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CENSUS OF INDIA 1961

VOLUME V-PART VII-A

SELECTED CRAFTS OF
GUJARAT

9. SUJANI WEAVING OF BROACH
10. SOAP MAKING AT KAPADVANJ
11. MASHRU WEAVING OF PATAN
12. GLASS WORK AT KAPADVANJ

R. K. TRIVEDI

Superintendent of Census Operations, Gujarat

PRICE Rs. 7.75 or 18 Sh. 1 d. or $ U.S. 2.79

CENSUS OF INDIA 1961

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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 a 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 customer's 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 fifth in the series of selected crafts. It reviews crafts such as (i) Sujani Weaving of Broach, (ii) Soap Making at Kapadvanj, (iii) Mashru Weaving of Patan and (iv) Glass Work at Kapadvanj. The earlier publications relate to (i) Agate Industry of Cambay, (ii) Wood-carving of Gujarat, (iii) Patara Making at Bhavnagar, (iv) Ivory Work of Mahuva, (v) Padlock Making at Sarva, (vi) Scale Making of Savarkundla, (vii) Perfumery at Palanpur and (viii) 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 Census Commissioner, India, for his valuable guidance in the organisation of this survey in Gujarat.

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

AHMEDABAD,
December 18, 1967.

1. SUJANI WEAVING OF BROACH

SECTION I

INTRODUCTION

Introduction

I.1 Need for protection from the rigours of climate has been responsible for the manufacture of a variety of artistic articles, which man has, through his creative urge and aesthetic sense, embellished in various ways. *Sujani* of Broach which forms the subject matter of this monograph is one of them. It is a padded quilt suited for protection against the light cold of the tropics. Its main peculiarity is that it is woven on the loom by inserting cotton pads, and differs from *rajai* or cotton quilt which is made by filling up the cloth cover with cotton and then stitching it with geometrical designs.

Location

I.2 Broach is the main centre of the craft, with regular and continuous production all the year round. A junction station on the Bombay-Baroda broad gauge line of the Western Railway 201 miles north of Bombay and 44 miles south of Baroda, it is situated on the National Highway No. 8. It is a minor port on the holy river Narmada which meets the Gulf of Cambay 30 miles in the west. A district headquarters, town, and a municipal borough, Broach has seen glorious days in the distant past; when it was called Bhrigukachchh, from which its present name is derived. Known as Bargaza to Ptolemy (2nd century A.D.), it was one of the principal ports of India, trading with maritime countries all over the known world. It was, therefore, a prosperous town with extensive trade and many flourishing handicrafts.[1] The area roundabout, known as Kanam, has rich black soil which is very suitable for growing cotton. Naturally, therefore, the textile industry flourished at Broach in olden times when the artistic talent of its skilled craftsmen produced various types of cotton textiles famous all the world over. Since the handicraft of *sujani* transferred the manufacture of cotton quilts from cotton carders or *pinjaras* to skilled weavers, the location of the industry at Broach seems quite natural from the points of the view both of easy availability of the raw material, namely, cotton and the manufacturing skill developed by its weavers. It may be truly said that the handicraft of *sujani* weaving is essentially an offshoot of the handloom industry of Broach.

1. For a more detailed account of Broach, see Appendix II.

SECTION II

CRAFTS AND CRAFTSMEN

Historical Background

II.1 The handicraft of *sujani* manufacture originated at Broach only a century ago. It is said that it was first started in about 1860 A.D. by those transported to Andaman and Nicobar Islands* for taking part in the Indian Mutiny of 1857, on their return to Broach after their release.[1]

II.2 The development of this industry at Broach is attributed to one Nabubhai, a Muslim artisan and merchant of Broach. His father Husainbhai was a writer in the service of the Nawab of Broach. In 1857, when Nabubhai was about 15 years of age, Husainbhai was arrested as a result of a false complaint lodged against him for taking an active part in the mutiny. He was transported to Andaman and Nicobar Islands, and released after five or six years. While there, he took a second wife whom he brought to Broach after his release. Husainbhai's son named Abdul Rahman, born of the second wife, died at the age of 65 leaving behind one married son Miya Ahmed, who stays in a rented house and earns his livelihood from *bidi* making.

II.3 It is said that Nabubhai conceived the idea of weaving *sujani* from a *sari* with the design of squares resembling a table cloth about one hundred years ago. A weaver by occupation, he used to produce cloth of *chorsa* or square design which was used as bed-sheet, table cloth, curtain and *lungi* or waist cloth used by Muslims. One night he saw in a dream a novel technique of weaving *sujani*. Getting up early in the morning he translated his dream into action and thus the *sujani* was born. Nabubhai died in 1941 at the age of 99 years.

II.4 The weavers explain that the name *sujani* is derived from *sujavu* which means to strike or conceive. However, the dictionary derives it from the Persian word *sujan* meaning a needle and *sujani* meaning needle work. It is possible that the name which might have been applied earlier to quilts which required stitching, was later on adopted for those which were woven on the loom.

II.5 All the workers in this industry are Sunni Muslims, belonging to Shaikh families. The word Shaikh means a venerable person. Originally indicating a nobleman in Arabia, it is also applied to local converts to Islam. They follow the religious and social customs and practices of Sunni Muslims in the area.

II.6 Originally there was only one Muslim family of Nabubhai engaged in this craft. But, in 1935 it got divided into two due to increase in the number of family members. There are in all three families engaged in this craft to-day, the third one being unrelated to the other two. It is descended from one of the workers hired by Nabubhai.

II.7 About 60 years ago, the family of Nabubhai was carrying on business besides subsidiary occupation as weaver. It is said to have prospered by contracts with the local Gopal Mill, now known as Broach Textile Mill. At that time weaving was a subsidiary occupation for them as cotton yarn was procured in exchange of cotton. At present *sujani* weaving is the main occupation, the subsidiary occupations being *bidi* making and service in the mill.

Households Engaged

II.8 Only three families are engaged in this

1. Desai Ganpatram Himmatram, *Bharuch Shaheer-no Itihas–Prachin ane Arvachin*, pp. 267-293, 1914

* In Manipur, similar padded quilts are manufactured on looms. These are known as *khes* there. It is likely that Husainbhai, father of Nabubhai learnt this technique from some fellow convict at Andaman. Inspite of the above story in circulation at Broach, it is not unlikely to be a case of adoption of the craft through culture contact.

craft. They comprise 52 members, of whom 30 are males and 22 are females. The average size of the family is quite large. One of the families has 32 members and the other two 11 and 9 respectively. Two of them are joint. The total number of persons working in this craft is 14 (26.92 per cent), comprising 10 males and 4 females. Hired workers are not engaged because of the availability of man-power from the family itself. Persons aged of 17 to 60 normally work in this craft.

Literacy

II.9 Thirty seven or 71.15 per cent of the family members in three households are literate. Among males, 6 are illiterate, while 20 have taken primary education and 4 secondary education. All the males aged 10 and above are literate. Among females, 9 out of 22 are illiterate, while 12 have taken primary education and one has studied up to secondary education. The percentage of literacy is fairly high, viz., 80 per cent among males and 59 per cent among females, whereas no one has passed the matriculation stage. Among workers, all the 10 males are literate, 7 of them having taken primary education, and 3 having reached the secondary stage. Of the 4 female workers, two are illiterate, and two have received primary education. On the whole, the proportion of literacy among these families is high owing to their urban residence and good financial position, their income from *sujani* weaving being supplemented by subsidiary occupation.

Marital Status

II.10 Among the workers engaged in this craft, 5 out of 10 males are married, and the rest unmarried. Among female workers, 3 are married and one widowed. Children do not participate in the work. Women either help men by putting cotton in the squares while weaving, or tie edges of the woven pieces.

Workshop-cum-Dwelling

II.11 All the three establishments engaged in this craft are in one locality which itself is known as *sujanivad* after this craft. The houses in which the artisans live are workshop-*cum*-dwellings which are self-owned. The workshop consists of a separate room in the front portion of the house on the ground floor. The average size of the workshop being 267 sq. feet. Two of the workshops have an area of about 250 sq. feet each, while the third unit has a bigger workshop. They are well-ventilated. Each household spends about Rs. 150 to 200 annually on repairs of the house.

SECTION III

RAW MATERIALS

III.1 THE MAIN RAW materials used in *sujani* weaving are mill-spun undyed cotton yarn No. 60 or 80 and 20 and cotton which are available in the local market, or purchased at Surat, about 37 miles away in the south-east. For dyeing the yarn, direct colours (I. C. I.) are used. For preparing costlier varieties of *sujani*, rayon, artificial and pure silk, and even *jari* threads are used for weaving squares. All these articles are generally bought on credit for about one month. No difficulty is experienced in obtaining the raw materials.

