17	13	..	2	..	69	10	13	9	..	2	..	34	27	4	4	..	..	..	35
30-34	31	23	14	1	..	..	69	8	16	8	1	..	..	33	23	7	6	..	..	..	36
35-44	51	34	20	1	..	..	106	8	33	17	1	..	..	59	43	1	3	..	..	..	47
45-59	44	17	6	..	..	..	67	10	17	6	..	..	..	33	34	..	..	..	..	..	34
60 and above	13	2	5	..	..	..	20	5	2	5	..	..	..	12	8	..	..	..	..	..	8
Total	**456**	**247**	**171**	**5**	**2**	..	**881**	**180**	**176**	**122**	**5**	**2**	..	**485**	**276**	**71**	**49**	..	..	..	**396**

IL=Illiterate, L=Literate, P=Primary, S=Secondary, M=Matriculate

TABLE X

General description of workshop in the house

Caste	No. of households	No. of persons in the households	No. of household having workshop		No. of households having workshop in the house	Area in sq. feet						Light and ventilation condition		
			Own	Rented		51 to 100	101 to 150	151 to 200	201 to 250	251 and above	Unspecified	Good	Moderate	Bad
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Luhar	92	772	70	22	60	1	8	3	6	39	3	56	4	..
Koli	6	39	5	1	4	1	..	..	..	3	..	3	..	1
Kanbi	4	22	4	..	4	..	1	..	1	2	..	3	1	..
Kumbhar	4	25	2	2	3	..	..	..	2	1	..	3	..	..
Sagar	3	9	2	1	2	..	1	..	..	1	..	1	1	..
Bawa	1	6	..	1	..	..	..	..	..	..	..	..	..	..
Vadhala	2	8	2	..	2	..	..	..	2	..	..	2	..	..
Total	**112**	**881**	**85**	**27**	**75**	**2**	**10**	**3**	**11**	**46**	**3**	**68**	**6**	**1**

TABLE XI

General description of workshop located away from the house

Caste	No. of households	No. of persons in the households	No. of households having workshop away from the house
1	2	3	4
Luhar	92	772	32
Koli	6	39	2
Kanbi	4	22	..
Kumbhar	4	25	1
Sagar	3	9	..
Vadhala	2	6	1
Bawa	1	8	1
Total	**112**	**881**	**37**

TABLE XII

Hired workers

Total No. of households surveyed	No. of households engaging hired workers	Total No. of persons employed in production			Caste of hired workers shown in column 4
		No. of family workers	No. of hired workers	Total workers	
1	2	3	4	5	6
112	18	270	32	302	Sagar Kanbi Kumbhar Sipai Luhar

TABLE XIII

Distribution of households covered under cooperative societies

No. of households	No. of members in cooperative society	No. of households having membership in cooperative society	Type of assistance and benefit from cooperative society	
			Type of assistance	Benefit
1	2	3	4	5
112	15	15	Supply of coal financial help	Facilitates production by aiding in procurement of fuel

APPENDIX II

Unstructured Biographies

BIOGRAPHY NO. I

NAME : Muljibhai Trikamdas;
AGE : 65;
CASTE : Luhar

Introduction

I was 13 years old when I entered the business of my father. To-day I am 65. I have not taken training in any technical school or institute.

Education

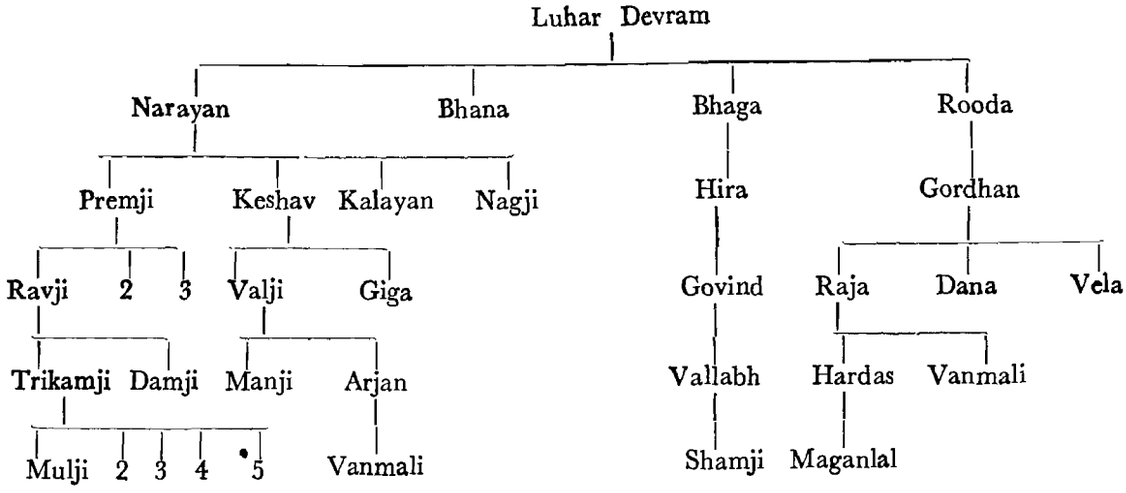
I studied up to the 5th standard in Gujarati and left my studies in 1913 when I was aged 13. I acquired professional knowledge and learnt techniques of the craft in my workshop under the guidance of my father. I was not keen about academic qualifications since they were not important for me or for my caste-fellows.

Caste and Occupation

There are more than 300 Luhar families in Savarkundla with scale making and/or blacksmithy as their main occupation. Formerly our community was mainly engaged in preparing swords, hilts and iron parts of saddles. But now artisans have switched over to scale making industry.

Family History

Most of the families working in this industry are descendants of Luhar Devram who migrated 300 years ago from Kanad in Ghogho mahal to Vijapdi in Kundla taluka, and later on to Savarkundla, the taluka headquarters. The genealogical tree is as under:



My father expired in 1947 at the age of 75. After that we five brothers worked together and increased the business of the firm. But very recently we have separated and now work independently. At present my firm manufactures scales worth Rs. 20,000 per annum. Our scales are costlier as compared to those of other local producers. We put in all efforts to maintain the old reputation of the firm and insist on producing scales of good quality. Our scales are sold in competition with Avery beam scales. I also receive Avery beam scales for repairs.

Business Difficulties

After the death of my father there were some hard days for this firm. I sent my son outside

Gujarat to book orders and canvass for our goods. The experience was not happy. It was seen that a big share of profit was appropriated by the agents of other States. The scale which we sell here for Rs. 50 to Rs. 60 are sold at Rs. 100 in other States. It is difficult to obtain direct orders from Government or semi-Government departments and we cannot sell goods directly to consumers but have to route them through approved agents. This is the main bottle-neck in developing our business. To my mind, if agents are appointed in the State of Maharashtra for each district or centre instead of for the whole State, most of the difficulties in developing our business will be over. At present I sell 85 per cent of my goods directly to users in Gujarat and only 15 per cent outside the State, mostly in Maharashtra State.

Even though the business of my firm has increased from what it was during my father's time, I find that I am still worse off in terms of real wages. My father's earnings, per day used to be worth 5 mds. of *bajri*, whereas we are hardly able to earn the equivalent of 1 md. of *bajri*. The cost of living has terribly increased. The persons working in this firm are my family members. I have no need to employ hired labour.

Marriage Customs

My marriage took place at a very early age. I got married 6 sons, 5 daughters and two grand daughters. There is no dowry system in our caste but only the system of *kanku-ni-kanya* which means that bride is given in marriage without taking any dowry but simply placing vermilion mark on her forehead. The marriage expenses are around Rs. 1,000.

Work and Residence

My place of work is quite separate from my residence. My workshop is situated on the bank of the river Navli on Kundla side. The workshop building and the house at Devla gate where I reside are owned by me. The distance between my workshop and the residence is about 1 km.

Health and Habits

I was operated upon for cancer at the Tata Cancer Hospital, Bombay a year ago. I spent more than Rs. 1,000. Due to old age and operation, I do not now take active part in manufacturing of scales. I take rest but attend the workshop regularly and give guidance where necessary to my sons. I take tea only and do not smoke now. I utilise my time in writing the books of accounts, preparing bills, etc.

BIOGRAPHY NO. II

NAME : Karasanbhai Madhavbhai;
AGE : 62;
CASTE : Luhar

Introduction

The name of my firm is Madha Manji & Co. My brother Kuljibhai and I are working together. To-day I am 62. I have passed only the 1st standard of primary level and have not taken training in any technical school. I acquired professional skill in our hereditary establishment, viz., my workshop, under the guidance of my father.

Method of Working

I manufacture 'C' class beam scales used for weighing grains, grocery, etc. Beam scales of medium dimensions having 16" to 18" length between the two ends of beam and a weighing capacity of 2 to 5 kg. are more in demand. I take special care in ascertaining the precision of the scale manufactured by my firm. Our firm practises division of work; one artisan prepares axles; another prepares swan neck shape of the beam and fixes the axle in the centre of the beam; the third does the work of assembling the parts and levelling the edges with the help of files. Minor tools required for preparing scales are prepared in our workshop. Major tools, big files and important machines are purchased from outside.

When the work is on the furnace we have to work in a pair, but in other operations like preparing axles, drilling holes, polishing, etc., only one man is needed. When there is heavy work I employ hired labourers who are paid on piece work basis as under:

Piece work	*Rate*
1 Axle	0-50 to 0-60 P. per axle
2 Polishing, levelling	0-60 to 0-75 P. per scale
3 Preparing beam	Re. 1 per beam

Separate space is provided for different processes, viz., 4' x 4' for preparing axles, 7' x 5' for operating bellows and forging with sledge hammer, and so on. The work being of a strenuous nature it is not suited to women.

The time lag between preparation of scales and their disposal is about a fortnight. During monsoon I have to make arrangement for storing the goods. The scales are packed and put in a big wooden box to protect them from rusting.

Business

On an average we work for 20 days in a month. Sometimes we have to work up to 12-00 midnight when the goods are to be packed and despatched by rail. 80 per cent of my sales are on wholesale and 20 per cent on retail basis. The retail price is 5 per cent higher than the wholesale price. My sales are mostly to hardware dealers. The goods are despatched by railway through the bank.

Expenses and Social Customs

My household expenditure and workshop expenditure jointly account for Rs. 700 to 800 per month. The marriage expenditure is around Rs. 1,000. In the past we were required to spend heavily on marriage, but now the expenses are lessened. Invitations are restricted to near relatives and cousins instead of the whole caste. Invitees number around 200 to 250 and two meals only are served as against feasting for 3 days (6 meals) in the past.

Health, Habits, etc.

I do not visit cinema, as youngsters in my family do. My workshop is on the bank of the river Navli on Savar side. I reside on Manibhai Road in Savar and have no difficulty in coming to the workshop even in monsoon when the river is in spate. I am physically fit at this age and do manual work. I take tea but have no other addictions.

BIOGRAPHY NO. III

NAME : Vanmali Arjan;
AGE : 45;
CASTE : Luhar (Chudasama)

Introduction

The name of my firm is Arjan Valji. We are three brothers, viz., Vanmali Arjan, Govind Arjan and Pitamber Arjan working as partners in the above firm. We are direct descendants of Keshav Naran—the poineer manufacturer of beam scales in Savarkundla. The firm is a hundred years old and I have been working in this line for the past 30 years. I have studied up to the 2nd standard of primary school. Two other brothers of mine have studied up to the 4th standard. The youngest has an elementary knowledge of English also.

Business

My father expired a decade ago at the age of 65. There was good business during his life-time. We developed it more with an annual turnover of Rs. 50 to 60 thousand. In my father's time ordinary scales were prepared. We now prepare precision scales of good quality by using superior steel in shackles and axles to ensure hardness in the scales, so that they can stand in competition with Avery beam scales. The trade mark of our scales is 'Scissors Brand' Our main business is in Maharashtra, Madhya Pradesh, Rajasthan and Uttar Pradesh.

I go on business tours twice a year to book orders, to collect bills, to contact new agents, to assess the possibilities of adopting new designs and to satisfy the requirements of customers. Business tours help us a lot in augmenting our sales which can be still increased but for certain handicaps such as income tax, sales tax and stamping of scales regarding which we experience too many hardships.

Social Customs

My daughter was married five years ago. Only last year marriages of one son and one daughter of my brother Govindbhai were celebrated. Expenses average about Rs. 1,000 per marriage.

BIOGRAPHY NO. IV

NAME : Bhagwanji Jivanji;
AGE : 45;
CASTE : Luhar

Introduction

We carry on business in the name and style of Jivanji Nagji. We are five brothers, viz., my self, Prabhudasbhai, Jasvantbhai, Durlabhdas and Vallabhdas. We, the first three brothers, work here in the name of Jivanji Nagji, while Durlabhdas and Vallabhdas carry on the industry of scale making in Bhopal.

Education

I studied up to standard III in Gujarati and received professional training in my own workshop under the guidance of my father. To work on machine is a hobby of my brother and myself.

Business how Developed

During my father's time about 30 years ago, the business of this firm amounted to about Rs. 2,000 a year. At present the annual turnover is about Rs. 1 lakh. Working days in a month number 20 on an average. We keep in view the following points in developing our business.

(1) Scales are sold directly to the consumers as far as possible. Of late, our sales directly to customers have decreased as sales outside Gujarat State are now required to be routed through approved agents of the concerned States.
(2) We have adopted the practice of meeting our customers once or twice a year with a view to avoid complaints, if any, and carry out servicing of the scales supplied by us.
(3) We remain alert in attending to the complaints of the customers and see that no defect is left out in the subsequent scales manufactured.
(4) Continuous experiments are being made to improve the quality and speed of production.

To make these experiments we have installed an electric welding machine, a gas cutting machine, 3 lathe machines and a shaping machine. All this machinery is approximately worth Rs. 20,000. My experience is that production with the help of machines is costlier and there is a greater wastage of raw materials than in the forge method. I have got scales worth Rs. 3,000 to 4,000 lying in stock which are cut by machines. I find it difficult to dispose of them even at the cost price. In cold cutting, the iron bar is cut according to the size of the dye fixed in the machine unlike in forge method where the combinations and curves are used to advantage to avoid wastage.

Social Custom

Expenses on marriage amount to about Rs. 1,200. I got married my two daughters 2 or 3 years ago.

Work and Residence

The place of work is separate from residence. My workshop is on the bank of the river Navli on Kundla side. The workshop building and the house at Parekh Wadi where I reside are owned by me. The distance between my workshop and the residence is about $1\frac{1}{2}$ Kilometres.

Health and Hobby

By God's grace I am keeping good health. My hobby is to work on machines with a view to improving the quality of production. On holidays I spend my time in chanting *bhajans* and on other days late in the evening I participate in *'Bhajan Mandlis'*.

4. PERFUMERY AT PALANPUR

SECTION I

INTRODUCTION

I.1 IN THE PAST perfume has been widely used in many countries for various purposes. It has been observed that no page of human history antedates the use of perfumes. The use of it evidently originated with religious observances where fragrant essences were burnt from ancient times at the altar of gods. History of the perfumes can be traced back to the Vedic age. Use of cosmetic in India goes back to the civilization of Mohanjo-dero. Mahabharat also (XII.261.2) refers to the trader in scents (*gandhs*). The universal use of various flowers, sandalwood paste, scented oil, etc., in *Puja* or worship is well-known since olden days. Ayurved mentions the use of oily materials and oils from almonds and sesame oil. "Pliny attributes to India several edible spices and plant perfumes."[1] The life of *nagaraka* as represented in Kamasutra mentions, "sweet scents,.....played a very important part in the toilet of the *nagaraka* (the city-bred man of fashion). He made an abundant use of flowers, he rubbed sweet-scented ointments over his body and besides, he used other perfumes—*saugandhikas*—and a box of scents, a *saugandhikaputika*, was kept handy by every *nagarka*."[2] "The Lalita Vistara also mentions scented waters of various kinds, perfumed oils and fragrant powders of sandal, flowers of other sweet smelling things."[3]

The ancient Chinese used to burn incense at funerals and discovered musk. The Egyptians offered incense to their gods and anointed perfumes on the dead bodies of Pharaohs. The Babylonians used perfumery freely on their body. The Greeks and Romans also made extensive use of perfumery. The therapeutic value of perfumes was made known to the world by Hippocrates. Mention has been made in the mythology of the perfumes revealed by Venus, which was used by Helen of Troy to beautify herself. Men and women of Greece used scented oils for bathing and other purposes. The Romans sprayed perfumes on persons assembled at festive meetings and utilised scented oils and balms for massage. According to the Bible, perfumes were used as sacrifice to God and for enhancing the beauty of men and women. Those who went to Bethlehem had with them gifts of incense and other odouriferous substances. The Arabs preferred *attar* of roses. The use of perfumes was introduced in the west by crusaders. The alcoholic perfumes were first prepared in 1370 by Queen Elizabeth of Hungary so that such perfumes are known as Hungary water.[4]

Use of perfumes, scented oils, paste, powder, etc., is known to India since ancient times. It acquired reputation for the manufacture of high class perfumes during the Moghuls when centres like Kannauj, Jaunpur, Gazipur and Lucknow became famous for their perfumery products. Radhakamal Mukerjee in 'The foundation of Indian Economics' writes, "In this connection, the indigenous processes of the manufacture of attars, cosmetics and essential oils might be indicated. India is renowned in the world for its perfumed blossoms, the essences of which have been extracted by indigenous methods for ages past. The manufacture of perfumes is chiefly in the hands of the Muhammadans, these being in universal use among Muhammadan women from the time of the Moghuls. In Bengal, in Murshidabad, Dacca and a few other Muhammadan Centres several Muhammadan families still continue to ply their hereditary craft."

I.2 The art of producing perfumes is called perfumery. The ingredients can be natural and synthetic. The natural products are derived from plant and animal sources while synthetic products are derived from chemical substances. The art is known to Indians since ages. "Perfumery

1. DR. BOSE, A. *Social and Rural Economy of Northern India*, Vol. I, p. 94 (Pliny XII.7), 1942
2. CHAKLADAR H. C., *Social life in Ancient India; Studies in Vatsyayana's Kamasutra*, p. 157, 1929
3. CHAKLADAR H. C., *op. cit.*, p. 157; *Lalita Vistara*, XV. 218, VII.96, XIV. 269; (edited by lefmann)
4. *The Encyclopaedia Americana*, Vol. 21, p. 581

was a highly specialised art (Jat. VI.335). The commonest perfume was sandal. The wood was rubbed with a paste, or oil was extracted out of it which was used along with aloe (*akalu*) as toilet (II.181; III.160, 512; V.156, 302; VI.144). There were several varieties among which *gosirsa*, red sandal and that produced in Dardara are enumerated in the Kalpasutra (100; of Arth. II.11). Flower scents were extracted and used to perfume crude sesamum oil (MBH. VII, 279.14 f ; 299.14). Many other varieties of aromatics were cultivated and gathered which figure prominently in the Periplus and classical writers among the exports of India to the Roman world. Chemical Compounds of different scents were also known (*Sabbasamharaka*, jat. VI.336)."[1] Palanpur, selected for study of this craft, is the only centre in Gujarat State where perfumes are prepared from natural products.

PALANPUR—A TOWN OF FRAGRANCE

I.3 Palanpur is known as a town of fragrance. Regular forests of *kevda* run for miles around it and *champaks* and *mogra* are grown in abundance in the surrounding areas. It is the only town in the State, where natural scents are manufactured on a commercial scale.

Palanpur, the headquarters of the Banaskantha district is " a very old settlement wherein the eighth century Vanaraj, the founder of Chavda dynasty was brought up. In the 14th century, it was repeopled by *Palansi Chohans* from whom it takes its present name. Early in the 17th century, the *Chohans* were displaced by *Musalman* rulers of *Jhalor* family who continued to rule till Independence. It was then a capital of the former first class State of Palanpur."[2]

The total population of Palanpur is 29,139 persons according to 1961 Census. It is the headquarters of the Banaskantha district and a railway junction on the Ahmedabad-Delhi main metre gauge railway line with a branch line to Kandla port *via* Deesa. It is also the central station of the State Transport bus services. Not only the town is known for the manufacturers of natural scents, it is also known for jewellery manufacturers and merchants. The dexterity of the jewellers of this place has earned a reputation in Bombay, Calcutta, Madras, Delhi, Kanpur and Lucknow. Even in Antwerp, the headquarters of precious stone industry of Europe, the jewellers of Palanpur hold a formidable position. A laboratory centre for manufacture of *lac* is established at this place for research and experiments to increase its production.

1. DR. BOSE A., *Social and Rural Economy of Northern India*, Vol. II, pp. 197-198, 1945
2. TRIVEDI R. K., *District Census Handbook 1961*, Banaskantha District, p. 36

SECTION II

CRAFT AND CRAFTSMEN

Caste and Community

II.1 The only family engaged in perfumery work at Palanpur belongs to Daudi Vohra community and follows Muslim religion. This family migrated from Udaipur, a town in Rajasthan State, and settled at Palanpur 100 to 125 years ago. Their settlement at Palanpur is purely for economic reasons connected with the business. For social purposes they go to Udaipur where the head of the household, their aged father resides. It has been manufacturing perfumery since the last 105 years. Their ancestors learned the technique of manufacturing natural scents at Baroda from the concern of "Ibrahim Sultanji Attarwala" also of Udaipur under whom they were serving. The skill acquired by the members of family engaged in this craft is hereditary. Besides the workshop at Palanpur they have also *attar* manufacturing unit at Ahirka Naglana in Aligarh district of Uttar Pradesh where roses grow in abundance. They go there for three to four weeks in March every year, when roses are collected and perfume made.

In addition to this household engaged in the industry there are six Daudi Vohra and two Hindu traders dealing in *attar*. None of them manufactures it from natural products. They sell synthetic perfumes purchased from outside.

Vohra

II.2 Vohras are mostly descendants of Hindu converts. They have surnames like Dave, Trawadi, Mehta, etc., which are found among Brahmins and Banias. A few Vohras claim descent from Egyptian and Arab refugees. They are a rich and prosperous community among the Muslims of Gujarat. Vohras who are mostly employed in trade and business are divided into five sections, namely, Daudi, Sulemani, Alia, Jaffri and Naghoshi or Rotia. The last four were formed by schisms from the main body.

Daudi Vohras, the most numerous among the Vohras in the State, are well-to-do and spread all over India. Daudi Vohras are found in Aden, Zanzibar, Rangoon, Siam, China and other places where they have migrated for business. They are quoted for their fondness for living in spacious and airy houses and for their regards for house decoration and furniture. Their principal avocation is trade. They are Shiahs of the Mustalian division of the great Ismaili sect and are fond of pilgrimage to Mecca and Karbala.

Family Size and Workers

II.3 The only household engaged in perfumery making at Palanpur, consists of 14 members and is a joint family. Of the 14 members 4 adult males are engaged in the craft and the rest are non-workers. Out of 10 non-workers, 3 male and 3 female children are studying and four females are engaged in household work. Family members alone work in the craft. Hired workers are not engaged except when the work load is heavy.

Workshops and Dwellings

II.4 The family engaged in this craft has a well ventilated separate workshop at a distance of 2 furlongs from residence. The workshop admeasures 40′ x 30′ making an area of 1,200 sq. feet. The workshop is hired at a monthly rent of Rs. 12. They have also a separate shop-*cum*-storage in the bazaar where finished products are stored and sold. The size of this shop is 15′ x 10′ making an area of 150 sq. feet. The building of the shop which is owned was taken on a monthly rent of Rs. 11 till the year 1962-63, when it was purchased by the household for Rs. 5,500.

II.5 The family resides in a rented house of five rooms on monthly rent of Rs. 20. The house is airy and well ventilated.

SECTION III

RAW MATERIALS

III.1 NATURAL PERFUMES are the product of plant metabolism and their highest form is found in the scent of fresh flowers. The raw materials required and used at Palanpur for the preparation of natural perfumes are listed below.

STATEMENT I

Raw materials

Sl. No.	Local name	Botanical name
	A–FLOWERS	
1 गुलाब	Gulab	*Rosa alba*
2 केवडा	Kevda	*Pandanus odoratissimus*
3 चंपा	Champa	*Michelia Champaca*
4 मोगरा	Mogra	*Jasminum arborescena*
5 बोरसली	Borsali	*Mimusops Elingi*
6 जुई	Jui	*Jasminum auriculatum*
7 रातराणी	Ratrani	*Cestrum nocturnum*
8 चमेली	Chameli	*Jasminum auriculatum*
	B–GRASS	
9 खस	Khas	*Andropogon squarrosus*
	C–LEAVES	
10 पांदडी	Pandadi	. .
	D–OTHERS	
11 माटी	Mati	. .
12 हीना	Hina	. .

III.2 Flowers aforementioned and other materials are used for preparing natural perfumes. The other raw materials required in the process are (i) water, (ii) sandalwood oil, (iii) colours, (iv) fuel, and (v) packing material.

Among the various perfumes used, rose, *kevdo* and *champak* may be mentioned in the order of their popularity. The different varieties of flowers used in the making of perfumes are described below.

ROSE

III.3 Palanpur is well-known for its roses. The real rose odour is unique. The beauty, attractiveness and its fragrance are world-renowned. There is a large variety of rose flowers but of them three varieties are grown in this area. They are locally known as (1) *Fasali*, (2) *Barmasi* and (3) *Sevati*. *Fasali* rose plants flower in the months of February and March and the flowers have rosy colour. This variety of rose gives the best scent and possesses good pharmaceutical properties. *Barmasi* rose plants bear flowers all throughout the year having rosy colour. But these flowers have neither fragrance nor pharmaceutical value. The third variety, known as *Sevati*, flowers in March and April and is white in colour. The white rose has the same fragrance and pharmaceutical value as the first one. It differs only in colour.

CHAMPAK

III.4 *Champak* flowers are either green or yellow. The yellow *champak* is known as *nag champak* and has five petals. Its growth in Banaskantha district is more extensive than anywhere else in India.[1] *Champak* trees are grown in private plantations. Both kinds are plucked between April and September. The beginning of the season yields the best kind of flowers. The smell of these flowers is very strong and pungent so that the scent prepared from them is not in much demand. However, their colours are very attractive. The tree is commonly planted near temples. *Champak* (*Michelia Champaca*) is a tall, handsome, evergreen tree with a straight trunk and branches ascending upwards and forming a compact cluster. Its flowers are about

1. I. A. EZEKIEL, *State Transport Review, Annual*, 1959, p. 141–144

2-2½ inches in diameter, very fragrant, axillary, solitary, each enclosed in bud by a greyish-yellow pubescent, spathaceous, coriaceous, deciduous bract. These flowers are used in religious ceremonies and also by women for ornamenting their hair.[1]

KEVDA

III.5 There are seven different forests of *kevda* plants in Banaskantha area around the villages of Karjoda, Nalasar and Bhagal of Palanpur taluka and Jalotra and Parkhadi of Vadgam mahal. The plants generally grow by the side of rivers and streams. The long leaves of *kevda* are famous. There are two varieties of flowers, viz., yellow and white. The yellow flowers look more attractive, but the white ones give better fragrance. The season of plucking *kevda* flowers begins in July and ends in September.

Kevda is a favourite flower of Lord Shiva. Women worship Lord Shiva offering *kevda* flowers on Bhadrapad Sud 3 which is generally known as Kevda Trij in Gujarat and as Haritalika Vrata in Maharashtra. On this day women worship God Shiva offering *kevda* leaves for *akhand saubhagya* or unbroken marital bliss and long life of their husband.

OTHER FLOWERS

III.6 The other flowers used for preparation of natural perfumes are *mogra, borsali, jui, ratrani* and *chameli. Champa, mogra,* and *ratrani* plants flower once in a year during April, May and June.

KHAS

III.7 It is a variety of grass which is generally used in the manufacture of screen used during summer for coolness. *Khas* grass grows in winter. It grows in abundance in Bharatpur and Sawai Madhopur area of Rajasthan and Musanagar in Uttar Pradesh. The cost price of *khas* comes to Rs. 60 to 70 per *deshi* md.

PANDADI

III.8 *Pandadi* scent is manufactured from the leaves of a plant which gives a delightful fragrance. In size, shape and colour these leaves are exactly like *Mendi* (*Lawsonia alba*) grows profusely in Jesalmir.

HINA

III.9 Hina is a mixture of various materials like (*1*) *kapur kachhali,* (*2*) *nagar moth,* (*3*) *chhabilo,* (*4*) *javanti,* (*5*) *jaytal* (*6*) *akeli,* (*7*) *laving,* (*8*) *kesar,* (*9*) *loban* and (*10*) flowers of *kusum.* The mixture is available locally from the traders.

CLAY

III.10 Soil of the surrounding areas give a special fragrance during monsoon and from these 'Essence of Earth' is manufactured.

WATER

III.11 Water utilised in making perfumery is fresh and clean. Ordinary water cannot be used as it contains a number of germs and impurities which would vitiate the preparation in the end. Water, therefore, before being used in the preparation of perfumery, must be cleaned with filteration. Distilled water is, however, the most suitable. The same is used whenever possible in the preparation of *attar* (perfumery).

SANDALWOOD OIL

III.12 Sandalwood oil is required as a base material for preparation of scents and the same is purchased from Kannauj in Uttar Pradesh.

Firewood is used as fuel and is obtained from the local market.

PACKING MATERIAL

III.13 Regarding packing materials, glass bottles of various sizes and shapes, leather bottles of different sizes, drum of galvanised sheets, and boxes of straw boards are used.

PROCUREMENT AND PRICE OF RAW MATERIALS

III.14 The following statement gives the price of raw materials, annual requirement and the source of availability, etc.

1. COOKE, *Cookes floura,* Vol. I, p. 8

STATEMENT II
Consumption of raw materials, 1965

Sl. No.	Item	Unit	Price per unit Rs.	Annual consumption No. of units	Annual consumption Rs.	Source of availability
1	2	3	4	5	6	7
1	Rose	Deshi md.	50	40	2,000	Locally
2	Kevda	1,000 Flowers	40	100	4,000	,,
3	Champa	1,000 Flowers	3	200	600	,,
4	Mogra	Deshi md.	60	20	1,200	,,
5	Jui	Deshi md.	40	0.5	20	,,
6	Ratrani	Deshi md.	40	2	80	,,
7	Sandal-wood oil	Kg.	150	20	3,000	Kannauj (U.P.)
8	Red colour	Pound	16	1	16	Ahmedabad
9	Green	Pound	16	2	32	,,
10	Yellow	Pound	16	1	16	,,
11	Various type and size of bottles for attar	Gross	2	200	400	Locally
12	Big bottles for Rose and Kevda water	Gross	24	5	120	,,
13	Galvanised drum	Per article	7	100	700	,,
14	Boxes	1,000 articles	120	2,000	240	,,
15	Leather container	20 articles	2	500	50	Kannauj (U. P.)
16	Firewood	Deshi md.	2	108	216	Locally

III.15 It can be seen that flowers required for preparing perfumes are locally available from the near-by forests or from plantations. *Kevda* and *champak* flowers are usually collected by the Mali families. 15 to 20 Mali families are engaged in this job. Over and above Mali families, Bhils of Banaskantha are also engaged in the business of selling flowers.

III.16 *Kevda* forests are so thick that only labourers who are accustomed to work in these forest know how to go about it. The general public is usually not allowed to enter them for two reasons—(i) they may lose their way and (ii) they may be bitten by serpents. Serpents flourish on *kevda* plants. They are of green colour and entwine themselves round the plant so that only those who are accustomed to work in these forests can notice them. They are extremely poisonous, and if bitten by one the victim does not survive for more than an hour. It is amazing that not a single *kevda* labourer has been killed by serpent bite during living memory.

III.17 Raw materials like sandalwood oil, colours and packing materials are imported from the places shown against each of them in the Statement II.

SECTION IV

TOOLS AND TECHNIQUE

IV.1 "PERFUMERY is an art as well as a science. The perfumer's art is based not on a native ability, however, but on experience. A trained perfumer can recognise by odour a thousand different perfumer ingredients and often tell their source and quality as well."[1] Manufacture of natural perfumes require enough experience. Manufacturers of natural perfumes at Grasse, a small town in southern France and a headquarters of flower oil industry, have "generations of experience behind them and often possess trade secrets known only to their own families."[1]

The industry is hereditary to the family engaged in this craft at Palanpur. The method of production employed is traditional which is known as distillation. The tools and implements used and the process of manufacture are narrated in subsequent paragraphs.

STATEMENT III

Tools and Implements

Sl. No.	Name of the tool or implement	Approximate present value (in Rs.) per article	Function	From where imported
1	2	3	4	5
1	Deg (Copper) Distillation still	700 to 800	For boiling flowers	Farrukabad (Uttar Pradesh)
2	Bhabhaka Flask (Copper)	75	To collect the vapour containing floral oils	-do.-
3	Kundi Funnel type copper vessel	50	To separate floral oils from water	-do.-
4	Vasni nali Bamboo tube	Rs. 1-50P.	The distillation still and copper vessel are connected by means of the bamboo tube from which vapour passes	Local

1. *The Encyclopaedia Americana*, Vol. 22, p. 580

TOOLS AND IMPLEMENTS

IV.2 The principal appliances utilised in the manufacture of perfumery, their value and places from where they are imported, are given in the Statement III.

IV.3 The appliances, namely, distillation still, flask, *kundi* which are all made of copper are obtained from Farrukabad, while bamboo tubes are procured locally. The distillation still approximately weighs 3 maunds, flask 15 lbs., and *kundi* weighs 10 lbs. The bamboo tube has a weight of 2 lbs. only. They have 7 to 8 distillation stills and 25 flasks.

TECHNIQUE AND PROCESS OF MANUFACTURING PERFUMERY

IV.4 The method employed for preparing floral oil is that of distillation in which vegetable organisms like flowers, grass, leaves, etc., are boiled in the closed copper vessel known as distillation still. Distillation still is capable of containing 17-20 gallons of water. It has a narrow neck and a mouth of about 8" in diameter. The still is connected with a long neck vessel or receiver called *bhabhaka* a copper flask by means of a bamboo tube. One end of the bamboo tube is fastened to the still at an acute angle of 45° and the other end is allowed to enter the mouth of the receiver, i.e., copper flask, and thereafter the mouths of distillation still as well as flask are closed by means of clay. For manufacturing floral perfumes the copper flask is filled with sandalwood oil, but in case of rose water, *kevda* water and for essence of *khas*, *pandadi*, etc., the flask is kept empty. The flask is plunged in water which is filled in a rectangular *kundi* or a tank of brick and cement. The distillation still is placed on the hearth and open fire is applied at the bottom till the water in the still boils and the vapour containing floral oil is collected in the

copper flask through the bamboo tube. The mixed vapour of water and floral oil is collected and condensed in the flask. When this process is over the mixture collected in the copper flask is emptied into a funnel-like copper vessel which is well closed but has a hole at the bottom which can be opened or closed as required. Then the condensed mixture settles in this vessel, the floral oil being lighter than water floats on the surface of the water. The bottom hole of this vessel is then opened to allow the water to escape leaving the oil or *attar* behind. This extract is called *attar*. In the preparation of better quality of perfumery this process is repeated several times. Necessary colours are added to the resultant *attar* and stirred.