The prevailing prices of the raw materials are given below.

STATEMENT I

Prices of raw materials, 1964

Sl. No.	Name of the material	Unit	Price Rs. P.	Place from where purchased
1	2	3	4	5
1	Mercerised yarn (Baroda Mill) Double Ply, 80–2	4.54 kg.	90–00	Surat
2	Mercerised white staple yarn (Finlay Mill, Bombay)	5 kg.	42–00 to 43–00	Surat
3	Cotton yarn (Century Mill) No. 30 to 60 (single)	10 lbs.	35–00 to 50–00	Surat
4	No. 150 (single)	kg.	16–00	Surat
5	Bangalore silk yarn (single)	lb.	55–00	Surat
6	Chinese silk (single)	lb.	60–00	Surat
7	Artificial silk yarn (called 'staple')–2/40	lb.	40–00	Surat
8	Rayon, white (National Rayon, Kalyan)	5 kg.	70–00	Surat
9	Jari thread	Tola	3–00	Surat
10	Cotton (Palej-Broach)	B.mds.	90–00	Broach
11	Colours (I.C.I.)	10 grams	1–25	Surat

SECTION IV

TOOLS AND TECHNIQUE

Tools and Implements

IV.1 The tools and implements used in *sujani* weaving are traditional instruments, the chief among them being the ordinary throw shuttle pit loom used in cotton weaving. The other articles used include *firki*, *charkha*, and *nari* (नरी) a piece of *munj* grass 3" or 4" long used for pirns. The price of each of these articles is given below.

Implements	Local name	Year (1964) Price Rs. P.
Throw-shuttle pit loom (size 52, 60, 66 or 72 inches) . . .	Shal	325-00
Spinning wheel . .	Charkha	40-00
Shuttle . . .	Shatal	4-00
Reel	Firki	0-75
Pirn	Nari	0-06

The important parts of the loom are :

Parts	Local name	Price Rs. P.
Healds (16) . .	Rachh	96-00
Reed (72") . . .	Fani	30-00
Weaver's beam . .	Tur	30-00
Paddles (16), nails (6), ropes, etc. . . .	Pavdi, Khila, Jotra, etc.	30-00
Pulley (16), string, etc.	Galli, etc.	12-00
Handle . . .	Hatho	20-00

IV.2 All these implements are made by local carpenters and can be purchased in the local market. They can also be purchased at Surat and Ahmedabad. In 1938–40 the cost of tools and implements for one unit was computed at Rs. 200. There has thus been an increase of about 85 per cent over the past 25 years.

Technique

IV.3 The weaving process of the *sujani* is very simple, following as it does the technique of simple cloth weaving. In fact, the *sujani*, can technically be called 'double cloth', because of its having two distinct layers.

Warp and Weft

IV.4 After obtaining mill-spun white cotton yarn No. 60 or 80, etc., in packets weighing 10 lbs. each from the market, all the hanks are separated from the bunches and soaked in cold water. The second stage is the wrapping of yarn. It is done with the help of a *charkha* or spinning wheel and the yarn for the warp is taken on *firki* or reel while that for the weft is wrapped on *kandis* or pirns. Threads of different colours are taken on separate *firkis* and pirns according to requirements. It is mostly ladies who carry out this operation. The yarn for weft is wrapped on pirns while that for warp on a *firki* or reel. The pirn is first fixed on a spinning rod called spindle, whereas the *firka* is fixed just opposite to the spinning wheel on wooden pegs on which it can rotate. When the spinning wheel is rotated the pirn fixed on the spindle also rotates and winds up the thread over it from *firka* which rotates in the reverse direction unwinding the yarn. The yarn for warp is taken on reel by a similar process. Warp of different colours is wrapped on different reels.

IV.5 The next stage is the preparation of warp. It is done in the open compound of the workshop-*cum*-dwelling or in the open space in front of the house. Sometimes due to the shortage of space, this is done outside the residential locality, in the outskirts of the town. Eight wooden pegs, about 1½ feet in length, are fixed in the ground so as to form a square with two pegs in each corner. The worker, generally a woman, stands in the midst of this square and keeps in one hand a *firki* of yarn and in the other a hooked wooden stick five feet long. As she goes round on the inside of the square revolving the *firki* in her hand, the thread passes from the hook on the stick, and is wound around the pegs. The threads are arranged according to different colours. This process somewhat resembles the drawing of a circle by a compass, and known as warping. The preparation of warp and weft is nowadays got done by the workers at Surat, on payment of labour charges at the rate of Rs. 6 per packet of yarn weighing 10 lbs.

Dyeing

IV.6 The next stage is dyeing of white yarn

into green, blue and scarlet in light or dark shades according to the colour scheme desired. Dyeing work is normally got done by professional dyers on piece-work basis. But when some special colours are required, as per orders of the customers, the artisans themselves dye the yarn as the quantity is too small to be given to the dyers. Direct (I.C.I.) colours are used in this operation, which is done at home by adding salt and alum to the colours and boiling them in brass, copper or earthen utensils on the kitchen hearth.

Sizing

IV.7 The next process is sizing the yarn, called *pavat* (पवात). This is done mostly in the open compound of the workshop or in the open ground near the tank, river or well outside the town. For sizing the warp, it is required to be spread over in such a manner that brush can move smoothly over each and every thread. For spreading warp two wooden poles of 'Y' shape are fixed at two different ends, the distance between the two depending on the length of the warp. The warp is spread over two wooden sticks measuring 52", 60", 66" or 72" according to width of cloth to be woven. The ends of the sticks are tied with ropes and stretched through the 'Y' shaped wooden poles at both the ends. This keeps the whole warp hanging like a bridge. The rope is then tied at both the ends with iron nails fixed on ground. This keeps the warp hanging tight. Wooden sticks are inserted in warp and supported by two bamboo sticks crossing each other to keep it straight and tight and also to prevent the thread from breaking under the pressure of brush while sizing. The solution prepared mostly by boiling *jowar* flour with water is applied to the warp with a brush known as *kangad* (कांगड). The thread does not break under the pressure of the brush as it is supported by sticks. After drying it for some time, the warp is wound on the warp-beam. The weft is also similarly treated along with the warp to save extra labour before winding it on the pirn.

Healds and Reed Making

IV.8 The binding of healds is done after a particular design to be woven is decided. This work requires skill because binding is to be done with careful calculations. The number of healds and paddles are also predetermined according to the design to be produced.

IV.9 For the preparation of reed, the breadth of the *sujani*, i.e., 52", 60", 66" or 72" is taken into consideration. Reeds are made from a special type of grass which itself is known as reed. First the teak laths are tied at particular distances. This systematic division is known as *choras* or square of particular number of reeds or strips. The spaces between the reed are called dents. Two threads of warp are then passed by a crooked needle through one dent of the reed-comb.

Weaving

IV.10 Weaving is done on throw-shuttle pit loom. The warp is spread over the loom keeping the warp-beam at the farthest end from the weaver. The lease-rods are put in the warp spread over the weaving field. The craftsmen sit with weaver's beam over his thighs and legs in the pit over *pavdi* or tradle. Generally two craftsmen work on the same piece simultaneously, each minding half of the loom. With the throw of the shuttle which begins to run with the weft-pirn in the shuttle box, the process of weaving starts. The movement of foot paddles brings the healds up and down. At the first stroke, one set of threads, i.e., the threads of odd numbers will come up, while at the next stroke, the other set of threads of even numbers will come up. Thus alternate threads will go up and down respectively during the weaving. The movement of healds makes a square or floral design with green, blue or scarlet linings on borders and a design of small squares or flowers on corners. The reed is helpful in weaving because it distributes the threads evenly to avoid any disorder, leaves a clear way for the shuttle to run in the shuttle box, combs the threads and gives the necessary pressure to the weft to set it tight across the warp. In the *sujani* in which white and green threads are used in warp and weft, the reverse side of green colour is white and *vice versa*, due to the use of green and white yarn both in warp and weft. The woven fabric is wrapped on a square wooden piece called *tur* (तुर) or the weaver's beam.

IV.11 Inserting of cotton in the square pockets woven in the cloth is done during the course of weaving, i.e., after completion of weaving of every three-fourths of an inch. An iron spoke 5" long with a crooked hook is used for inserting cotton, whereafter further weaving closes the pockets. The square full of cotton looks as if it is stitched after inserting cotton but the resemblance is created by weaving only. Cotton is not inserted in the border, wherein the colours of the main design in the *sujani* are repeated.