KEVDA ATTAR

IV.5 Perfumes are prepared from *kevda* flowers by the method of distillation as described above. One thousand *kevda* flowers are immersed in ten gallons of fresh water in distllation still. The still is connected with a copper flask with bamboo tube as described above. 5 kilograms of sandalwood oil is placed in the copper flask which is plunged in cold water. The distillation still is placed on the hearth and open fire is applied. The vapour comprising *kevda* perfume is then passed through the bamboo tube and condensed in the copper flask. When this process is over, the mixture collected in the copper flask is emptied into a funnel-like copper vessel. When condensed mixture settles in this vessel, the floral oil floats on the water. Water is allowed to escape from the hole leaving *attar* behind. This extract is called *kevda attar*. The entire process takes about 5 to 6 hours. The process is repeated several times according to the quality of *attar* required.

Similar process is employed in different types of flowers, namely, rose, *mogra*, *champa*, *borsali*, *jui* and *ratrani*.

PREPARATION OF AROMATIC WATER

IV.6 Rose and *kevda* water are the principal aromatic waters manufactured at Palanpur. The process is similar as discussed above. One maund of rose flowers and 15 gallons of water are placed in the distillation still. The still is connected with a copper flask by means of a bamboo tube as mentioned above. The copper flask is kept empty. The copper flask is plunged in water in the manner described above. Open fire is applied to the distillation still till the vapour containing the rose perfume is collected in the flask. The vapour when condensed in the copper flask is the rose water which is later transferred to a big drum made of iron. Approximately 5 gallons of rose water is obtained from 1 maund of rose flowers.

IV.7 Method of preparing *kevda* water is the same as that of rose water. But for preparing 5 gallons of *kevda* water the quantity of flowers needed is 1,000 flowers and 15 gallons of water.

SECTION V

FINISHED PRODUCTS

V.1 THE PACKING of the clear and transparent perfumery in phials also requires thorough knowledge. The bottles are carefully washed and dried before the essence or perfumery is poured into them. By no means the essence is packed in wet or even moist phials; as the least trace of moisture is sufficient to upset the equilibrium of the finished articles, to precipitate a part of the perfume-essence and to modify the fragrance. The vessels are kept in a cool and dark place. It has been found that under these conditions the finished products gain in quality and sweetness and improve.

Different varieties of perfumes are packed in phials and *kupis* or leather bottles. *Attars* are filled in various sizes of phials which can contain 1½ grams, 3 grams and 12 grams of liquid. The phials are further packed in cardboard boxes each of which contains three or six bottles at a time or sometimes only one. Finished products to be sent to distant places are filled in *kupis* or leather bottles of various sizes having capacity of 3 tolas, 5 tolas, 10 tolas, 21 tolas, 50 tolas and 100 tolas. The *kevda* and rose water are filled in big bottles having a capacity of one and half pounds. The phials, bottles and cardboard boxes are finely labelled bearing the description of *attar*, trade mark, name of the manufacturer, etc. The registered trade mark for perfumes, scent, etc., is A.A.A. which is an abbreviation of the firm's name styled 'Akbarali Abdulhusein Attarwala.'

OTHER PRODUCTS

V.2 Other products which the owner of this single unit manufactures are perfumed hair oils, *gulkand* and *mendi*. Gulkand a medicinal preparation made from rose petals is widely used for medicinal purposes. It is an antidote against excessive heat during summer. *Mendi* is widely used by females (Hindu and Muslim) to colour their plams and feet. During last two years their sale of *mendi* has increased considerably as they adopted a new technic of manufacture which they learnt from their relative in Udaipur. *Mendi* leaves are bought from Sojat Road in Rajasthan. 'Dadu' which is his father's pet name is the trade mark given to the product known as 'Dadu Mendi.' The annual sale of *mendi* comes to about Rs. 5,000 and sold all over India.

USE OF PERFUMES

V.3 The perfumes obtained are not to be viewed from designs and decorative motifs of their containers, bottles, flasks, etc. Use of scented products are many and varied. They are mixed with many other products to give them good odour. Thus, they are present in cosmetics of several types, creams, tooth pastes and even ointments and insecticides.

Perfumes are used in ceremonies, preparations of medicines, religious worship and various domestic purposes. As regards the extensive use of perfumes in the past "Vatsyayan says that the *nagaraka* (citizen) must dress discriminatingly, and he gives a rather detailed description of the *nagaraka's* toilet. Rising in the morning, the man-about-town gets busy with his toilet. First he uses the *anulepana*, which was a fragrant ointment prepared from sandalwood paste. Then his clothes are scented with the sweet-smelling fume of incense. Then he wears a garland on his head or round his neck. He applies collyrium to his eyes and *alaktaka* (a red tinge) to his lips, surveys himself in the mirror and chews spiced betel-leaves to perfume his mouth."[1] According to Kamasutra, "These objects–flowers, perfumes and betel-leaves formed the most ordinary gifts exchanged between friends and lovers." Perfumes were extensively used in Moghul time. Moghul emperors were fond of

1. DR. GOKHALE B. G., *Ancient India (History and Culture)*, p. 144, 1952

roses. Nurjahan used to bathe in rose water. The royal bath rooms of the Red Fort of Delhi testify the wide use of rose water by Moghuls. The *attar* of *khas* and *gulab* is extensively used during summer whereas *champa*, *kevda* and *pandadi* in monsoon, *hina* in winter and *mogra* and *ratrani* and others during the whole year. *Kevda* water is used for various medicinal and domestic uses. It is used as a stimulant for the heart. " It purifies blood, absorbs excessive heat from the body and removes brain fag.....The pollen of kevda flowers when inhaled removes congestion of nostrils."[1] Aromatic water of rose and *kevda* is extensively used in preparation of Ayurvedic and Unani medicines and manufacture of hair oils. Rose *attar* and water has a cooling effect. It cures skin diseases and other erruptions caused by heat. Rose water is applied to betel-nuts and also used in preparation of *chuna* or lime used in betel-leaves. Rose water is also widely used and sprinkled on marriage parties. Besides sandal paste and flowers scented oil and *attar* are essential in ceremonial worship or *puja* of various gods and goddesses at the time of *abhishek*.

1. *State Transport Review, Annual*, 1959, p. 142

MARKETING

V.4 It is estimated that average annual production of the perfumes at Palanpur is worth Rs. 17,000 to 18,000. The perfumery products manufactured at Palanpur are marketed to other parts of Gujarat, Rajasthan, Madhya Pradesh, Maharashtra, etc. They are in wholesale quantity as well as retail. Some of them are consumed locally in Palanpur and roundabout villages. Most of the sale transactions are on cash basis according to the orders received from the merchants. The finished articles are stored in rooms provided for the purpose near the workshop.

The artisans participated in the Banaskantha District Agriculture, Craft, Art and Khadi Gramodyog exhibition held at Palanpur in 1954 A.D. They exhibited main tools, implements, raw materials and finished products and distributed nearly 50 tolas of *attar* to the visitors. A certificate and a silver medal was awarded by the organisers, as the exhibits ranked first in the display of finished products, etc. Perfume making of this centre is also tape-recorded and relayed on All-India Radio.

SECTION VI

ECONOMIC CHARACTERISTICS

Capital Structure

VI.1 The capital invested in tools and implements required for the manufacture of perfumes can be valued at Rs. 6,000 to Rs. 7,000 according to present prices. He owns a building which is used as shop-*cum*-store, the estimated value of which is Rs. 5,500. Thus the total investment as fixed capital is Rs. 11,500 to Rs. 12,500. The artisans invest their own capital.

The cost of various raw materials required per annum is given hereunder.

STATEMENT IV

Cost of raw materials per annum

Sl. No.	Item	Cost per annum (in Rs.)
1	Various types of flowers, leaves, etc.	7,900
2	Sandalwood oil	3,000
3	Colours	64
4	All types of bottles . . .	520
5	Drums, leather bottles and straw board boxes	990
6	Firewood	216
	Total	**12,690**

VI.2 Various qualities and varieties of scent are manufactured at Palanpur. Their prices vary according to their quality. The price of pure essence of rose flowers known as *Asali Ruhi Gulab* is as high as Rs.125 for 12 grams, while the price of ordinary scent of rose is Rs. 3 for the same quantity. The price list of various types of scent is given in Table V of the Appendix. According to the information obtained from the household *attar* and *gulkand* worth Rs. 20 to 25 thousand approximately is sold per annum. The usual margin of profit varies between 20 to 25 per cent of sale price giving a net income of about Rs. 4,000 to 5,000 per annum.

Employment

VI.3 Six months from March to June, August and November are the busy period during which the artisans work 10 hours per day on an average while the remaining six months are comparatively slack, when the artisans work for 7 hours per day on an average.

Organisational Characteristics

VI.4 There is no training centre for this craft. The manufacturer is not a member of the cooperative society. The craft is practised in the traditional manner without any change in the appliances. Apprenticeship is automatic and the technique is handed down from father to son.

Physical Fitness

VI.5 The artisans engaged in preparation of natural perfumes have to be strong and stout as they have to sit near the hearth and to handle various copper appliances while remaining near the fire. The temperament of the craftsman is, therefore, likely to be affected adversely and he may at times become hot tempered.

Hobbies and Recreational Activities of the Craftsmen

VI.6 The craftsmen of Palanpur perform *namaz* five times a day and observe fast during the month of Ramzan. They read the Quran and often go to attend religious sermons. They have no hobbies or other recreational activities.

Conclusion

VI.7 Only one household is engaged in preparing natural perfumes at Palanpur. The method employed is that of distillation, with an open fire which is the oldest process resorted to only in the areas away from modern factories. In this process, if the water in the apparatus is insufficient the raw material gets burned, and the odour of

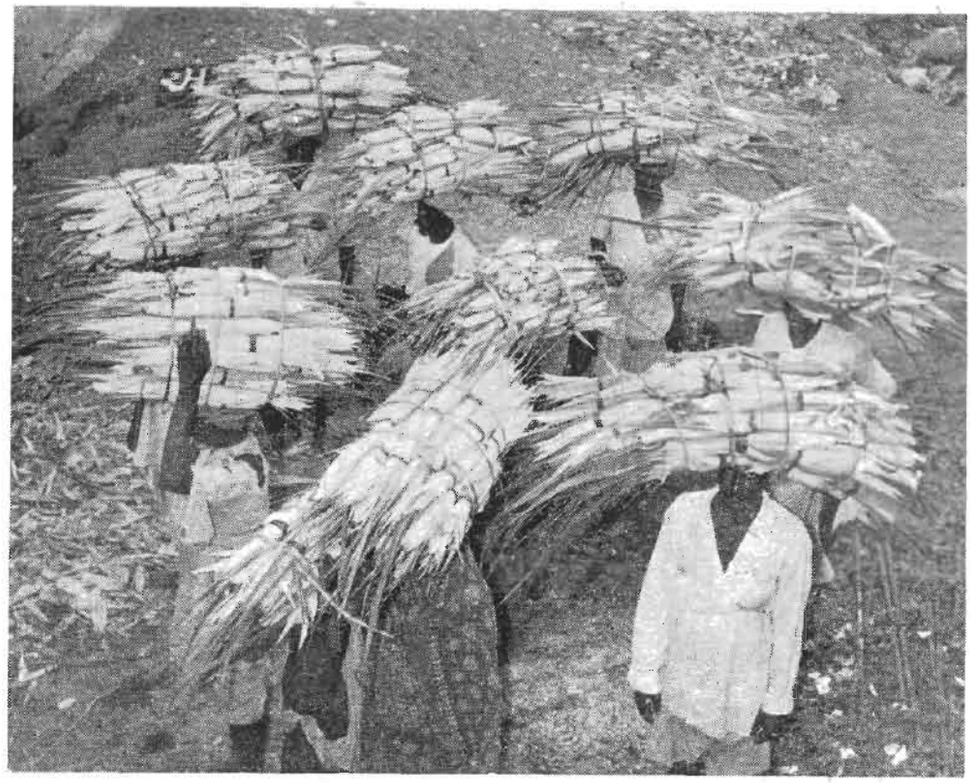
the resulting oil is spoiled. The household uses the tools and implements which their forefathers used. If the artisans adopt modern methods like blowing steam through the raw material, viz., flowers by erecting a separate boiler instead of applying open fire, this difficulty can be easily overcome. The future of the craft at this centre is very bright as the raw material required for the craft is available in ample quantity. However, the artisans desire to develop the craft by utilising *rosa* grass with natural fragrance, available in the near-by areas of Virampur, Ambaji and Danta situated at a distance of 20 to 22 miles from Palanpur, by taking a long term lease from the Government.

The craft has to face keen competition of synthetic perfumes produced by big factories as well as by small units at Jamnagar, Rajkot and other cities and towns of Gujarat. It is the ambition of the present artisans of Palanpur to develop the craft into chemical perfumery for which more space and water, etc., would be needed.

Industrial as well as domestic application of the perfumes is on increase. Perfumes to-day are used in all types of cosmetics, soaps, pastes, paints, insecticides and medicines. Natural perfumes obtained from the vegetable and animal products though better in quality are costlier than synthetic ones. This makes it difficult for the former to stand in competition with the latter. Secondly, for an average citizen it is difficult to distinguish natural from synthetic perfumes. This leads to adulteration in perfumes which requires to be checked in the interest of consumer and the genuine manufacturers. Adulteration in scents was punished in the past as mentioned in Kautilya's Arthasastra, which says that " adulteration of grains, oils, alkalies, salts, scents and medicinal articles of the quality shall be punished with a fine of 12 panas. "[1]

The artisans are industrious and possess progressive outlook. Given proper guidance for large scale production and other facilities the natural resources which nature has bestowed on the area can be turned to best advantage.

1. *Kautilya's Arthasastra*, translated by Dr. Shamasastry, Fourth edition, p.124, 1951