IV.12 As soon as weaving is completed, the *sujani* is taken away from the loom and the loose ends of the threads on both the ends are tied and knitted, and the piece is ready for sale.

IV.13 The technique employed has undergone hardly any change except that recently silk yarn and *jari* threads have been introduced in *sujani* weaving to produce simple brocade designs now woven in the body as well as border of *sujani*. The credit for this innovation goes to Shri Abdul Rahim Haji Nabubhai Sujaniwala of Broach.

IV.14 Grass reeds in the handloom are now replaced by reeds of steel to facilitate smooth weaving. Cotton yarn of low quality does not easily pass through grass reeds and is many times cut off. This causes difficulty in weaving with tied pieces of yarn and the *sujani* so woven has many knots in it. This difficulty is not experienced in steel reeds. There does not appear to be any scope of mechanisation in *sujani* weaving by power loom, because after some portion is woven, it is cut off or torn to pieces by the machine and cotton comes out from the pocket. Experiments made in this direction by power loom factories of Broach, Ankleshwer and Surat resulted in failure. It is reported that some Americans and Japanese purchased *sujanis* with *jari* brocade and also took photographs of manufacturing processes but they also could not make them on machine.

IV.15 An experiment was also made to introduce *shemal* cotton, i.e., cotton of white silk cotton tree (*Eriodendron anfractuosum D C*) instead of ordinary cotton, but the *sujani* prepared from it could not give sufficient protection against cold. Another experiment was then tried with some success. Cotton to be inserted in the *sujani* was mixed with wool in equal proportions—$1\frac{1}{2}$ lbs. of cotton mixed with $1\frac{1}{2}$ lbs. of wool. With 2 pounds of yarn added, the *sujani* weighed 5 pounds. This variety is preferred by foreigners as it gives protection against cold, and is also light in weight. The credit for this improvement goes to Shri Hafej Abdul Raheman Abdullabhai Sujaniwala of Broach. It is possible that this variety may get a good response if placed in foreign markets.

DESIGNS

IV.16 Since the primary requirement in *sujani* making is the formation of squares which would hold cotton, there is not much scope for different designs. Normally two types of designs are used. One is a simple geometrical design with black, green or scarlet squares alternating with white ones. The other is a floral design with *buttis* or flowers of four petals woven in the squares by the extra weft method. This seems to be a recent renovation introduced to attract customers.

IV.17 The simple colour scheme consists of coloured squares alternating with white. The following are the colours used in the past and present.

Single colour scheme with white background

PAST : Red, blue and green

PRESENT : Light red; Coffee-brown; Light yellow; Light green; Sky blue; Navy blue and Violet in addition to those mentioned above

Double colour scheme

The following colour combinations are popular in double colour scheme.

(1) Light red and light green
(2) Blue and light red
(3) Blue and light green
(4) Red and yellow
(5) Blue and red

More than two colours have also come to be used in recent times but the basic pattern of alternating squares remains. A light colour is preferred for the background and two to four other colours are matched in one piece of *sujani* to give it a colourful appearance. These designs are set by the artisans themselves.

SECTION V

FINISHED PRODUCTS AND MARKETING

FINISHED PRODUCTS

V.1 THE SUJANI is prepared in the following sizes: 52"×90"; 60"×90"; 66"×90"; 72"×90". Of these, size 66"×90" which has been recently introduced, has been found to be fairly popular. A simple *sujani* weighs 4½ lbs. It lasts for about 10 years, and is also washable. Apart from the simple varieties of *sujani* woven with ordinary designs, many other varieties are prepared if there is a demand for them. The difference in these varieties lies in the raw materials used. For example, rayon, artificial silk or pure silk may be used in weaving, with some variation in designs woven with *jari* threads. These varieties naturally cost more. The prices of *sujanis* range from about Rs. 20 for a simple piece to Rs. 1,100 for the best one with *jari* and silk thread. It has been reported that 22 types of *sujanis* from simple to complex can be made. Simple varieties are regularly produced as the demand for them is greater. The costlier varieties are only manufactured to order. Of late only 16 types of *sujanis* are manufactured, the details of which are shown in Table VII in Appendix I along with their prices.

V.2 The cotton *sujani* is now becoming out of date, being replaced by *sujanis* of finer material like staple yarn, rayon, etc., which are not only more fashionable, but also facilitate smooth weaving. Weaving with superior yarn involves the same amount of labour. Thus, the difference between the prices of different quality products is caused by the difference in the prices of raw materials used. As there would be a difference of only Rs. 3 to 5 between price of artificial silk and cotton *sujani*, people would prefer the former to the latter, though cotton was generally in vogue in former days.

V.3 The *sujani* can be used as bed-sheet, table cloth or carpet. Sometimes it is also used as *musalla* or *sajjada*, the prayer-carpet used at the time of *namaz* by Muslims. It is comparatively light in weight and easy to carry about in travel. It is also a good presentation article, as it is now available in mercerised cotton fabrics, rayon, artificial and pure silk with attractive floral and geometrical designs. A muffler prepared like the *sujani* is a new variation of the finished product. Sometimes parents include *sujani* among articles given to a daughter at the time of marriage.

MARKETING

V.4 The Bombay Economic and Industrial Survey Committee noted that in 1938–40 the clientele was mainly from Broach and Surat districts, but that the demand for the *sujani* had declined owing to 'the imports of cheap rugs and blankets from Japan'[1]. Even now, Surat district consumes most of the products. Inhabitants of the region who have migrated to foreign countries are also patrons of this craft. They purchase *sujanis* for their own use and also as gifts to their friends. It is said that in the past the *sujani*, favoured for its light weight, was one of the woven fabrics exported to Africa, England, America, Burma, Singapore and Japan and also purchased by foreigners visiting Broach which was then an international port. Nowadays the producers sell directly to customers against cash or on credit of a month or so. The District Industrial Cooperative Association also purchases it from the artisans. Thus the sale is mostly on retail basis in the local market. Since production is undertaken with an eye on the pending and expected orders, large stocks do not get accumulated with the workers. There are two retail shops which keep different varieties priced at Rs. 25 to 150.

1. *Gazetteers of India, Gujarat State*, Broach district, p. 538, 1961

SECTION VI

ECONOMIC CHARACTERISTICS

CAPITAL

VI.1 THE CRAFTSMEN invest their own capital. The details of investments per unit are as under :

	Rs. (Approx.)
Raw materials and finished products	1,500
Tools	1,000
Furniture and fixtures . . .	500
Total	**3,000**

A small establishment may keep raw materials worth about Rs. 500 and finished products of an equal value. The most prosperous unit was found to have stored finished *sujanis* worth Rs. 4,000 to 5,000, some of them probably purchased at a profitably low rate from other artisans who are experiencing financial difficulty. The owner of this unit also works as a master craftsman, supplying raw materials to other units and paying labour charges at the rate of Rs. 8, Rs. 12 and Rs. 25 for finished products valued at Rs. 23.75, Rs. 50 and Rs. 70 respectively.

VI.2 Each unit has got its own house with workshop (workshop-*cum*-dwelling) valued at Rs. 6,000 each. In 1955, one unit had received a loan of Rs. 750 from the Cooperative Bank, but this source does not generally suit the craftsmen owing to the strict rules of the Bank, and the procedure which they find cumbersome.

COST OF PRODUCTION

VI.3 The following statement shows the quantity and compares the prices of raw materials required for preparing one piece of *sujani* for 1938-40 and 1961-62.

STATEMENT II

Cost of raw materials, 1938-40 and 1961-62

	Raw material	Quantity required	1938-40 Price per lb. Rs.P.	1938-40 Cost Rs.P.	1961-62 Price per lb. Rs.P.	1961-62 Cost Rs.P.
	1	2	3	4	5	6
1	No. 60 double yarn	1¼ lbs.	5.00	6.25	5.00	6.25
2	No. 20 single yarn	1¼ lbs.	1.69	2.12	2.00	2.50
3	Cotton	2½ lbs.	2.50	6.25	1.12	2.80
	Total			**14.62**		**11.55**

The dyeing of No. 60 double yarn cost Re. 0.94 at the rate of Re. 0.75 per lb. in 1938. Thus the total cost of one *sujani* came to Rs. 15.50. It fetched Rs. 20 per piece.

VI.4 Nowadays the warp and weft are prepared by Khatri and Gola workers of Surat on piece wage basis at the rate of Rs. 5 for 5 kg. Dyeing in the most common colour, blue, is got done by dyers at the rate of Rs. 6.25 for 5 kg. Dyeing in other colours is generally done by the artisans themselves.

VI.5 The present level of annual production, total cost and resultant profit from the manufacture of the common varieties are examined in the statement given below.

STATEMENT III

Annual production, cost and profit

		Approximate annual production				Approximate cost of production				Profit	
Sl. No.	Size	Pieces	Percentage of production	Price rate Rs. P.	Total value Rs. P.	Yarn Rs. P.	Cotton Rs. P.	Dyeing and other charges Rs. P.	Total cost of production (7+8+9) Rs. P.	Amount Rs. P.	Percentage over cost Rs. P.
1	2	3	4	5	6	7	8	9	10	11	12
1	60" x 90"	600	40	25.00	15,000	10,425.00	1,650.00	1,350.00	13,425.00	1,575.00	11.73
2	66" x 90"	450	30	50.00	22,500	17,775.00	1,237.50	1,012.50	20,025.00	2,475.00	12.36
3	74" x 90"	450	30	70.00	31,500	25,785.00	1,237.50	1,012.50	28,035.00	3,465.00	12.36
	Total	**1,500**	**100**		**69,000**	**53,985.00**	**4,125.00**	**3,375.00**	**61,485.00**	**7,515.00**	**12.22**

Source : Local inquiry

As against the total cost of Rs. 61,485 of 1,500 pieces, the realisations come to Rs. 69,000, resulting in a profit of Rs. 7,515 or 12.22 per cent, which includes the remuneration for the labour of the artisans themselves.

EMPLOYMENT AND EARNINGS

VI.6 In all, nine looms are being worked in this craft. A piece of ordinary *sujani* requires 48 hours to complete. It will thus require three days to produce it, if two persons work at it for eight hours a day. In the case of brocaded *sujani*, a third man helps in putting the extra *jari* thread or other weft during the weaving operation. Only four to six inches can be woven in an hour because of the delay involved in inserting cotton in the pockets. Unskilled workers are engaged in winding yarn on *firki*, etc., for eight hours a day. Women generally help by winding dyed yarn on pirns for use in the weft.

VI.7 The artisans work eight hours a day during the period October to May. The four monsoon months of June to September are considered the slack season as the demand is low during this period, and the artisans have four hours of work daily.

VI.8 The total net annual earnings of the three units engaged in *sujani* weaving come to about Rs. 7,500 or giving an average of Rs. 2,500 per family. This works out to Rs. 536 per worker. Thus the worker earns Rs. 44.50 per month on an average. Counting 25 working days to a month, the daily wage comes to Rs. 1.78. In 1938-40 the average monthly income of a worker was reported to be Rs. 22.50, which has doubled in about 20 years owing to rise in prices. The following statement shows the distribution of households according to ranges of net annual income derived from *sujani* weaving.

STATEMENT IV

Households according to income ranges

Total households	No. of households in the income range of Rs. 1,000–1,500	Rs. 1,501–2,000	Rs. 2,001–2,500	Rs. 2,501 and above
1	2	3	4	5
3	1	1	..	1

VI.9 The main occupation of all the three households engaged in this craft is *sujani* weaving. Two families are exclusively engaged in this craft whereas the third one supplements the income by working in *bidi* making and service in mill as subsidiary occupations. Out of 52 persons (30 males and 22 females) belonging to these three households, 21 or 40.38 per cent are earning members while 31 or 49.62 per cent are non-earning members on account of childhood, old age, study or domestic work. All the males aged 20 years and above are workers. Of the 21 earning members 10 males and 4 females are engaged in *sujani* weaving, whereas 4 males are working in textile mill, 2 are engaged in *bidi* making and one works in a ginning factory. The economic condition is on the whole good, helped as it is by subsidiary occupations. A higher percentage of literacy and ownership of their workshops and houses also point to their fair economic condition. Their working conditions are also good. Over and above the manufacture of *sujanis*, the sale of handloom and mill cloth was also reported by the Bombay Economic and Industrial Survey Committee to be a source of income, for those engaged in this craft in 1938–40. But at present it is not pursued for want of capital.

ARTISANS

VI.10 The industry employs both skilled and unskilled workers. The former carry out all the important operations like dyeing and winding the yarn, filling the yarn on bobbins, preparing the warp and weft, applying starch on yarn, binding the healds according to different designs, weaving and inserting cotton in the pockets, and tying the edges of the cloth. The unskilled worker assists the skilled worker in these operations.

VI.11 The artisans are skilled in their craft, and according to them, do not require any further technical training in this family craft which is plied on a household basis. One of them, Miya Mohmed Abdulrahim has been awarded medals and certificates by eight institutions and exhibitions, listed below :

(i) The Industrial Agricultural Exhibition held by The Indian National Congress at Bombay in 1904, (ii) The Broach Swadeshi Exhibition,

Broach, 1905, (iii) All-India Handicrafts Exhibition, Patna, 1921, (iv) Art and Crafts Exhibition, Poona, 1926, (v) The Broach Rural Development Exhibition, Broach, 1946, (vi) Bombay Art Society, Bombay, 1950, (vii) By the President of the Indian Republic, 1956 and (viii) Bombay State Handicrafts Board, 1959. The work of *sujani* artisans has been widely appreciated. It is said that the artisans do not show the technique even to their own daughters, and closely guarded as a family secret. But this does not appear to be correct. However, it is true that they do not impart the technique to outsiders for fear of competition.

VI.12 While the work of weaving is fairly strenuous, especially to the hands and eyes, it does not appear to cause any physical disabilities. The craftsmen have hardly any recreations excepting occasional cinema shows. Tea and *bidi* are the main items of diversion and respite. Since they are all Muslims, they celebrate Muslim festivals like Ramzan Id, Bakri Id, etc., and observe holidays on such occasions.

SECTION VII

OTHER CENTRES

VII.1 THOUGH WEAVING is an important craft practised all over Gujarat, the craft of manufacturing this particular type of *sujani* is reported to be practised only at two places besides Broach, viz., at Vaso in Nadiad taluka of Kaira district and Mankuva in Bhuj taluka of Kutch district. So far as technique is concerned, while the Broach workers use the traditional throw-shuttle pit-loom, the fly-shuttle loom which has been introduced in Vaso which represents an improvement which enables one craftsman to work single-handed.

VASO (KAIRA DISTRICT)

VII.2 The craft was started in Vaso in 1956–57, when a weaver of the local weavers' cooperative society saw the technique in the Sabarmati Jail at Ahmedabad, and started *sujani* weaving on his own handloom. At present only two craftsmen of the society know this technique, and the craft has not been adopted on any large-scale because it is not found remunerative. Only cotton *sujanis* are woven, and the cost of one piece comes to Rs. 30 as shown below.

	Price (in Rs.)
Yarn	11.00
Cotton	4.00
Wages (two labourers for 3 days)	15.00
Total	**30.00**

The cost of production seems to be too high to develop a good market. Moreover, a worker engaged in *sujani* weaving can at the most earn only Rs. 2.50 per day, while he would earn Rs. 6 to 8 by working on a power loom in ordinary textile weaving. For this reason, craftsmen are unwilling to take to *sujani* weaving.

MANKUVA (KUTCH DISTRICT)

VII.3 At Mankuva, the craft was started in 1957–58 by the efforts of the Block Development Officer through a weavers' cooperative society. The product was known as *sirakh* which is the local name for ordinary quilts also. For the first year there was some demand for this new type of product largely due to the interest taken by the Block Development Officer. However, it dwindled mainly because the cost of production was high. Only one loom was used in this craft on which about four persons (two males and two females) of two Harijan Marwada families were working. Private persons paid more labour charges than the cooperative society, which had to follow suit. Further, the dyeing charges also were very high. There were no facilities for dyeing the yarn locally, and it had to be sent to Adipur, situated 40 miles away, for this purpose. This could not be afforded by a small unit.

VII.4 Two types of *sujanis* were produced. The better variety prepared with No. 30 double yarn was priced at Rs. 28, and the ordinary variety of No. 20 double yarn at Rs. 22. The main colours used were green and red. The cost of the raw materials was as follows :

Raw material	Unit	Cost Rs.
Fast colours . . .	Seer	3
Yarn, No. 20 double .	10 pounds	30
Yarn, No. 30 double .	10 pounds	35
Cotton	Seer	2

Two pounds of yarn and one seer cotton were required for weaving one *sujani*. The daily wages paid to men and women workers were Rs. 2 and Rs. 1.50 respectively. The cost of manufacturing an ordinary *sujani* came to Rs. 20.50 and that of the superior variety Rs. 26. Thus the profit came to only Rs. 1.50 on the ordinary variety and Rs. 2 on the superior variety. In the initial stages the society had sufficient capital and an optimistic outlook. However,

since the cost could not be reduced, demand was inadequate and the craft had to be discontinued.