Bringing Kevda leaves from forest



Picking roses in plantation



Untying the Kevda bundles

PLATE II



Removing ears of Kevda leaves



The still is filled in with Kevda leaves for distillation

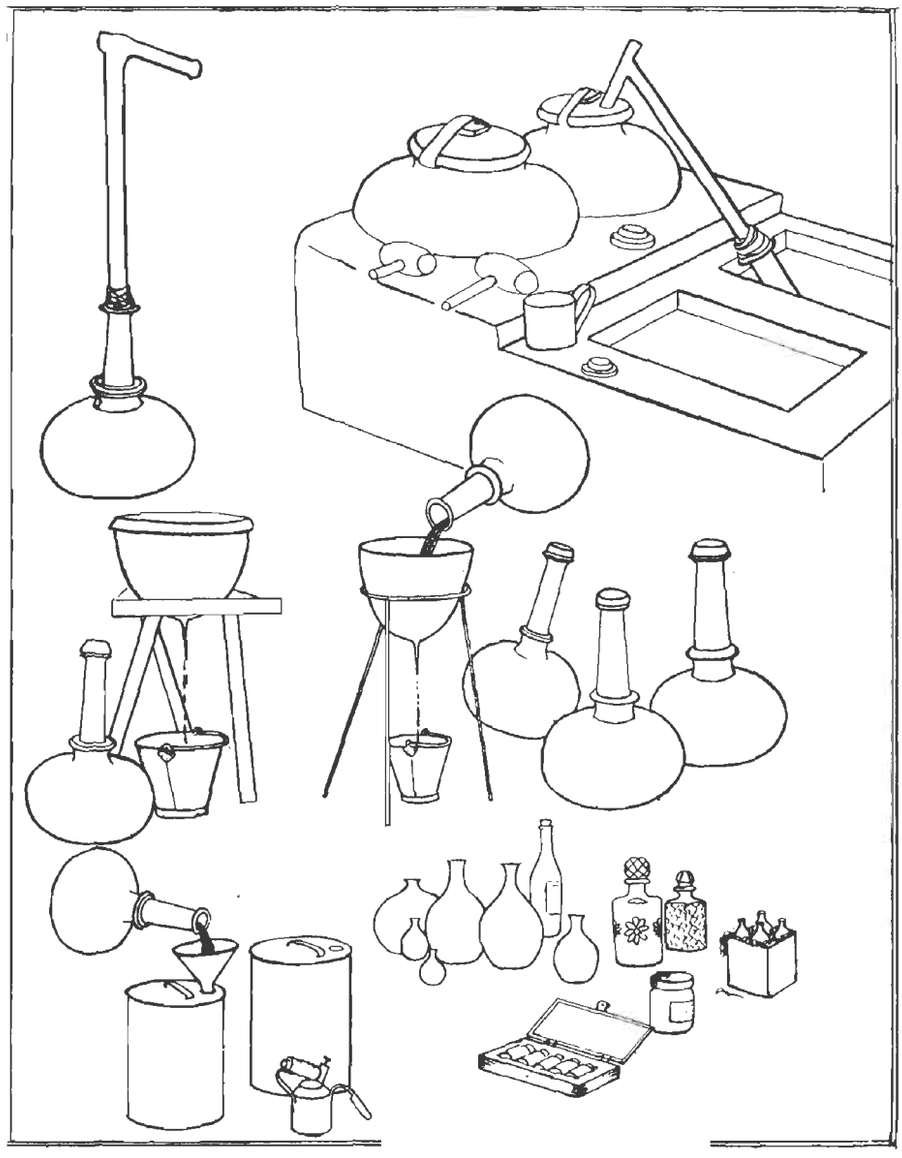


Connecting distillation still and Bhabhaka with a bamboo tube



Water cooling in a cement tub

PLATE IV

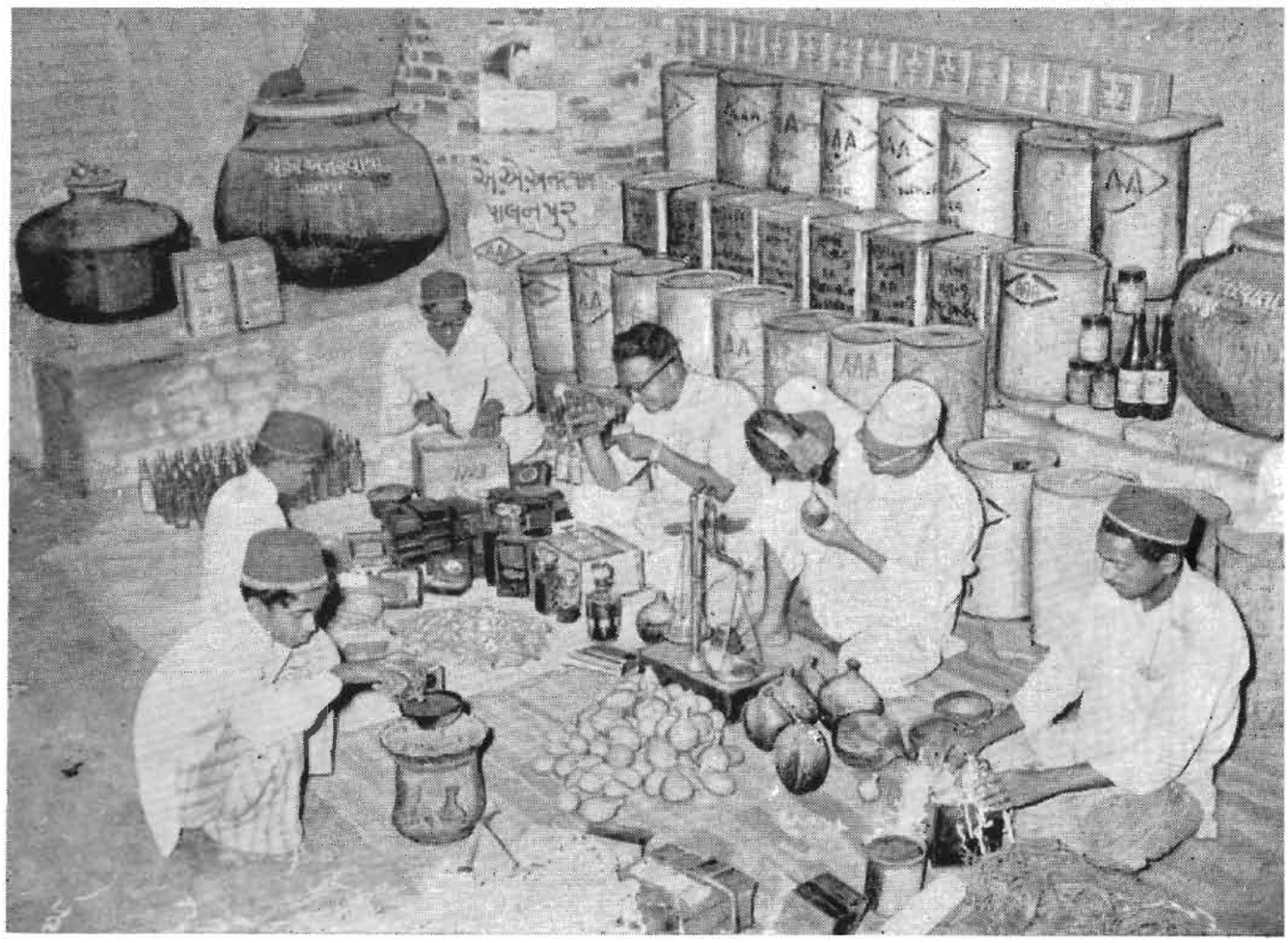


Tools and packing materials



Packing aromatic water in drums

PLATE VI



Filling 'attar' in phials and 'kupis'

PLATE VI



Filling 'attar' in phials and 'kupis'

APPENDIX

APPENDIX

TABLE I

Number of persons employed in production

Name of craft	No. of villages/towns surveyed	No. of persons employed in production		
		Persons	Males	Females
1	2	3	4	5
Perfumery	1 (Town)	4	4	..

TABLE II

Distribution of artisan communities

Name of caste or community	No. of villages/ towns surveyed	Approxi-mate number of families	Total Number of adult workers			Number of families working under cooperation	No. of families working in own houses or in work-shops set up by their employers
			Persons	Males	Females		
1	2	3	4	5	6	7	8
Vohra (Daudi) (Muslim)	1 Palanpur town	1	4	4	..	..	1 (own)

TABLE III

Raw materials

Name of product	Main material	No. of villages engaged in manufacture	Subsidi-ary material	No. of villa-ges engaged in manufacture	Raw material imported	
	Name of material		Name of material		Place from which impor-ted (Name of State or Country)	No. of villages engaged in manufacture
1	2	3	4	5	6	7
1 Attar	Flowers and sandalwood oil	One (Town)	Colours (Red, green and yellow)	..	(i) Flowers locally (ii) Sandalwood oil from Kannauj (U.P.) and (iii) co-lours from Ahmedabad.	..
2 Rose water	Flowers (Rose)	,,	..	..	Locally	..
3 Kevda water	Flowers (Kevda)	,,	..	..	Locally	..

NOTE :

Red colour is used in *hina*, green in *khas* and yellow in rose, *kevda* and *mogra attar*.

TABLE IV

List of very skilled craftsmen of each community

Name of village	Name of craft	Name of community	Name of skilled craftsmen
1	2	3	4
Palanpur	Perfumery	Vohra (Daudi)	1 Mohamad Husen Akbarali 2 Kayumbhai Akbarbhai

TABLE V

Price list of scent and aromatic water

Sl No.	Item	Unit	Price per unit in Rs. and Paisa	Remarks
1	2	3	4	5
1	Rose attar	12 grams	3 to 6,8,10,12,16,20,25,30,40	Price range varies according to quality
2	Kevda ,,	,,	,,	,,
3	Champa ,,	,,	3 to 6,8,10,12,16,20	,,
4	Mogra ,,	,,	,,	,,
5	Hina ,,	,,	,,	,,
6	Jui ,,	,,	5 to 8,10,12,16,20	,,
7	Ratrani ,,	,,	,,	,,
8	Pandadi ,,	,,	4 to 6	,,
9	Khas ,,	,,	,,	,,
10	Mati ,,	,,	6,8,12	,,
11	Chameli ,,	,,	,,	,,
12	Rose water	610 grams	12,20,36,54	,,
	,,	300 ,,	7-50,12,21,32	,,
	,,	150 ,,	5,7,12,21	,,
	,,	50 ,,	2-50,3-50,6-00,10-50	,,
13	Kevda water	610 ,,	12,20,36,54	,,
	,,	300 ,,	7-50,12,21,32	,,
	,,	150 ,,	5,7,12,21	,,
	,,	50 ,,	2-50,3-50,6-00,10-50	,,

5. CROCHET WORK OF JAMNAGAR

SECTION I

INTRODUCTION

Introduction

I.1 Crochet work literally means looping work done with a small hook. Caps, table-cloth and hand-bags are crocheted with hooked knitting needles, specially made for the purpose. The crochet work of Jamnagar, of which Vohra cap is the most important product, forms the subject matter of this monograph. These caps are manufactured by Vohra ladies during spare hours. The art of crocheting is known as *gunthva-nu-kam* in local parlance. Many associations of Vohra community undertake the manufacture of these caps all over the State. One such association known as Anjumane Kutbi is functioning in Jamnagar also.

Location

I.2 The city of Jamnagar in Gujarat State is situated on 22° 28′ north latitude and 70° 7′ east longitude. Its population is 148,572. Formerly the capital of Nawanagar State, it is now the headquarters of the district of Jamnagar. Situated on the confluence of the rivers Nagmati and Rangmati, Jamnagar is a junction station on the Viramgam-Okha metre gauge section of the Western Railway 51 miles from Rajkot. It is on Rajkot-Okha State Highway, and State Transport buses connect it with Rajkot and other important towns around. It is connected by regular air services to Rajkot, Bhuj and Bombay.

I.3 Till its merger in the United State of Saurashtra in 1948, the State of Nawanagar was ruled over by the Jams. Jam Raval founded it in 1540 on the site of Nagna Bandar which he took from the Jethwas, probably a branch of the Jat tribe, who preceded the Jadejas in Saurashtra from Kutch. Their territory, which now forms the major part of Jamnagar district was called Halavar, and later on Halar, as Jam Raval was a descendent of Jam Hala, and hence was called Halani. When Kutb-ud-din, Foujdar of Sorath took Jamnagar, he named it Islamnagar. Tamachi, the minor son of the Jam who fell in the battle, escaped to Kutch and thence to Okha Mandal and ravaged the Jamnagar dominions. In 1673 he was restored to the throne at the intervention of Maharaja Jasvantsinhji of Jodhpur, the viceroy of Gujarat. On the formation of the Part B State of Saurashtra after Independence in 1948, H. H. the Maharaja Jam Saheb of Nawanagar became the Raj Pramukh of that State.

I.4 Jamnagar is a walled city with several gateways. Its charm lies in the combination of the old and the new. A well laid out city with its stone buildings and wide streets, and well-known for its flowers and perfumeries, it is styled the Paris of Saurashtra. It has also been called *chhoti* Kashi (the smaller Kashi) on account of the large number of temples, the most notable among them being Bhidbhanjan Mahadev, Nagnath Mahadev, Ashapuri Mata, Daooji-ni-Haveli, Anada Bava-no-Math and Dwarkadhish temple. There are also some fine mosques and Jain temples. Jamnagar enjoys an honoured place in the annals of sport owing especially to Jam Ranji (1872-1933), the famous cricketer and his nephew, Prince Dileep.

I.5 After Independence, the population of Jamnagar grew considerably partly owing to migration from Pakistan, and establishment of naval and military stations, and partly as a result of its rapid industrialisation. It now has a woollen mill, chemical works, 22 oil mills and four salt works. There are numerous handicrafts and small scale industries, which include among others manufacture of nut-crackers, penknives, trunks, locks, soap, beads, metalwares, musical instruments, buttons, stone carving, silk weaving, embroidery and textile dyeing and printing. The *kumkum*, *kajal* and *surma* of Jamnagar are also famous. The pride of the place is, however, the *bandhani* (tie and dye *sari*) of which Jamnagar is the principal and most popular centre. The craftsmen of Jamnagar are well-known for

weaving of *pallao*, *sari*-ends and *jari* brocade. Fishery is an important industry of the region, and pearl oysters are a valuable marine product. Gandhi Udyog Mandir, established in 1955, provides training in agriculture, tailoring, printing, etc., and also produces handmade paper. About two hundred tenements have been built in Jamnagar for industrial workers during the First Five Year Plan period. Jamnagar is a large business centre of groundnut, grains and garlic. Situated five miles inland from the sea coast, it has a good port Bedi, on the gulf of Kutch, through which it carries on a large maritime trade with foreign countries.

I.6 Jamnagar has training establishment of all the three defence services. It has colleges of arts, science, commerce, law and medicine. Well-known as a centre of Ayurveda for a long time, it has an Ayurvedic medical college with a museum and post-graduate Research Centre in Ayurved. Besides the large Irvin hospital, there is a solarium built in 1933, the only one of its kind in the World, where various diseases are treated with sun rays by light therapy and heliotherapy.

I.7 The Government Girl's High School building, a specimen of fine architecture, is known as the gem of Jamnagar. The Jam Saheb's palace has an excellent picture gallery of Victorian paintings. The Lakhota palace, in the middle of a reservoir approached by a stone bridge and the Kotha (bastion) on its bank are specimens of old architecture, constructed along with the excavation of the tank, during famine years between 1834 to 1846. The Lakhota now houses a museum which contains a collection of sculptures, specimens of bead and embroidery work, glass products, paintings of battle of Bhuchar Mori dating back to the 16th century, photographs of interesting places in Jamnagar district and India. There are several protected monuments in Jamnagar including the Nagnath Mahadev, the Kalika Mata temple, the Khambhalia gate belonging to the ninteenth century, a post-Chalukyan step-well and the Ra Kumbha Darbar of the mediaeval times. A town hall has recently been constructed and the city is equipped with electricity, piped water supply and local bus service. The water supply is drawn from Ranjit Sagar Dam six miles away. The Municipality maintains a crematorium having a good garden with statues of saints, deities, etc., and a small library. It is a place worth visiting.*

I.8 The Vohra community is engaged in crafts like *bandhani* work, making of *agarbatti*, *kajal*, *kumkum*, *surma* and perfumery. They are the exclusive users of these caps which are known as Vohra caps. The craft under study is, therefore, unaffected by any influence from persons outside the community.

History of the Craft

I.9 The antiquity of the craft is lost in the mist of time. However, "it is said that knitting is older than recorded history. Though its origin is not known, it is believed that this method of making cloth may have originated in Arabia and from there gradually spread to other parts of the world."[1] According to the opinion of the author of the History of Technology, Vol. III, frame knitting perhaps originated in Arabia roundabout the 7th century B.C. whereas crocheted fabric is believed to have developed about the end of 16th century A.D.

I.10 In some countries knitting was done by men who spent years in training before being accepted as expert knitters. Master knitters were able to produce magnificent rugs, which resembled Persian woven rugs in beauty of design and shades of colours. "Knitted rugs were used for wall hangings and table covers. Weaving apparel, which included caps, stockings and shirts, were also produced by knitting."[1]

I.11 According to an estimate made by the All-India Handicrafts Board in a note on Handicrafts of Saurashtra, it is mentioned, "The work of crochet belongs to Vohra community who are Shiah Muslims. In times of Aurangzeb, under polite religious pressure, a section of them migrated from Cambay to Saurashtra. Their economic condition was unsound as such they

* *Source*: For para I.2 to I.7, Trivedi R.K. *District Census Handbook*, Jamnagar, 1961

1. Johnson, William H., Ph. D., *The Textile Arts*, p. 82, 1944

tried to employ their women in gainful handicrafts of crochet work.....an association of 300 women of Vohra community are making excellent caps which with little alteration can turn into lady's purse, tea cosy, etc. Apart from Vohra caps of excellent colours and designs of *jari* thread and silk thread, they are giving their community laces, scarfs, table cloths, etc., in work of this description." The report on the Marketing Clinic of Saurashtra Handicrafts by the All-India Handicrafts Board estimated in 1958 that there are approximately 500 to 750 women working part-time in the craft.

SECTION II

CRAFT AND CRAFTSMEN

Daudi Vohra

II.1 The community engaged in the craft is Muslim Daudi Vohra. Most of the families migrated about 427 years ago from Dhrangadhra, Rajkot, Ahmedabad, Dhrol, Kalawad and Kutch and settled in Jamnagar after the foundation of the city. Some families have also come from Bombay. The main occupation of the caste was weaving of cloth. Crochet work was a subsidiary occupation during the time of migration. Thus the art of crochet work known to them before settling in Jamnagar is hereditary. The name of the first artisan who started this craft or the period of commencement of this work is not known. The main occupation of weaving is now replaced by trade and commerce, but the subsidiary occupation remains the same. The nearest centres where the persons of this caste reside are Lalpur, Khambhalia, Kalawad and Bhanwad. Campbell describes the community as follows:

> "Daudis are Shiahs of the Mustaalian division of the great Ismaili sect. They are attentive to their religious duties, both men and women knowing the Kuraan.... They strictly abstain from music and dancing and from using or dealing in intoxicating drinks or drugs..... Of late Daudis have made few converts, and those chiefly servants and Hindu women taken in marriage. They would seem to share all the ordinary Indian beliefs in spirit possession and exorcism and in charms and omens..... Daudi customs do not, so far as has been ascertained, differ from those of ordinary Musalmans.....Their leader, both in things religious and social, is the head Mulla of Surat.....Short of worship the head of Mulla is treated with the greatest respect.....On both religious and civil questions his authority is final. Besides the central college, every Daudi settlement has its school, where, under the charge of the Mulla and generally by a Sunni Musalman teacher, boys and girls are taught to read the Kuraan..... Daudis for shrewdness and enterprise hold their own with any class of traders in western India, and of late years the growing use of iron has been a source of special gain to them"[1].

Population of Daudi Vohra

II.2 Daudi Vohra community at Jamnagar runs a community association known as 'Anjumane Kutbi' which works for the good of the community by undertaking various welfare activities. This association had carried out the census of the community in the year 1959 with the help of its youths, according to which the total population of Daudi Vohras at Jamnagar was found to be 3,687 persons. The details of the survey are given in the following statement.

STATEMENT I

Population of Vohra community

1	No. of households	625
2	Population Total	3,687
	(i) Adult males	1,203
	(ii) Adult females	1,163
	(iii) Boys	694
	(iv) Girls	627
3	Unmarried (i) Youths	128
	(ii) Young girls	121
4	Illiterate adults (i) Males	27
	(ii) Females	167
5	Owners of residential buildings	337
6	Households having insufficient income for livelihood	205
7	Workers Total	830
	(i) Independent traders, contractors and other shop-keepers	328
	(ii) Manufacturers and repairers	65
	(iii) Government and municipal servants	37
	(iv) Employees in firms and shops	334
	(v) Females engaged in cottage industry	66

1. Campbell, James M., *Gazetteer of the Bombay Presidency*, Vol. IX. A., *Gujarat Population, Musalmans and Parsis*, pp. 30-33, 1899

II.3 Out of 830 workers in the community as a whole, 334 or 40.24 per cent are employees in firms and shops, 328 or 39.52 per cent are independent traders, contractors and shop-keepers, 7.95 per cent are engaged in cottage industry, and 65 persons only or 7.83 per cent work independently mostly as primus repairers and tin-workers. 54 per cent of the total households own their residential buildings, of which 15 per cent are mortgaged. It is estimated that 30 per cent of the total households do not earn sufficient for their livelihood. Because of the difficulties experienced in foreign remittances, these families do not get supplementary income from other members residing abroad.

II.4 There are 625 households of this community in Jamnagar. Adult females of about 500 families know the art of crochet work; but it is resorted to regularly during leisure hours as a means to supplement the income of the family only in 40 to 50 households. Approximately 100 females work in this craft when they get spare time at home. The main occupation of the community is trade and commerce, brokerage, tin-work, repairing of locks, primus stoves, petromax lamps, pens, spectacles, lighters etc., and service. Crochet work is essentially one of the subsidiary occupations resorted to by their women-folk. Other subsidiary occupations are (i)making of food-articles like *vadi*, *papad*, *sev*, (ii) button making, (iii) tying of *bandhani saris*, (iv) embroidery, (v) making of *kumkum*, *kajal*, *surma*, *attar*, hair oil, *agarbatti*, etc., and (vi) spinning of yarn.

II.5 Out of about 50 households engaged in the craft, 8 households (16 per cent) bearing surnames like Makati, Dhaniwala, Ghanghor, Morbiwala, Khokhar, Attaria, Amranwala, Sabuvala and Zaveri are covered by this enquiry. These households reside in localities known as Chakla Fali, Minara Fali, Vanda Fali, Khatkiwad and Bhatt Fali.

II.6 Crochet work is the subsidiary occupation pursued by the ladies during spare hours in all the eight households surveyed. Distribution of these households according to principal occupation reveals that three households derive major portion of family income rom trade; an equal number from service and one each from the purchase and sale of *jari* goods and brokerage. Out of the eight households surveyed, three have apart from crochet work other subsidiary occupations also; one supplements income from tailoring and *bandhani* work, and two from service. The following statement shows the distribution of earners according to different occupations and non-earners in the households covered by this survey.

STATEMENT II

Workers and non-workers

Occupation	No. of persons		
	Persons	Males	Females
1	2	3	4
Workers . . .	*30*	*15*	*15*
(i) Trade . .	4	4	..
(ii) Service . .	10	9	1
(iii) Tailoring .	1	..	1
(iv) Tying of bandhani saris .	1	..	1
(v) Sale and purchase of old jari goods .	1	1	..
(vi) Brokerage .	1	1	..
(vii) Crochet work including embroidery .	12	..	12
Non-workers . .	*15*	*8*	*7*
Total No. of persons	**45**	**23**	**22**

II.7 Eight families covered by the survey consist of 45 persons, 23 males and 22 females. Of the 15 earning males, 4 are engaged in trade, 9 in service, 1 in sale and purchase of old *jari* goods and 1 in brokerage. The rest are non-workers. Out of 22 females, 12 (9 married and 3 unmarried) work at home in the craft under study when they get time from their normal household duties whereas 3 females engage themselves in service, tailoring, and tying of *bandhani saris*. Remaining 7 females are non-earners.

II.8 The proportion of persons engaged in gainful activities is fairly high. Out of a total of 45 persons, 30 or 77.77 per cent (15 males and 15 females) in the age group of 15–59 to 60 and above are workers and 22.23 per cent

(8 males and 7 females) are dependents which include children, students, women doing household duties, and aged persons. It is interesting that a community which observed *pardah* system in the past and whose women-folk did not move out in the public should show an equal percentage of earners among males and females sharing the responsibility of maintaining the family along with men.

II.9 Examination by educational status shows that 36 persons or 80 per cent are educated and 9 or 20 per cent are illiterate. Out of 23 males, 11 have taken primary education, 8 have taken secondary education, and 1 is a matriculate while 3 children below 10 years of age are illiterate. Similarly of 22 females, 14 have taken primary education, 2 have taken secondary education and 6 are illiterate. The high percentage of literacy shows the advancement of this mercantile community, helped by its caste organisation to improve the condition of its members. Both for economic betterment and education, they get good facilities from the caste *panch* and the institutions and associations organised by it.

II.10 Households engaged in the craft are scattered in the city. For crochet work there is no separate workshop. This is a purely home-craft and women work in any part of the house. General environment and hygienic condition of the workplace are normal. Income earned by nearly one third of the households in the community is not sufficient to maintain the families. As regards tenure status 53.02 per cent of the household own houses whereas 46.08 per cent live in rented premises. As the work is got done by the caste association, it arranges for the delivery of raw materials to the workers as well as for taking back the finished products at their homes so that women may not have to visit the institution in person.

Social and Personal Characteristics

II.11 The average number of persons per household comes to 6 members, of whom at least 4 persons are earners and 2 non-earners owing to disability, childhood, studies, old age, household activity, etc. Members working in the craft average two per household.

II.12 The crochet worker creates beautiful designs in the articles produced which are entirely handmade. The artisan should have good eyesight, active fingers to execute the work minutely and certain amount of skill in calculation to ensure accurate knitting. No physical strain or disability is involved in this light activity.

II.13 This work is done only by ladies who combine relaxation with leisurely gossip at the place of work. They are habituated to take tea and sometimes visit cinema shows or dramas. They observe and celebrate religious days like Muhurram, Id and other Muslim festivals of their sect.

II.14 The institution of Saifi Grih Udyog run by Anjumane Kutbi, an organisation of the Vohra community working for the uplift of its members gets crochet work done on piece wages regularly to 50 females. In past a few women also worked for private traders on piece-wage basis. No hired workers are engaged in this craft in which only women are engaged during leisure hours. Nor is there any cooperative society of this craft at Jamnagar. The main article produced is the Vohra cap which can be knitted by a single person without any division of labour.

Anjumane Kutbi

II.15 Anjumane Kutbi was established at Jamnagar in 1946 with a view to promote social, economic and cultural development of the members of the Daudi Vohra community. Sheth Ibrahimji and Abdulhusen have given a building known as Kachwala Building for the use of the institution. Saifi Grih Udyog which provides work to women is one of the important activities conducted by it. Nearly 30 females are trained annually in the tailoring and embroidery class run by the institution. Certificates are given to successful trainees. Training is sometimes imparted in cooking delicious varieties of food. In educational sphere, classes are conducted by the association for teaching general english to the students of the caste. Occupational training like moulding and lathe turning in private factories on stipend varying from Rs. 15 to 30 per month to interested

young men is also arranged by the association, besides imparting theoretical and practical training in moulding and lathe work in night classes to 20 male trainees annually by a skilled technician since 28th June, 1961. Other activities undertaken by the association are:

FINANCIAL FACILITIE

II.16 The institution renders help in receiving financial help or loans from Nagrik Bank and other sources to start new work, purchase raw material or procure tools and implements for starting some craft. Some members invested money in hand-barrows and repaid the loans by instalments. 24 members received financial help for the production of tin articles, medicines, buttons, hair oils, etc., and 42 females were given loans varying from Rs. 300 to 2,000 for the purchase of sewing machines.

COLLECTIVE MARRIAGE CEREMONY

II.17 A scheme of collective marriages was devised to curb extravagant expenses on clothes, ornaments, feasts, decoration, etc. Under this scheme, the parents of the bridegroom were required to pay Rs. 251 and of the bride Rs. 72 only towards the expenses of the marriage ceremony which was arranged by the institution on a collective basis. The following statement gives details of expenditure incurred on this occasion.

STATEMENT III
Marriage expenses

	Rs.
BRIDEGROOM'S PARTY	
Two pairs of clothes	90
Gold ½ tola	70
Gift to father and mother-in-law	8
Mehr (cash amount to bride)	21
Other expenses like procession, feasting, etc.	62
Total	**251**
BRIDE'S PARTY	
Clothes for the bridegroom	35
Gifts to father and mother-in-law	8
Other expenses	29
Total	**72**

II.18 The number of guests to be entertained at the time of marriage was restricted to 7 males, 7 females and 7 friends, total 21 on the side of the bridegroom and 14 relatives and 7 friends on the side of the bride. 57 such marriages were celebrated in the year 1960 accompanied by a simple ceremony. A common caste dinner was also arranged. A pair of clothes and cloth for bush-shirt were presented to each couple by some enthusiastic members of the caste *panch*. A good precedent has been thus established worthy of emulation by others wishing to eliminate extravagance and waste.

SECTION III

RAW MATERIALS

III.1 THE BASIC RAW material is cotton or silk thread mostly white and black, whereas jute and *jari*—silver and gold—threads are used as subsidiary raw materials in crochet work for creating beautiful geometrical and floral designs in white or black background. The prices and place of procurement of these raw materials are given in the Statement IV opposite.

III.2 The threads manufactured at Bombay and Ahmedabad are nowadays used by the workers. But formerly they mainly used the thread manufactured by Clark & Co. and rarely that of G.M.C. The thread of Clark & Co. was available in the form of a ball weighing $1\frac{3}{4}$ tolas and costs 15 to 18 paise, whereas, this thread is now available in reel form. It weighs 10 grams and costs Rs. 1.25 to 1.66. Threads manufactured by other companies are also used. Most of them are purchased from Bombay and Jamnagar on cash and credit basis.

III.3 Goods worth Rs. 500 to 1,000 are purchased at a time. Raw material is generally stored in boxes and distributed by the institution as well as traders to the artisans for crochet work, as and when required. It is easily available in the market during the whole year. The total value of raw materials used in a year in this centre is approximately Rs. 3,400 to 3,800.

STATEMENT IV

Raw materials

Sl. No.	Particulars of raw materials	Unit	Price Rs.	Place of procurement
1	2	3	4	5
1	Cotton Thread (Clark & Co.)	Reel of 10 grams	1.25 to 1.66	Bombay and Jamnagar
2	Cotton Thread (Calico)	,,	,,	,,
3	Cotton Thread (Kohinoor)	Ball of 50 grams	1.00	,,
4	Cotton Thread (Kohinoor No. 2)	Bobbin of 120 grams	2.50 to 3.00	,,
5	Cotton Thread (Chain No. 2)	Reel of 120 grams	4.00	,,
6	Jari Thread	Hank of 10 grams	3.50 to 4.50	Jamnagar
7	Jute Thread	Reel of 50 grams	5.00	,,

SECTION IV

TOOLS AND TECHNIQUE

A. Tools and Implements

IV.1 Simple tools like hooked needle, mould, and scissors are used in crochet work, which though simple, requires concentration and skilful manipulation of fingers. A brief discription of these tools is given below.

(i) *Hooked needle*—The hooked needles made from thin and round iron spoke is about 5" to 6" long. Known as *soya* or *kanta* in local parlance, it has a small hook at one end, while the middle portion is flat to facilitate grip with fingers. The thread is knitted with the help of the crooked point of the needle. For crocheting a cap, country made needle of seven number is used. Its price varies from 0-20 to 0-25 paise according to the quality.

(ii) *Mould*—A mould of a conical shape is prepared by the local artisans either from wood or tin. The price of the mould varies from Rs. 6 to 7. This mould is used for shaping the cap while crocheting.

(iii) *Scissors*—Simple scissors costing Rs. 5 are used for cutting the thread.

IV.2 The moulds are supplied by the association, whereas needle and scissors are purchased by the artisans themselves from the local market. The life of moulds and scissors can be estimated at 10 years and the needle is replaced after use for one year. An artisan requires tools worth Rs. 5.50 to 6. The total investment in this craft by the artisans at this centre is estimated to be Rs. 300. About Rs. 300 to 400 are invested on tools by the institution.

B. Technique

IV.3 The technique employed in making a cap consists of simple crocheting or knitting by hand with a special needle with crooked point, locally known as *soya* or *kanta*. Conical moulds of tin sheets or wood are used to give proper shape and size to the cap. The upper circular part is knitted first, whereafter the artisan goes on knitting the round walls of the cap with the help of the mould. Designs knitted are varied. *Jari* thread, jute thread or coloured thread is used to suit the particular motif to be knitted which is produced by the extra-weft method used in weaving. Beautiful and artistic embroidery work is sometimes done on the crocheted cap. The technique used in the past and present are the same. But the quality of material used now is superior.

IV.4 Some thread is wound around the forefinger of the left hand and kept tight by holding the end of the thread in a firm grip of the thumb and the last two fingers of the same hand. The needle is kept in a slanting position in the grip of a thumb and the first two fingers of the right hand. The middle finger of the left hand and the last two fingers of the right hand help to keep the thread tight and allow the knitting movement of the needle. Tightness or tension of thread helps produce compact and close knitting.

IV.5 A slipknot in the yarn from the end is arranged first and the needle picks up the thread and is turned inward in clockwise direction so as to slip the loop thus formed. The needle then reverts to its original position with the loop around it. Another loop is then made with the needle while it still remains inside the first loop and the second loop which is caught with the hook of the needle is pulled through the first loop. The process is repeated to form a chain in concentric circles to form the top of the cap around which the wall of the cap is projected. The tin or wooden cone is used for shaping the round walls of the cap while knitting. After the cap is complete, the round edge is so knitted that the threads do not come out and dismantle the cap. The artisan keeps a picture of a cap of particular design and colour in the mind. The compact crocheting is done for preparing a particular design at a particular place of the cap. Accordingly, the artisan uses coloured or *jari*

thread from a separate ball of each type of material when required.

DESIGNS

IV.6 The Vohra cap has special utility as headwear and is knitted in the shape of a cone. Most of the caps are in print patterns. Only geometrical and floral designs are knitted without any change or variation even in present times. Besides geometrical designs like squares, triangles, etc., there are various motifs like *lito*, *buti*, *badam*, cut, *laheria*, *ada laheria*, *panch feni buti*, *pandadi*, *khajuri*, *eko*, *galicha*, etc., usually produced in three colours—white, black and brown which are very popular. Religious motifs like *chand* or crescent are avoided. There is no special history or legend behind these designs but the cap has always been popularly known as *mullaji-ni-topi*. The cap is light and convenient in use as a headgear, because it permits free movement of air owing to numerous pores in the knitted material.

SECTION V

ECONOMIC CHARACTERISTICS

V.1 ARTISANS ENGAGED in this craft have not to invest any working or fixed capital. They get the requisite raw material on piece-work basis from either the institution or traders. Even in Saifi Grih Udyog, the capital investment hardly amounts to Rs. 5,000. This amount is made available by the community organisation, Anjumane Kutbi, from the donations it receives from its members for the welfare activities it conducts for the benefit of the community. The amount invested by private traders in this craft is Rs. 1,000. Thus the total capital investment in this craft is estimated to be Rs. 5,000 to 6,000.

V.2 While making a simple cap of 20" to 24" having a wall of 4", 7½ grams of white thread worth Rs. 1.77 are required. Other expenses and crocheting charges per cap are computed as 0–23 paise and Rs. 2.00 respectively. Thus the cost price of a simple cap comes to Rs. 4. Similarly, in making of a cap of cotton and *jari* thread of the above size, 5 grams of *jari* thread worth Rs. 5 and half a reel of white thread worth Rs. 1.25 are required. Other expenses and crocheting charges per cap nearly amount to Re. 1.00 and Rs. 5.00 respectively. The cost price of such a cap comes to Rs. 12.25. The profit is charged at the rate of 15 per cent on the cost price. Particulars of cost of production and number of caps produced in a year are given in the following statement.