CENTRAL JAIL–AHMEDABAD

VII.5 In the Central Jail at Sabarmati, Ahmedabad, *sujanis* are not regularly manufactured, but only occasionally, when orders are received. About a dozen pieces are woven on an average in a year. The size is 8′ x 5′, and its weight 8 pounds. The technique, design, etc., are the same as in the case of Broach. Only the ordinary varieties are prepared, one variation in the design being empty squares alternating with squares filled with cotton. They are priced at Rs. 30 a piece, so that it leaves a margin of 33 per cent over the cost. Variations in design and size are made as desired by the customer. However, the demand is reported to be very low.

SECTION VIII

FUTURE

VIII.1 THE FUTURE of this craft does not appear to be bright as evidenced by the small number of units working in it and the failure of the attempts to establish the industry in two other parts of the State. The main reasons for this state of affairs are as follows :

(1) Lack of demand is the main factor. Moreover, it is an article which only a man of means with taste for such a product would purchase. If there is sufficient demand the artisans would be encouraged to increase production by using up the idle capacity and even augmenting it.

(2) Competition of other cheap articles affect the demand, as in the case of cheap rugs from Japan in the past. Cotton and woollen handloom *chadars* or sheets, blankets, etc., woven in vivid colours and designs in Madras and Punjab States have adversely affected the demand for *sujanis*.

(3) The prices of raw materials keep the cost of production at a level where high profits are not possible. In the result the artisans get much bare remuneration for their own labour, and turn to other occupations as subsidiary sources of income.

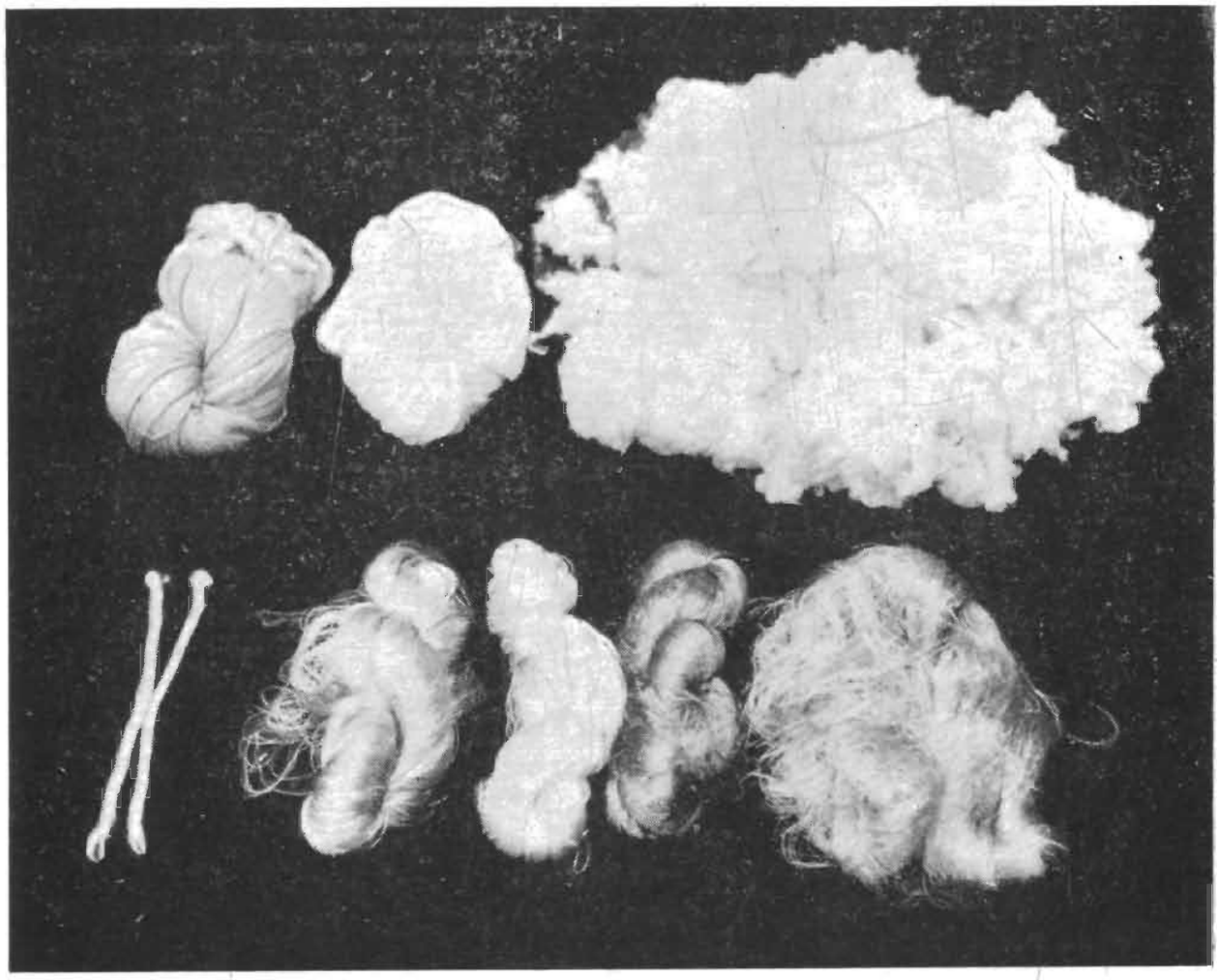
(4) The work of weaving *sujani* is very arduous and requires a number of hands at work in the family. Small families, therefore, are not attracted towards the craft.

(5) There is not much scope for improvement in design as the basic design consists of weaving pockets in which cotton is to be inserted. The craftsmen naturally stick to old patterns and techniques. No doubt some changes have been recently brought about by using different colours, and raw materials like rayon, *jari* thread, etc., but there does not seem to be much scope for variation in this direction. The use of *jari* thread and such other materials make for some novelty but the product becomes too costly for the common man, and limits its demand.

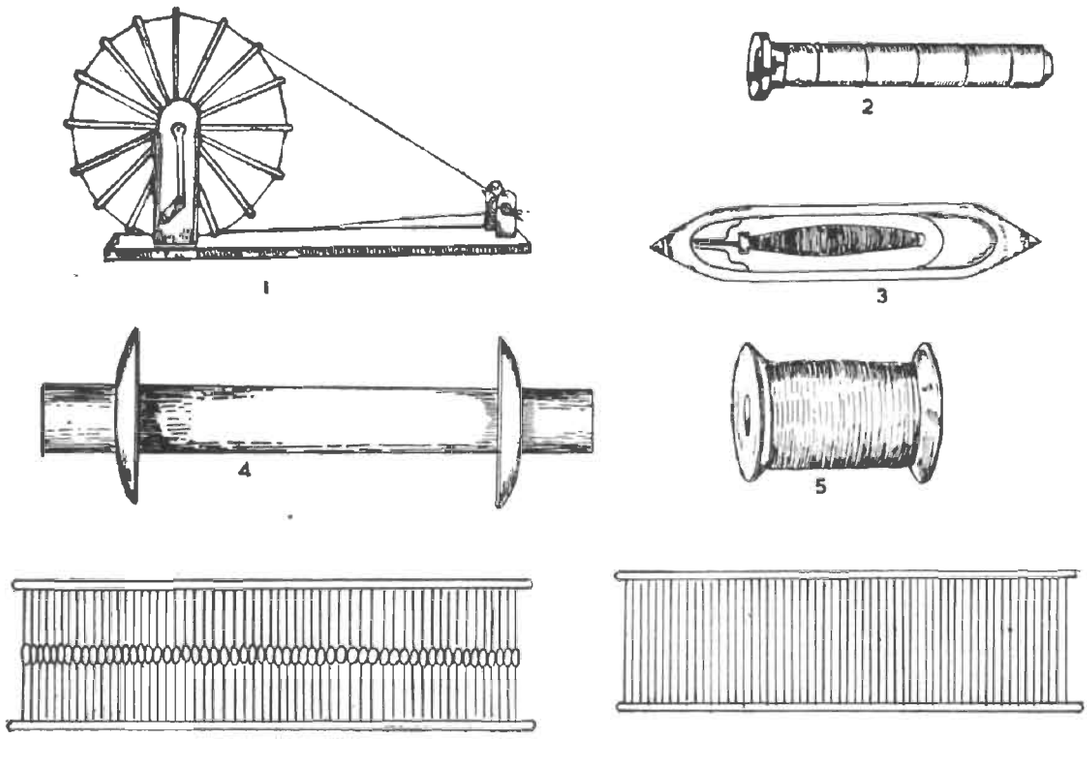
(6) The units experience some difficulty as regards capital for purchasing raw material and stocking finished products.