STATEMENT V

Cost of production

			Raw materials						Annual average production	
Type of cap	Size	Name	Quantity consumed per cap	Value of quantity consumed per cap Rs.	Other expenses per cap Rs.	Piece wages paid per cap Rs.	Cost price per cap Rs.	Sale price per cap Rs.	No. of caps	Total sale value of caps Rs.
1	2	3	4	5	6	7	8	9	10	11
1 White or black cap (cotton thread)	20" to 24" (circumference) 4"wall	White thread	7½ grams	1.77	0.23	2.00	4.00	4.60	500	2,300.00
		Black thread								
2 Simple cap (cotton and Jute thread)	,,	Black thread	2½ grams	0.62	0.23	2.50	5.85	6.75	350	2,362.50
		Jute thread	25 grams	2.50						
3 Cap of Jari and cotton threads	,,	Jari thread (Gold)	5 grams	3.00	1.00	4.00	9.75	11.25	150	1,687.50
		White thread	¼ reel	0.50						
		Brown thread	¼ reel	1.25						
4 White cap (with superior Jari thread)	,,	Jari thread (Silver)	5 grams	5.00	1.00	5.00	12.25	14.05	100	1,405.00
		White thread	½ reel	1.25						

V.3 An artisan gets Rs. 2 for crocheting a simple cap and Rs. 5 for a *jari* cap. A cap is prepared within 3 to 5 days working for 3 to 4 hours daily on an average. The daily earnings of an artisan working part-time varies from 0-62 paise to Re. 1.00. A regular artisan thus gets Rs. 10 to Rs. 25 per month which brings her an annual income of Rs. 120 to 300. The annual wages paid by the institution, Anjuman-e-Kutbi to the workers are estimated to be Rs. 3,000 to 4,000. Artisans are paid in cash on piece-work basis. As this is a home craft and only a part-time activity no holidays are observed except Muslim religious days like Muhurram, etc.

V.4 In the past, four cloth merchants used to get this work done by 20 Vohra females on piece-work basis after giving them design and raw materials required. Their main occupation was sale of cloth and dealing in crochet work was a subsidiary occupation which they have now given up.

SECTION VI

FINISHED PRODUCTS

VI.1 AT JAMNAGAR only Vohra caps, which are used as headgear by Daudi Vohras only, are crocheted in a conical shape. The size of the cap varies from 18" to 20" in circumference at the top and 23" to 25" in circumference at the bottom, and has a height of 4" to 5". There is no difference in the present rate of production as compared to the past except that better quality of raw material is used now. The price of the cap depends upon its size and the type of raw materials used in its manufacture, and varies from Rs. 5.00 to Rs. 7.00 for cotton and from Rs. 11.00 to Rs. 25.00 and even up to Rs. 40 for those having *jari* thread.

VI.2 It is estimated that 1,000 to 1,200 caps worth Rs. 8,000 to 10,000 are manufactured at Jamnagar every year. According to the report on "Marketing Clinic on Saurashtra Handicrafts by All-India Handicrafts Board (1958)," the total annual sale of Vohra caps in Saurashtra is estimated at Rs. 35,000 approximately of which the Association at Jamnagar accounts for an annual business of Rs. 7,000. Fifty per cent of the households using these caps themselves prepare them. There is no restriction about particular designs to be prepared by a particular family. No attempt has been made for standardisation of production. The caps of Saifi Grih Udyog run by Anjumane Kutbi are greatly appreciated by experts of the All-India Handicrafts Board and others on account of their splendid workmenship.

MARKETING

VI.3 Besides the local market, caps are sold in big towns and cities of Gujarat with concentration of Vohras who are only consumers of the finished product. People of this community purchase them when they happen to visit Jamnagar, while local Vohras purchase them for their own use or as an artistic gift for their relatives outside Jamnagar. Caps are sold by the Saifi Grih Udyog, Jamnagar and local traders mostly on retail basis. Generally the sales are on cash basis and sometimes on credit basis.

Misri Ramzan and Rabi-ul-Akhar are two peak months for the sale and production of these caps. According to the general tradition an old cap is substituted by a new one after the month of Ramzan. Moreover, the use of a new cap during *namaaz* on Ramzan Id is compulsory. A big *urs* of Vohra community is held in the month of Rabi-ul-Akhar when visitors from Ceylon and Pakistan gather at Jamnagar when Vohra caps are purchased.

VI.4 The finished articles are displayed in cupboards or show cases and also preserved in tin boxes or cylinders of the size of the cap. For despatching them to other places, they are packed in tin or hard paper board boxes.

VI.5 Caps were exported to Ceylon, Africa, Arabia till 1958–59 when the total production in Saurashtra was estimated to be Rs. 35,000. The younger generation in big cities and towns has no liking for such caps which it does not consider to be an essential part of their wearing apparel. The demand is now restricted only to staunch and orthodox Vohras.

VI.6 Such caps are knitted by Vohra ladies for the use of their family members also at other places like Jodia, Dhrol, Rajkot and other places in Gujarat. Owing to the limited nature of demand of this article the need for market intelligence and other publicity measures has not so far arisen for different designs of these articles.

ORGANISATIONAL CHARACTERISTICS

VI.7 As seen earlier Saifi Grih Udyog, an institution run by Anjumane Kutbi for the welfare of the community provides knitting, crocheting and embroidery work to about 100 females of the community on piece-work basis. Financed by rich persons of the community, it provides supplementary means of livelihood during leisure hours. The organisation has invested Rs. 5,000

in this craft and manufactures 800 to 1,000 caps worth Rs. 5,000 to 7,000 a year. It supplies conical moulds and sometimes scissors and needles to the workers and arranges to deliver raw material and receive finished products in return. Apart from the institution a few traders are also engaged in the sale of the Vohra caps.

TRAINING

VI.8 Needle work seems to have been a very ancient craft. Embroidery is referred to in *Vedas* and the Indian epics. Saurashtra and Kutch embroidery is most decorative, colourful and ornamental. It is practised mostly in rural areas by such communities as Kanbi, Ahir, Bharwad and other pastoral and agricultural castes during leisure hours to embellish their garments and not for sale. Artistic embroidery work is produced by geometrical and floral designs with motifs like leaves, flowers, birds and sometimes human figures woven artistically in vivid colours. According to the social customs prevalent in rural communities certain embroidery articles woven by the bride before marriage are given to her at the time of the *ana* ceremony, when she goes to live with her husband. This custom has kept this home craft alive to this day in Peninsular Gujarat. Young girls in their teens embroider various articles such as bed-sheets, pillow-covers, *chakla*, *toran*, *pachhit-pati*, *zul*, etc. Embroidery and knitting is essentially a native art which girls learn from their childhood. The art of crocheting was practiced even before migration to this place. Being a home craft, any person can be easily trained within 2 to 3 months.

SECTION VII

CONCLUSION

VII.1 CROCHETING IS an art of leisure. Females practise it when not occupied in household chores or other work, and thereby supply the need of the family or supplement its income by working during spare hours. As long as Vohra community uses these caps, the demand for Vohra caps will continue. The demand has declined in recent times because young men do not like this type of headgear which is nowadays worn only by the orthodox members of the community. The traders feel that if the government cases the restrictions imposed on imports and reduces excessive duties levied of these articles, they can find a good market in Ceylon, Africa and Arabia.

VII.2 The workers who at present crochet only Vohra caps should enlarge the range of production by crocheting various other articles used for domestic, decorative and ceremonial purposes. The artisans can easily divert their attention to the production of articles which would suit modern tastes and requirements. These may be (i) table mats, (ii) tea-cosy, (iii) glass bottoms, (iv) glass covers, (v) tray-clothes, (vi) door curtains, (vii) window curtains, (viii) ladies' belts, (ix) ladies' purses and bags, (x) lamp shades, (xi) door frame strips and festoons, (xii) wall hangings, (xiii) decorative arches, (xiv) collars, (xv) cuffs, (xvi) gloves, (xvii) jackets, (xviii) frocks, (xix) radio covers, (xx) pillow-covers, (xxi) bed-sheets, etc. Produced in suitable colour combinations and patterns these articles will help promote an export market for which good possibilities exist. All-India Handicrafts Board can help in this direction by creating market for them by giving wide publicity through emporia and exhibitions.



Vohra ladies crocheting caps

PLATE II



With the needle and accessories



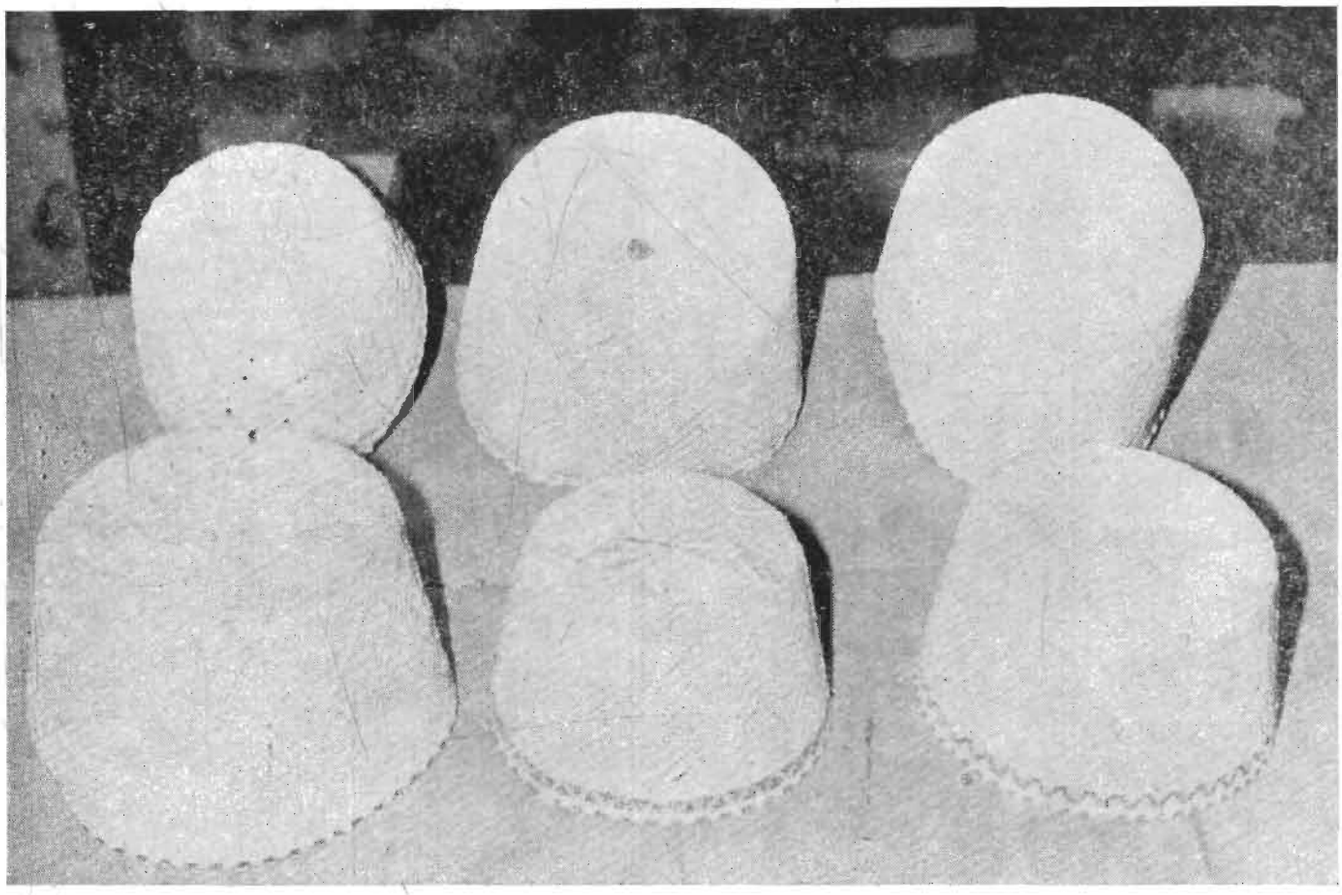
Operating the hooked needle

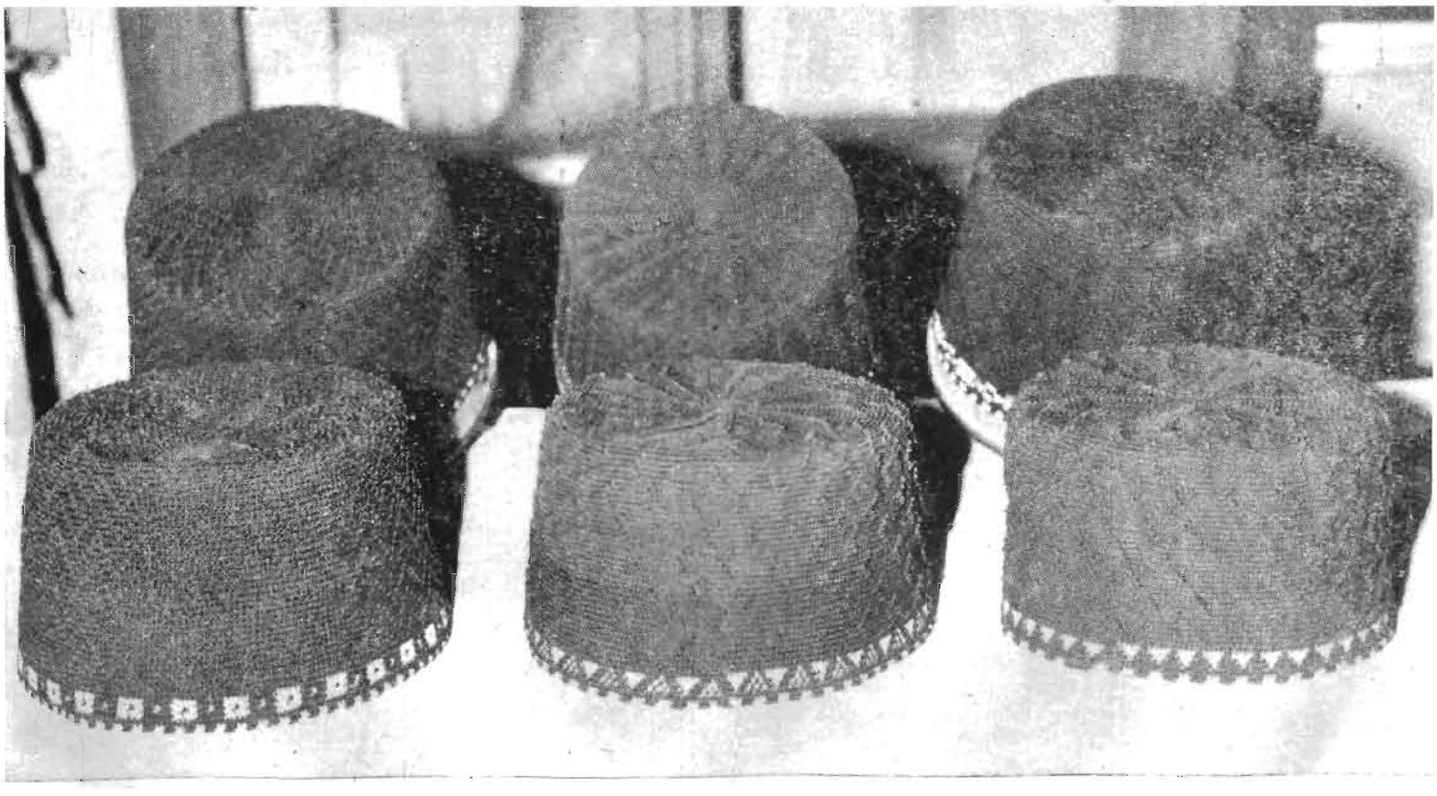


Semi-finished cap pressed on mould for proper shape

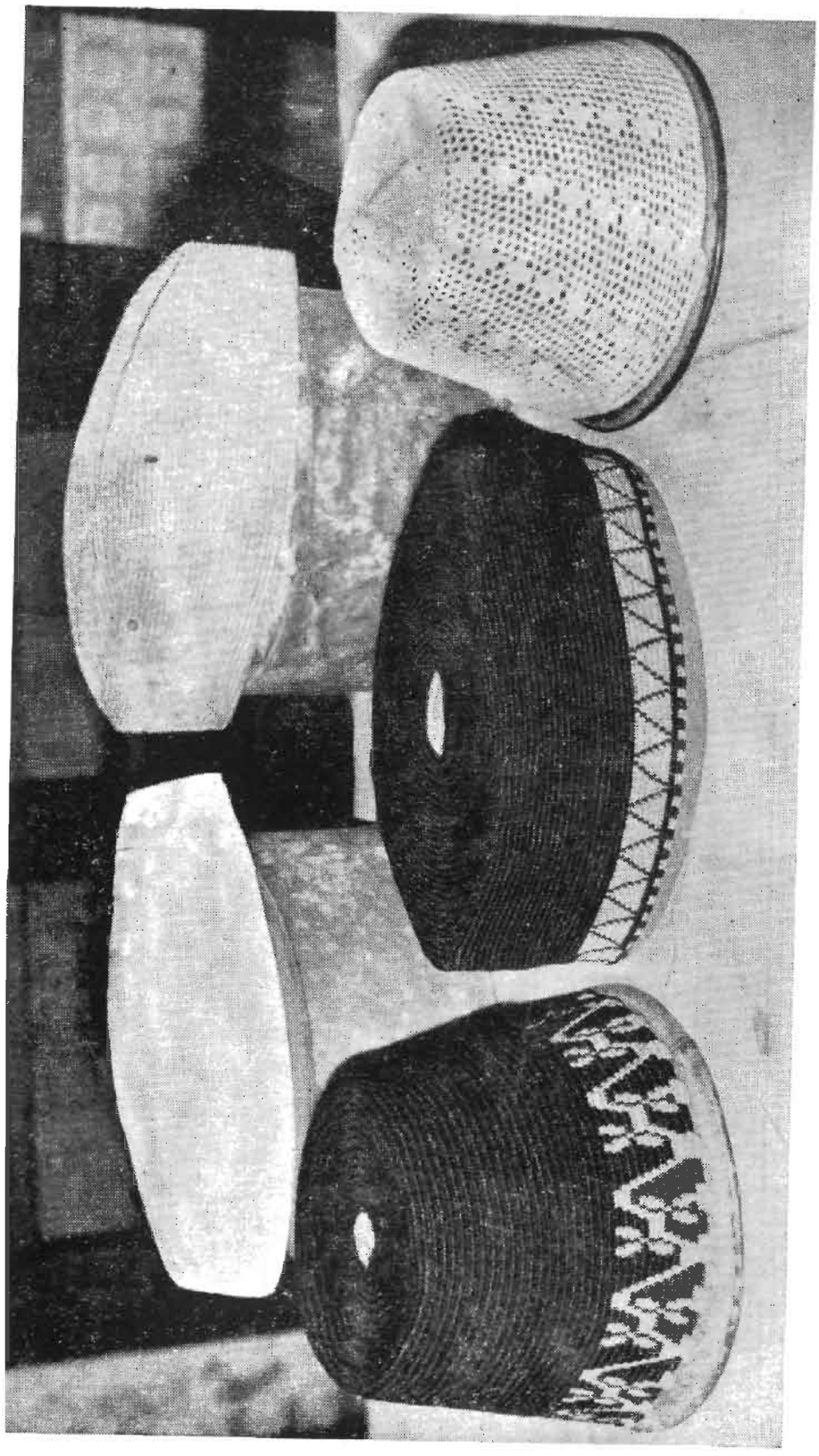


Looping white and coloured threads for appropriate designs

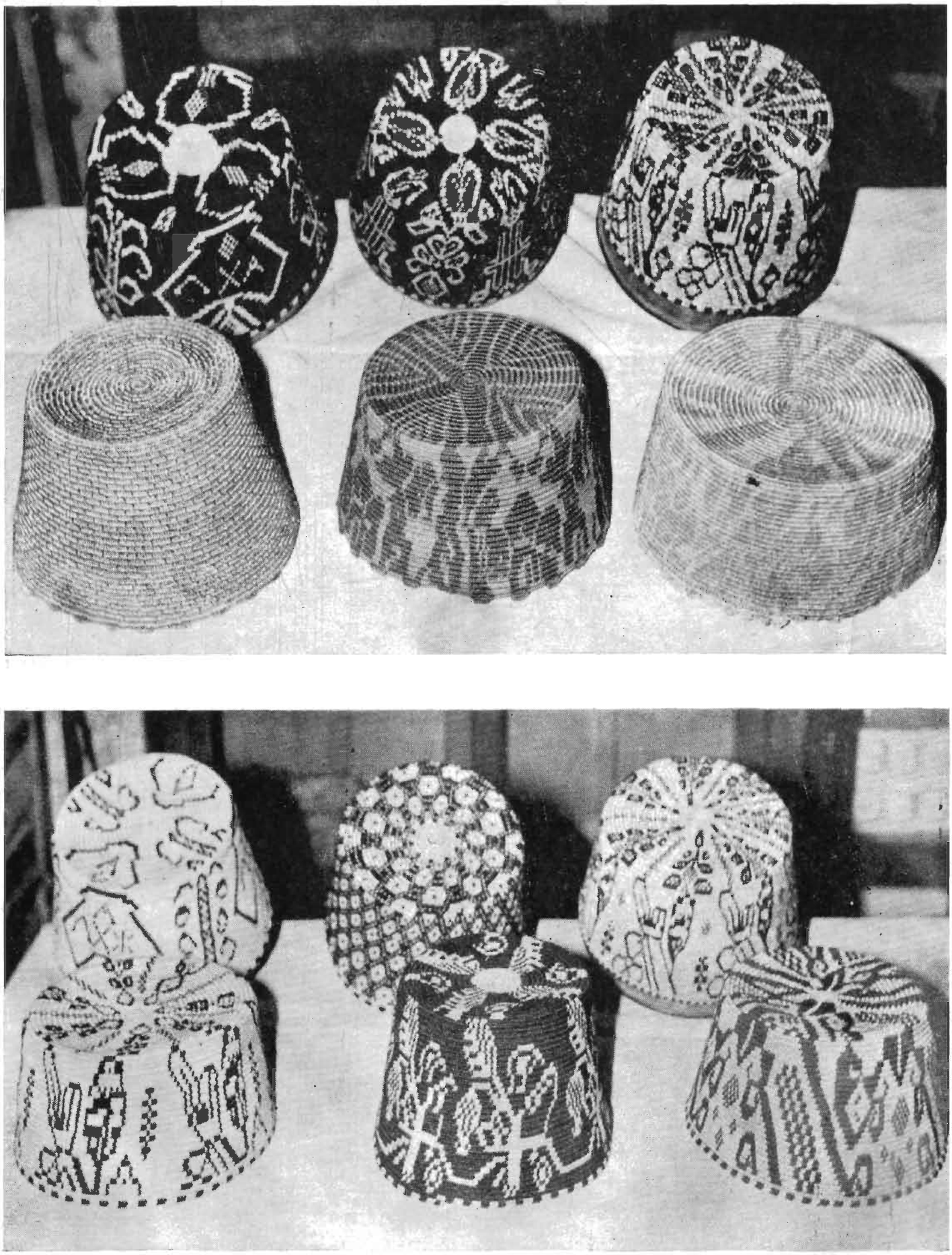




Plain caps with simple borders



Caps of different shapes

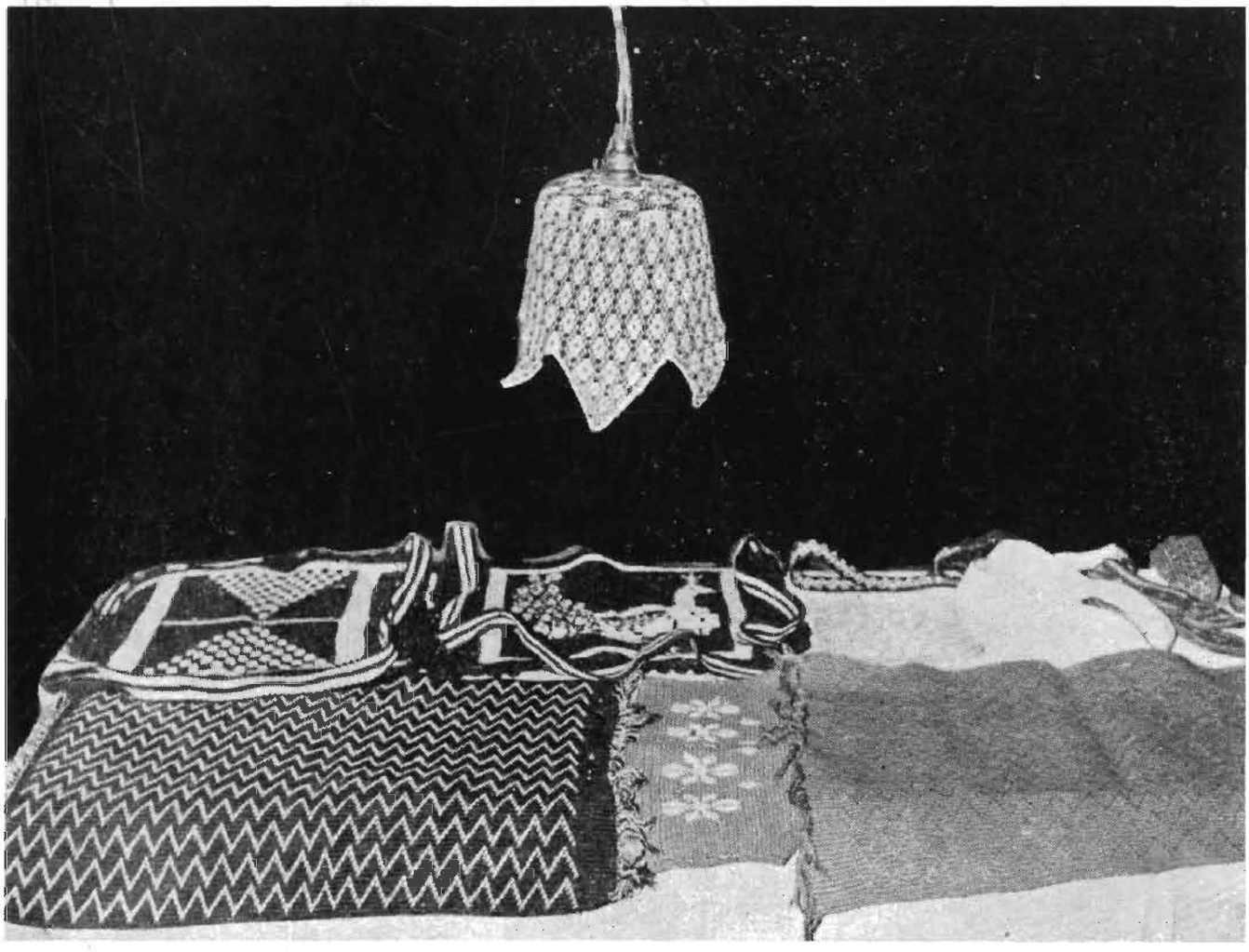


Floral and geometrical designs





Finished caps, a close up



Other varieties of crocheted articles

PLATE X



Sales Depot — Saifi Grih Udyog, Jamnagar

PLATE X



Sales Depot—Saiſh Grih Udyog, Jamnagar

APPENDIX

APPENDIX

TABLE I

Number of persons employed in production

Name of craft	Centre surveyed	No. of households surveyed	No. of family members of surveyed households employed in production		
			Persons	Males	Females
1	2	3	4	5	6
Crochet work (Vohra cap)	Jamnagar	8	12	-	12

TABLE II

Distribution of artisan communities

Name of craft	Name of caste or community	No. of Villages/ towns surveyed	No. of families studied	Total number of adult workers			Number of families working under cooperation	No. of families working in own houses or in workshops set up by their employers
				Persons	Males	Females		
1	2	3	4	5	6	7	8	9
Crochet work (Vohra cap)	Muslim-Vohra (Daudi)	1 (City)	8	12	..	12	..	8 (in own house)

TABLE III

Distribution of articles of rural crafts by materials used

Name of article	Main material		Subsidiary material		Raw material imported	Remarks
	Name of material	No. of villages/ towns/families engaged in manufacture	Name of material	No. of villages/towns/ families engaged in manufacture	Place from which imported (Name of State or Country)	
1	2	3	4	5	6	7
Vohra cap Circumference 20" to 23" Height 3" to 5"	White coloured cotton and silk thread (black, yellow)	1 (City)	Jari thread Jute thread	Imported (N.A.)	Bombay Ahmedabad	-

TABLE IV

Designs

Name of craft	Name of article	Number of villages/towns/families engaged in manufacture indicating the sources from which they receive designs						Name of design	
		Traditional	Self-designed	Middlemen who under take marketing	Design centres	Cooperative sales societies	Other sources	Name	No. of villages/towns/families engaged in its manufacture
1	2	3	4	5	6	7	8	9	10
Crochet work	Vohra cap	1 City*/8 Households surveyed	..	..	..	..	..	Vohra cap (Leaves,-squares, karolia, badami, khajuria, Geometrical)	1 (City)/(8)

* The designs are traditional. The Saifi Grih udyog suggests the designs of the caps.

TABLE V

Consumption and sale

Name of craft	Name of article	No. of villages/towns/families which entirely produce for use		No. of villages/towns/families which produce for both personal use and sale	No. of villages/towns/families which produce for sale in open market		No. of villages/towns where there are cooperative sales societies	Remarks
		Domestic use	Use for ceremonial purposes		Order of middlemen who advance money and undertake marketing facilities	Others		
1	2	3	4	5	6	7	8	9
Crochet work	Vohra cap	..	..	1 (City)/(8)*	1 (City)/(8)†	..	..	..

* Ladies crochet caps for the use of family members

† The institution give raw material to artisans to crochet the cap on piece-wages.

TABLE VI

List of very skilled craftsmen of each community

Name of Village/town	Name of craft	Name of community	Names of skilled craftsmen
1	2	3	4
Jamnagar	Crochet work (Vohra cap)	Muslim—Daudi Vohra	Fatubai Karimji Zaveri Fatambai Abdulhusain Kapasi Kherunbai Ibrahimji Gondalwala Mariambai Mahomadali Ghangot Zapnabai Abdulhusein Diwan

TABLE VII

Literacy and educational status

Age group	Total	Illiterate	Literate and educated		
			Primary	Secondary	Matriculate
1	2	3	4	5	6
Persons	45	9	25	10	1
0–14	8	5	3	..	..
15–34	19	..	9	9	1
35–59	16	3	12	1	..
60 and above	2	1	1	..	..
Males	23	3	11	8	1
0–14	4	3	1	..	..
15–34	11	..	3	7	1
35–59	7	..	6	1	..
60 and above	1	..	1	..	..
Females	22	6	14	2	..
0–14	4	2	2	..	..
15–34	8	..	6	2	..
35–59	9	3	6	..	..
60 and above	1	1	..	..	..

TABLE VIII

Economic status

Age group	Total	Workers		Non-workers
		In the craft	In other occupation	
1	2	3	4	5
Persons	45	12	18	15
Below 15	8	..	..	8
15–34	19	4	10	5
35–59	16	8	7	1
60 and above	2	..	1	1
Males	23	..	15	8
Below 15	4	..	..	4
15–34	11	..	7	4
35–59	7	..	7	..
60 and above	1	..	1	..
Females	22	12	3	7
Below 15	4	..	..	4
15–34	8	4	3	1
35–59	9	8	..	1
60 and above	1	..	..	1

GLOSSARY

A

Abhishek . . Sprinkling or pouring water or milk over a deity by chanting of *mantras*
Achho majithio . Light maroon colour
Agarbatti . . Incense stick
Akalu . . Aloe
Akhand Saubhagya Unbroken marital bliss
Alaktaka . . A red tinge
Amavasya . . New-moon day; the last day of the dark lunar fortnight
Ana . . Usually the first occasion after marriage when the married girl goes to her husband's house
Angadia . . Private agency for transport of goods from one place to another through persons engaged in this work
Ankdo or *Ankadiyo* A hook
Ankadiyo banavavo To manufacture hook
Anulepana . . A fragrant ointment prepared from sandalwood paste
Arakanun or *Arakhanun* . . A simple blade
Ari . . Bow-saw
Asali Ruhi Gulab Pure essence of rose flowers
Attar . . Perfume, scent

B

Bajri . . Millet
Baloya or *Baloyu* Thick and broad bracelet
Bandhani . . Tie and dye *sari*
Bapaiyo . . A musical toy
Barmasi . . A variety of rose; evergreen
Bepatiwali chudi A bangle with two strips
Bethak . . A meeting place
Bhabhaka . . A long neck vessel, copper flask
Bhajans . . Devotional songs
Bhajan mandlis A group of votaries singing *bhajan*
Bhammar kadi . A swivel
Bhungali . . A plug
Bidi . . Indigenous cigarette
Borsali . . *Mimusops elingi*
Buttas . . Earrings

C

Chakla . . Square piece of embroidered cloth used for wall decoration
Chameli . . Jassamine; *Jasminum auriculatum*

C-*contd.*

Champa or *champaks* . . *Michelia champaca*
Chand . . Crescent
Chatta . . A variety of raw ivory
Chavi . . A key
Chhabilo . . *Mallotus philippimensis*
Chinu . . An instrument having pointed edge
Chip . . Strip
Chipiya . . A fork
Chowk . . A courtyard
Chudi . . Bangle
Chudo . . Bangles
Chuna . . Lime

D

Dabla banavava Making a lock case
Dal . . Thickness
Dantiya . . Small bangles for children
Darshan . . Sight; Glimpse of the deity in an attitude of reverence and prayer
Deli . . A huge gateway on either side of which is a *bethak* or meeting place separated from the main house by an open courtyard
Devi . . Goddess
Dhandhodi or *Dhandhori* . . Bow string
Dhari . . An axle
Dhoko . . A club
Dholias . . Wooden cots
Ditiyun . . A triangular piece of iron

E

Ekpatini chudi . A bangle with one strip

F

Farasi . . A chisel
Fasali . . A variety of rose

G

Gabhla . . Core
Galanga . . A variety of raw ivory
Galo . . Inner circumference of bangles
Gandhs . . Scents
Ganth . . A cross head

G-*contd.*

Gendai . . A variety of raw ivory
Ghani . . Oil-mill
Ghee . . Clarified butter
Ghero . . Dark
Ghero lal . . Dark red
Ghughra . . A type of toy
Gotras . . Sept
Gram devata . Village gods and goddesses
Gulab . . Rose; *Rosa alba*
Gulkand . . A medicinal preparation made from rose petals
Gunthva-nu-kam . Art of crocheting

H

Hadfa . . A wooden box
Harda . . *Myrobalam chebulic*
Harikatha . . Religious discourse with narratives
Hathodi . . A small hammer or Mallet
Havala . . Transfer credit
Hina . . *Lawsonia alba*
Hundis . . Promissory notes or a bill of exchange

I

Inam . . Gift

J

Jari . . Brocade
Javanti . . Outer covering of nutmeg, *sesbania egyptica*
Jui . . Jasmine