VIII.2 In order to revive the craft, the most important step seems to be to popularise the product and to create a demand for it. The District Industrial Cooperative Association and the Government machinery can work towards this end through propaganda and publicity display in emporia, and finding new markets for their disposal. Institutions like the Handloom Board can also help by offering advice regarding improved technique and designs. It is also necessary to bring the workers within the fold of cooperation. While a separate cooperative society may not be feasible for such a small number of units, they should be pursuaded to join cooperative societies of weavers and avail of the advantages which are available to other weavers. Lastly, more handloom weavers can easily learn this craft as in the case of Vaso and Mankuva. If this is done, other centres of handloom industry can take up *sujani* weaving in addition to their normal products. The craft may then have a fairly hopeful future.

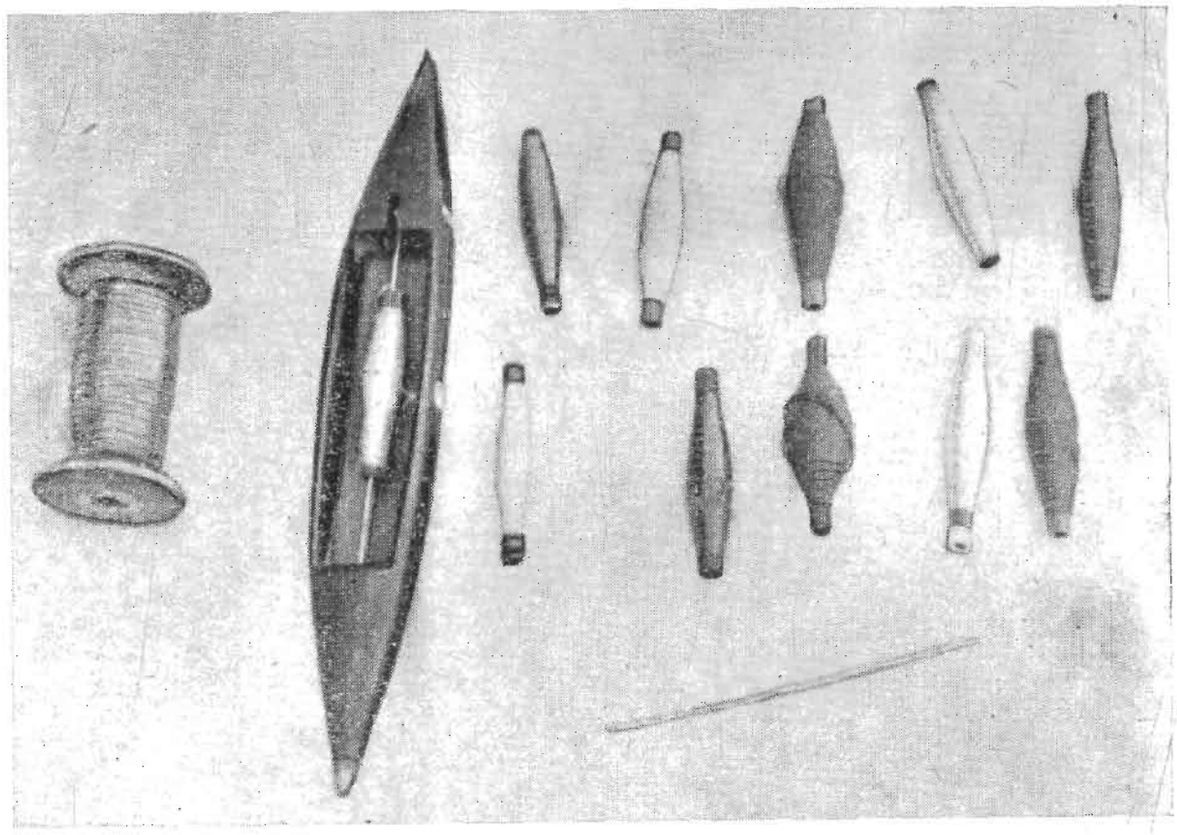
PLATES



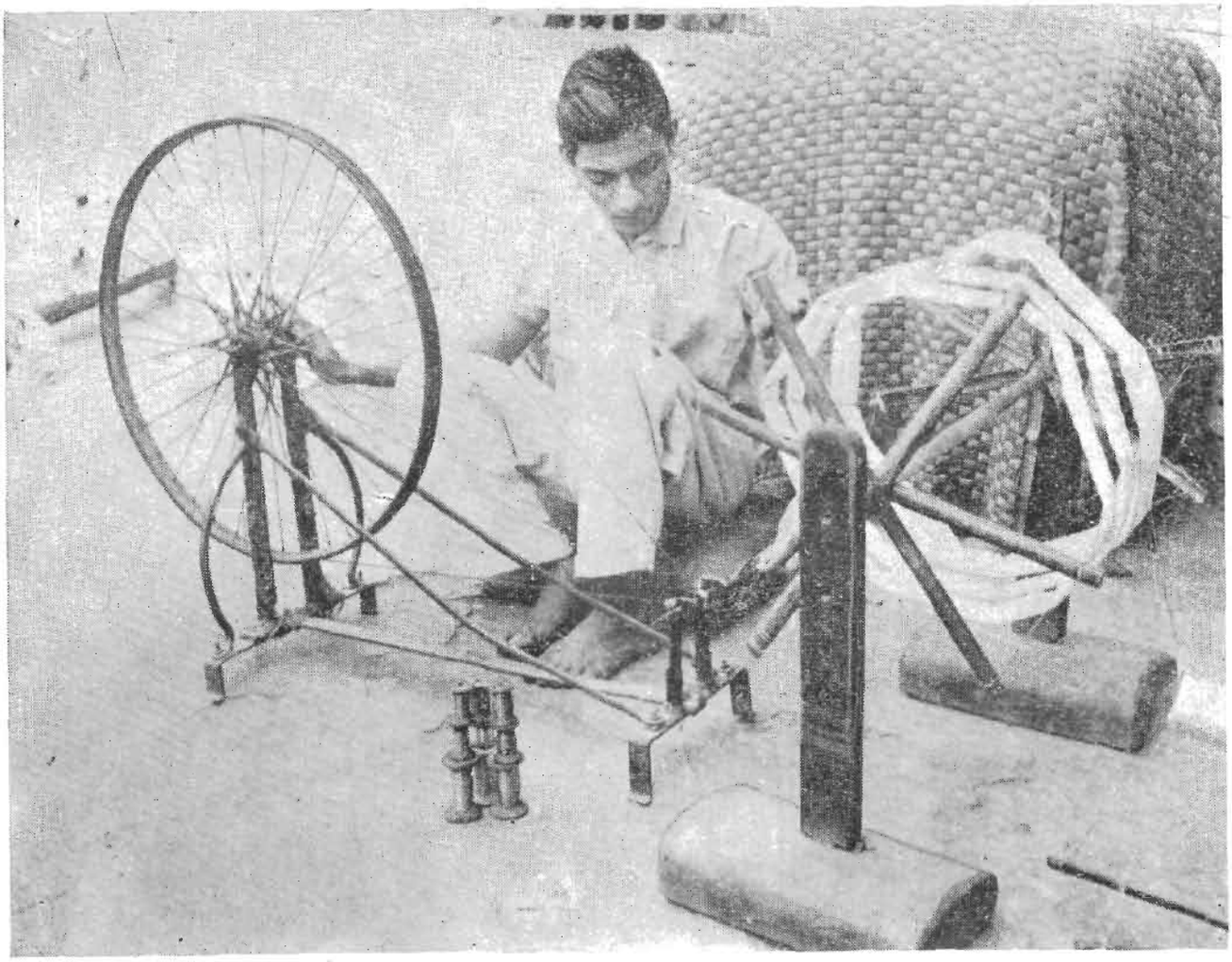
Raw materials—cotton, art-silk and jari thread