K

Kajal . . Soot; Colyrium; lamp-soot applied to eyes
Kaman or *kal* . Liver of a lock
Kanas . . A file
Kankavati . . A red turmeric holder
Kanku-ni-kanya . Bride is given in marriage without taking bride's price but simply placing vermilion mark on her forehead.
Kanta . . A special needle with crooked point
Kapur kachhali . *Hedychium spicatum*
Karbi . . A conical wooden piece
Karvat . . A saw
Katar . . Scissors; a big pairs of shears for cutting sheets
Kesar . . Saffron, *crocus sativus*
Kevda . . *Pandanus odoratissimus*
Khadi . . Handspun and handwoven cloth
Khambhati talu . A cylinderical shaped lock of Cambay, strong lock
Khas . . *Andropogon squarrosus*
Khatko . . An inner plate of a lock

K-*contd.*

Khilipankhiyali chudi . . The bangles cut at two sides and joined with hinges
Kirtan . . A devotional song
Kundi . . A tank of brick and cement
Kupis . . Leather bottles
Kusum . . A flower, *Carthamus tinctonius*
Kutcha . . Make shift, or of mud

L

Lac . . Sealing wax, a resinous substance
Lati . . Quarter of an inch
Latkaniyum . Knob connector
Laving . . Clove, *Engenia caryophyllata*
Loban . . Benzoin
Lohakar . . Blacksmith

M

Mahabharat . Indian epic
Majith . . The madder plant or *Rubia tinctorum*
Mena . . Indian Jay
Mendi . . *Lawsonia alba*
Mogari . . A wooden hammer
Mosambi . . A variety of ivory
Mosambi modiya . A solid piece of *mosambi* variety
Muni . . A jain saint
Musi . . A variety of ivory
Musi modiya . A solid piece of *musi* variety

N

Namaz . . Prayers offered by Muslims
Nagaraka . . Citizen
Nagar Moth . *Cyperus rotundus*
Nag champak . Yellow *champak*; *Mesua ferra*
Navli . . Small boat

P

Pachhitapati . Embroidered decoration of back wall or shelf of the room
Pakhwaj . . Tapering wooden stick
Pallao . . *Sari* ends
Panch . . Headmen of a caste or community
Papad . . A thin crisp cake made of flour mixed with spices which can be baked or fried
Panchayat . . Board of headmen of a caste or community
Pandadi . . Fragrant leaves of a plant like *Mendi*
Parasmani . . Philosopher's stone
Pardah . . Veil
Parnas . . Cradles
Patiwalu baloyu . *Baloyu* with a groove in the middle
Patru kapvu . Cutting the sheet
Patta or *patti* . A blade
Pucca . . Solidly built; durable
Puja . . Worship

R

Ramayana . . Indian epic
Ratrani . . *Cestrum nocturnum*
Rishi . . Sage
Rosa grass . . Variety of grass with natural fragrance

S

Sada lokhandna kanta . . Simple beam scale
Sada pana . . A simple blade
Sangheda . . Hand operated lathe
Saubhagya . . Eternal married status
Saubhagya chinha A mark of married status
Saugandhikaputika A Box of scents
Saugandhikas . Perfumes
Sev . . Vermicelli
Sevati . . A variety of rose
Shilpa shastra . Science of sculpture
Shisham . . *Dalbergia latifolia*
Sigharo . . Vice
Soya . . A special needle with crooked point
Surma . . Collyrium; sulphuret of antimony
Surma-Jalu . Antimony holder
Suyo . . A pointer

T

Ta devo . . To make hot
Talu . . A lock
Thesi . . Latch
Tika . . Mark of a pigment on forehead
Tin dhari . . Scales having three axles
Toran . . Festoon
Toraniyun . . Bracket

U

Urs . . The celebration of death anniversary of a Muslim saint at his shrine

V

Vadi . . A kind of food prepared of flour with spices which can be fried
Vedas . . Scriptures
Velni chudi . A *chudi* carved with floral designs

Z

Zul . . Cloth border

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List of Agents-*contd.*

LUCKNOW-*contd.*
- Ram Advani, Hazratganj, P. B. 154
- Universal Publishers (P) Ltd., Hazratganj
- Eastern Book Co., Lalbagh Road
- Civil & Military Educational Stores, 106/B Sadar Bazar (R)
- Acquarium Supply Co., 213, Faizabad Road (R)
- Law Book Mart, Amin-Ud-Daula Park (R)

LUDHIANA—
- Lyall Book Depot, Chaura Bazar
- Mohindra Brothers, Katcheri Road (R)
- Nanda Stationery Bhandar, Pustak Bazar (R)
- The Pharmacy News, Pindi Street (R)

MADRAS—
- Superintendent, Government Press, Mount Road
- Account Test Institute, P. O. 760 Emgore
- C. Subbiah Chetty & Co., Triplicane
- K. Krishnamurty, Post Box 384
- Presidency Book Supplies, 8, PycroftRo ad, Triplicanes
- P. Vardhachary & Co., 8, Linghi Chetty Street
- Palani Parchuram, 3, Pycrofts Road, Triplicane
- NCBH Private Ltd., 199, Mount Road (R)
- V. Sadanand, The personal Bookshop, 10, Congress Buildings, 111, Mount Road (R)

MADURAI—
- Oriental Book House, 258, West Masi Street
- Vivekananda Press, 48, West Masi Street

MANDYA SUGAR TOWN—
- K. N. Narimhe Gowda & Sons (R)

MANGALORE—
- U. R. Shenoye Sons, Car Street, P. Box 128

MANJESHWAR—
- Mukenda Krishna Nayak (R)

MATHURA—
- Rath & Co., Tilohi Building, Bengali Ghat (R)

MEERUT—
- Prakash Educational Stores, Subhas Bazar
- Hind Chitra Press, West Kutchery Road
- Loyal Book Depot, Chhipi Tank
- Bharat Educational Stores, Chhippi Tank (R)
- Universal Book Depot, Booksellers & News Agents (R)

MONGHYR—
- Anusandhan, Minerva Press Buildings (R)

MUSSOORIE—
- Cambridge Book Depot, The Mall (R)
- Hind Traders (R)

MUZAFFARNAGAR—
- Mittal & Co., 85-C, New Mandi (R)
- B. S. Jain & Co., 71, Abupura (R)

MUZAFFARPUR—
- Scientific & Educational Supply Syndicate
- Legal Corner, Tikmanio House, Amgola Road (R)
- Tirhut Book Depot (R)

MYSORE—
- H. Venkataramiah & Sons, New Statue Circle
- Peoples Book House, Opp., Jagan Mohan Palace
- Geeta Book House, Booksellers & Publishers Krishnamurthipuram (R)
- News Paper House, Lansdowne Building (R)
- Indian Mercantile Corporation, Toy Palace Ramvilas(R)

NADIAD—
- R. S. Desay Station Road (R)

NAGPUR—
- Superintendent, Government Press & Book Depot
- Western Book Depot, Residency Road
- The Asstt. Secretary, Mineral Industry Association, Mineral House (R)

NAINITAL—
- Coural Book Depot, Bara Bazar (R)

NANDED—
- Book Centre, College Law General Books, Station Road (R)
- Hindustan General Stores, Paper & Stationery Merchants, P. B. No. 51 (R)
- Sanjoy Book Agency, Vazirabad (R)

NEW DELHI—
- Amrit Book Co., Connaught Circus
- Bhawani & Sons, 8-F, Connaught Place
- Central News Agency, 23/90, Connaught Circus
- Empire Book Depot, 278 Aliganj
- English Book Stores, 7-L, Connaught Circus P.O.B. 328
- Faqir Chand & Sons, 15-A, Khan Market
- Jain Book Agency, C-9, Prem House, Connaught Place
- Oxford Book & Stationery Co., Scindia House
- Ram Krishna & Sons (of Lahore) 16/B, Connaught Place
- Sikh Publishing House, 7-C, Connaught Place
- Suneja Book Centre, 24/90, Connaught Circus
- United Book Agency, 31, Municipal Market, Connaught Circus
- Jayana Book Depot, Chhaparwala Kuan, Karol Bagh
- Navayug Traders, Desh Bandhu Gupta Road, Dev Nagar
- Saraswati Book Depot, 15, Lady Harding Road
- The Secretary, Indian Met. Society, Lodi Road
- New Book Depot, Latest Books, Periodicals, Sty. & Novelles, P. B. 96, Connaught Place
- Mehra Brothers, 50-G, Kalkaji
- Luxmi Book Stores, 42, Janpath (R)
- Hindi Book House, 82, Janpath (R)
- People Publishing House (P) Ltd., Rani Jhansi Road
- R. K. Publishers, 23, Beadon Pura, Karol Bagh (R)
- Sharma Bros., 17, New Market, Moti Nagar
- Aapki Dukan, 5/5777, Dev Nagar (R)
- Sarvodaya Service, 66A-1, Rohtak Road, P. B. 2521 (R)
- H. Chandson, P. B. No. 3034 (R)
- The Secretary, Federation of Association of Small Industry of India, 23-B/2, Rohtak Road (R)
- Standard Booksellers & Stationers, Palam Enclave (R)
- Lakshmi Book Depot, 57, Regarpura (R)
- Sant Ram Booksellers, 16, New Municipal Market Lody Colony (R)

PANJIM—
- Singhals Book House P.O.B. 70 Near the Church (R)
- Sagoon Gaydev Dhoud, Booksellers, 5-7 Rua, 3 Idc Jameria (R)

PATHANKOT—
- TheKrishna Book Depot, Main Bazar (R)

PATIALA—

Superintendent, Bhupendra State Press
Jain & Co., 17, Shah Nashin Bazar

PATNA—

Superintendent, Government Printing (Bihar)
J. N. P. Agarwal & Co., Padri-Ki-Haveli Raghunath Bhawan
Luxmi Trading Co., Padri-Ki-Haveli
Moti Lal Banarsi Dass, Bankipore
Bengal Law House, Chowhatta (R)

PITHORAGARH—

Maniram Punetha & Sons (R)

PONDICHERRY—

M/s. Honesty Book House, 9 Rue Duplix (R)

POONA—

Deccan Book Stall, Deccan Gymkhana
Imperial Book Depot, 266, M. G. Road
International Book Service, Deccan Gymkhana
Raka Book Agency, Opp., Natu's Chawl, Near Appa Balwant Chowk
Utility Book Depot, 1339, Shivaji Nagar (R)

PUDUKOTTAI—

Shri P. N. Swaminathan Sivam & Co., East Main Road (R)

RAJKOT—

Mohan Lal Dossabhai Shah, Booksellers and Sub-Agents

RANCHI—

Crown Book Depot, Upper Bazar
Pustak Mahal, Upper Bazar (R)

REWA—

Superintendent, Government State Emporium V. P.

ROURKELA—

The Rourkela Review (R)

SAHARANPUR—

Chandra Bharata Pustak Bhandar, Court Road (R)

SECUNDERABAD—

Hindustan Diary Publishers, Market Street

SILCHAR—

Shri Nishitto Sen, Nazirpatti (R)

SIMLA—

Superintendent, Himachal Pradesh Government
Minerva Book Shop, The Mall
The New Book Depot 79, The Mall

SINNAR—

Shri N. N. Jakhadi, Agent, Times of India, Sinnar (Nasik) (R)

Government of India Kitab Mahal, Janpath, Opp. India Coffee House, New Delhi
Government of India Book Depot, 8 Hastings Street, Calcutta
} For local sales

SHILLONG—

The Officer-in-Charge, Assam Government, B. D. Chapla Bookstall, P. B. No. 1 (R)

SONEPAT—

United Book Agency

SRINAGAR—

The Kashmir Bookshop, Residency Road

SURAT—

Shri Gajanan Pustakalaya, Tower Road

TIRUCHIRPALLI—

Kalpana Publishers, Wosiur
S. Krishnaswami & Co., 35, Subhash Chander Bose Road
Palamiappa Bros. (R)

TRIVANDRUM—

International Book Depot, Main Road
Reddear Press & Book Depot, P. B. No. 4 (R)

TUTICORIN—

Shri K. Thiagarajan, 10-C, French Chapal Road (R)

UDAIPUR—

Jagdish & Co., Inside Surajapole (R)
Book Centre, Maharana, Bhopal Consumers, Co-op. Society Ltd. (R)

UJJAIN—

Manek Chand Book Depot, Sati Gate (R)

VARANASI—

Students Friends & Co., Lanka (R)
Chowkhamba Sanskrit Series Office, Gopal Mandir Road, P. B. 8
Glob Book Centre (R)
Kohinoor Stores, University Road, Lanka
B.H.U. Book Depot (R)

VELLORE—

A. Venkatasubhan, Law Booksellers

VIJAYAWADA—

The Book & Review Centre, Eluru Road, Governpet (R)

VISAKHAPATNAM—

Gupta Brothers, Vizia Building
Book Centre, 11/97, Main Road
The Secy. Andhra University, General Co-op. Stores Ltd. (R)

VIZIANAGRAM—

Sarda & Co. (R)

WARDHA—

Swarajeya Bhandar, Bhorji Market

High Commissioner for India in London, India House, London, W. C. 2

List of Agents-*concld.*

Railway Book-stall holders

S/S. A. H. Wheeler & Co., 15, Elgin Road, Allahabad

Gahlot Bros., K. E. M. Road, Bikaner

Higginbothams & Co., Ltd., Mount Road, Madras

M. Gulab Singh & Sons, Private Ltd., Mathura Road, New Delhi

Foreign

S/S. Education Enterprise Private Ltd., Kathumandu (Nepal)

S/S. Aktie Bologat, C. E. Fritzes Kungl, Hovobokhandel, Fredsgation-2 Box 1656, Stockholm-16, (Sweden)

Reise–und Verkehrsverlag Stuttgart, Post 730, Gutenberg-stra 21, Stuttgart No. 11245, Stuttgart den (Germany West)

Shri Iswar Subramanyam 452, Reversite Driv Apt. 6, New York, 27 N W Y

The Proprietor, Book Centre, Lakshmi Mansions, 49, The Mall, Lahore (Pakistan)

(On S & R Basis)

The Head Clerk, Govt. Book Depot, Ahmedabad

The Asstt. Director, Extension Centre, Kapileshwar Road, Belgaum

The Employment Officer, Employment Exchange, Dhar

The Asstt. Director, Footwear Extension Centre, Polo Ground No. 1, Jodhpur

The Officer I/C., Extension Centre, Club Road, Muzaffarpur

The Director, Indian Bureau of Mines, Govt. of India, Ministry of Mines & Fuel, Nagpur

The Asstt. Director, Industrial Extension Centre, Nadiad (Gujarat)

The Head Clerk, Photozincographic Press, 5, Finance Road, Poona

Government Printing & Stationery, Rajkot

The Officer I/C., Extension Centre, Industrial Estate, Kokar, Ranchi

The Director, S. I. S. I. Industrial Extension Centre, Udhna, Surat

The Registrar of Companies, Narayani Building, 27, Erabourne Road, Calcutta-1

The Registrar of Companies, Kerala, 50, Feet Road, Ernakulam

The Registrar of Companies, H. No. 3-5-83, Hyderguda, Hyderabad

Registrar of Companies, Assam, Manipur and Tripura, Shillong

Registrar of Companies, Sunlight Insurance Building, Ajmeri Gate Extension, New Delhi

The Registrar of Companies, Punjab and Himachal Pradesh, Link Road, Jullundur City

Registrar of Companies, Bihar, Jammal Road, Patna-1

Registrar of Companies, Raj, & Ajmer; Shri Kamta Prasad House, 1st Floor, 'C' Scheme, Ashok Marg, Jaipur

The Registrar of Companies, Andhra Bank Building, 6 Linghi Chetty Street, P. B. 1530, Madras

The Registrar of Companies, Mahatma Gandhi Road, West Cott. Bldg. P. B. 334, Kanpur

The Registrar of Companies, Everest 100, Marine Drive, Bombay

The Registrar of Companies, 162, Brigade Road, Bangalore

The Registrar of Companies, Gwalior

Asstt. Director, Extension Centre, Bhuli Road, Dhanbad

Registrar of Companies, Orissa, Cuttack Candhi, Cuttack

The Registrar of Companies, Gujarat State, Gujarat Samachar Building, Ahmedabad

Publication Division, Sales Depot, North Block, New Delhi

The Development Commissioner, Small Scale Industries, New Delhi

The Officer I/C., University Employment Bureau, Lucknow

Officer I/C., S. I. S. I. Extension Centre, Malda

Officer I/C., S. I. S. I. Extension Centre, Habra, Tabaluria, 24 Parganas

Officer I/C., S. I. S. I. Model Carpentry Workshop, Piyali Nagar, P. O. Burnipur

Officer I/C., S. I. S. I. Chrontanning Extension Centre, Tangra 33, North Topsia Road, Calcutta-46

Officer I/C., S.I.S.I. Extension Centre, (Footwear), Calcutta

Asstt. Director, Extension Centre, Hyderabad

Asstt. Director, Extension Centre, Krishna Distt. (A.P.)

Employment Officer, Employment Exchange, Jhabua

Dy. Director Incharge, S.I.S.I., C/o Chief Civil Admn. Goa, Panjim

The Registrar of Trade Unions, Kanpur

The Employment Officer, Employment Exchange, Gopal Bhavan, Mornia

The Officer I/C., State Information Centre, Hyderabad

The Registrar of Companies, Pondicherry

The Asstt. Director of Publicity and Information, Vidhana Saubha (P. B. 271) Banglore