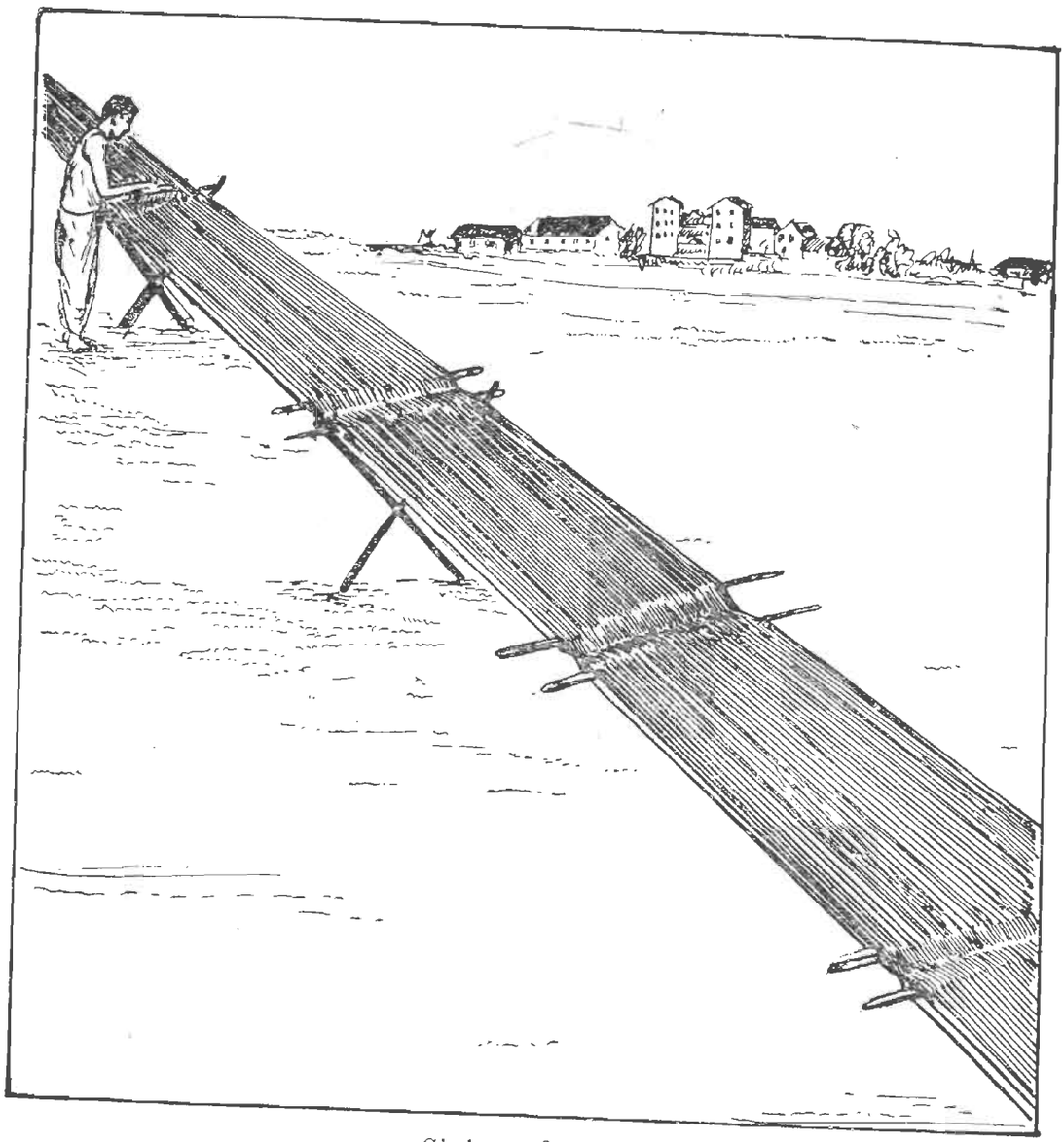
Tools: 1. *Charkha*; 2. *Bobbin*; 3. *Shuttle*; 4. *Beam*; 5. *Reel*; 6. *Heddle*; 7. *Reed*



Bobbins, shuttle and reels



Winding of cotton yarn on firki



Sizing of warp

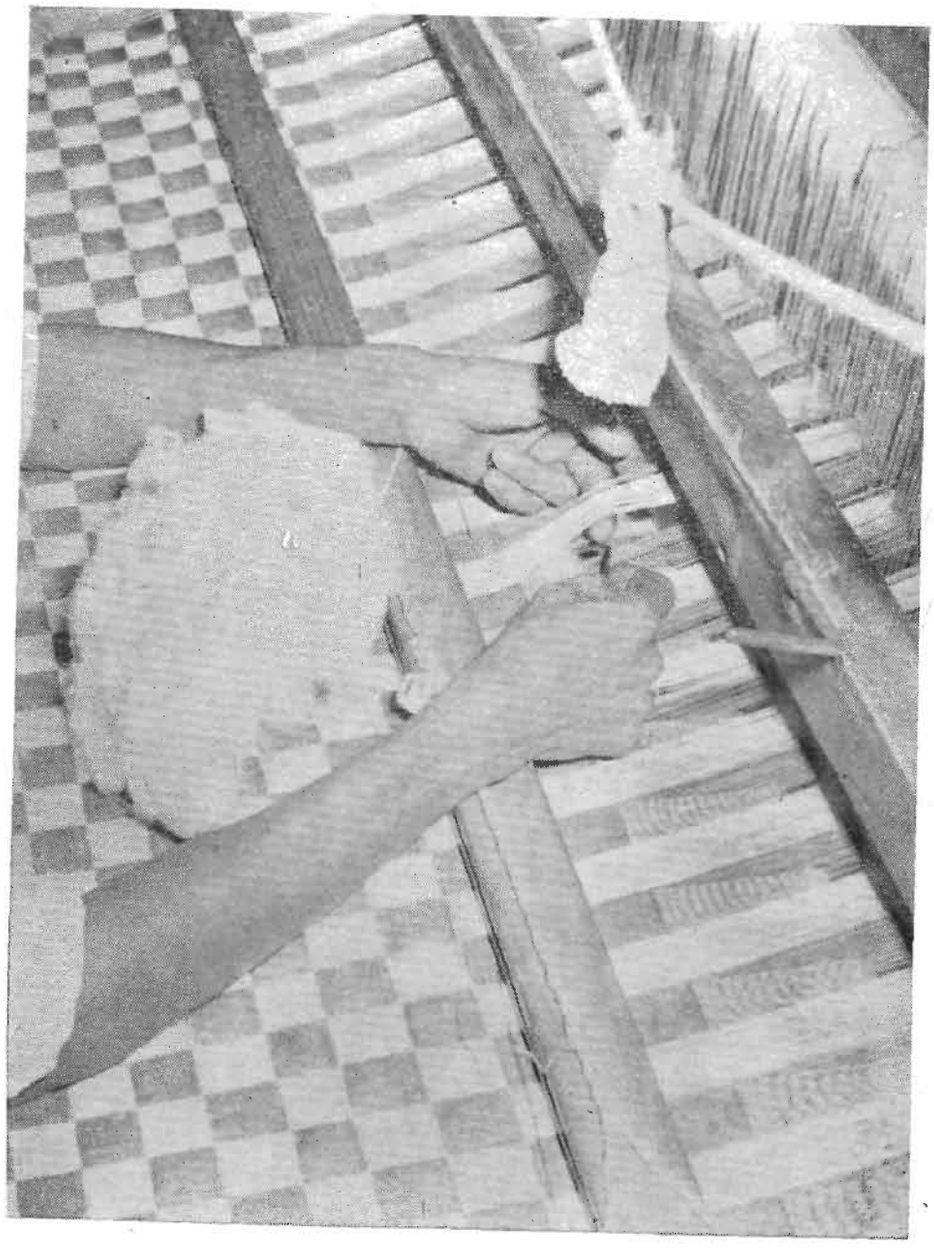
PLATE IV



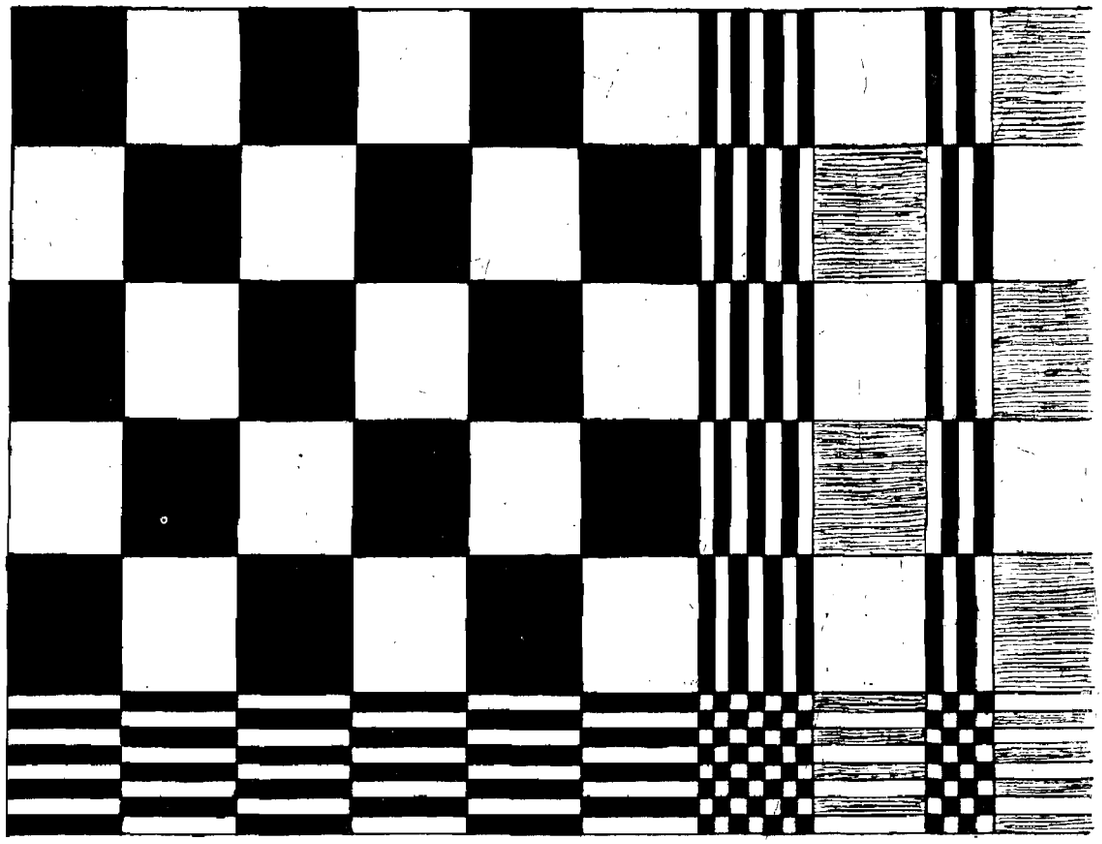
Artisans at work on a loom



Sujani weaving in progress



Inserting cotton in pockets while weaving



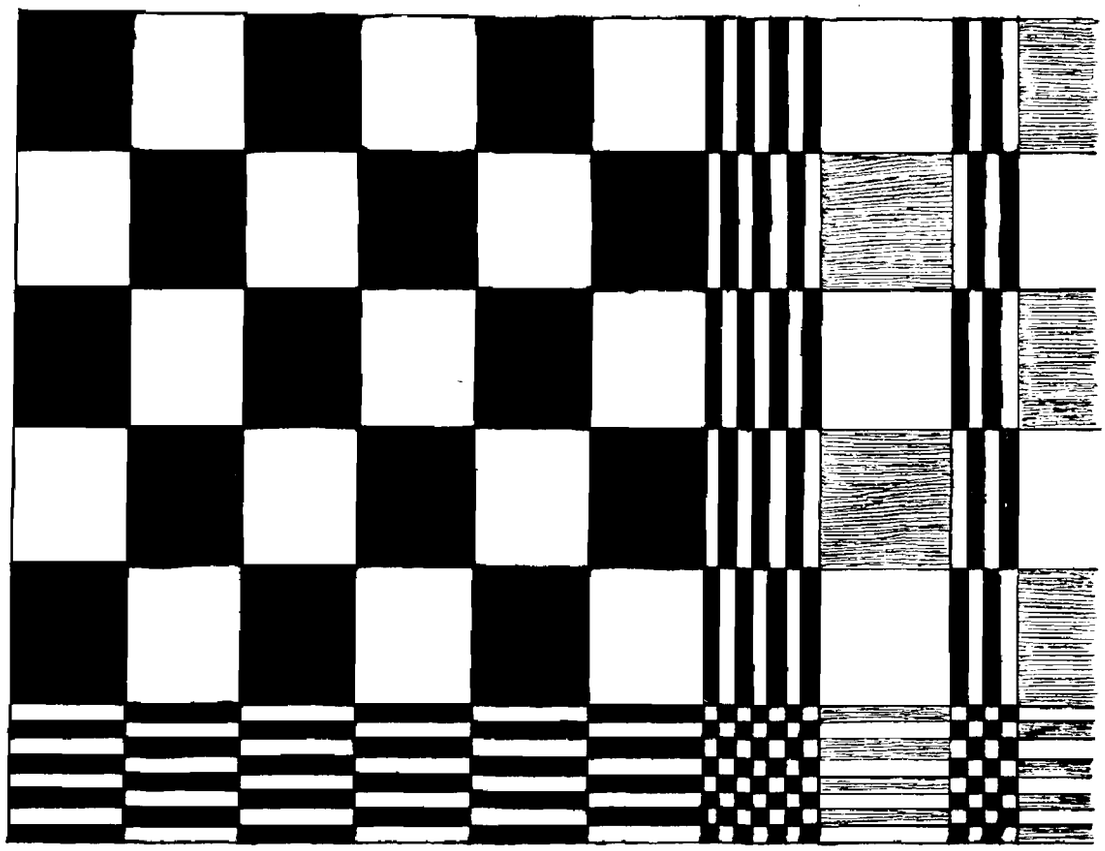
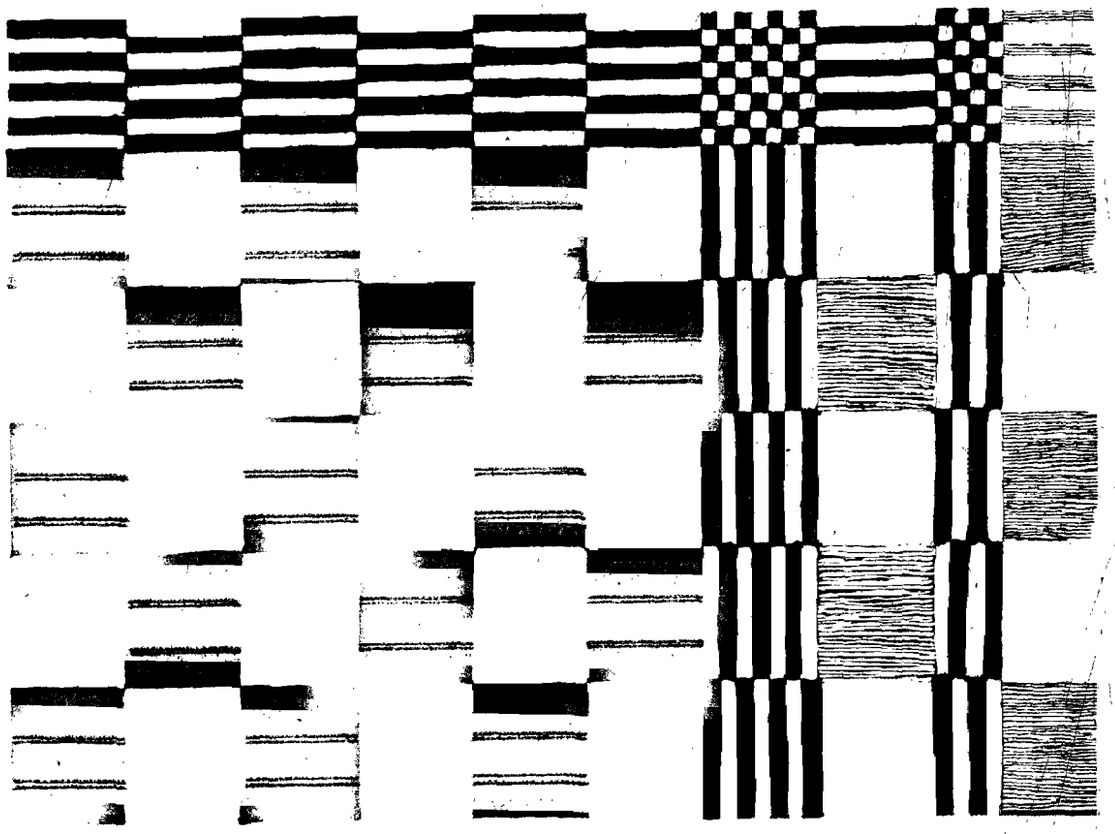
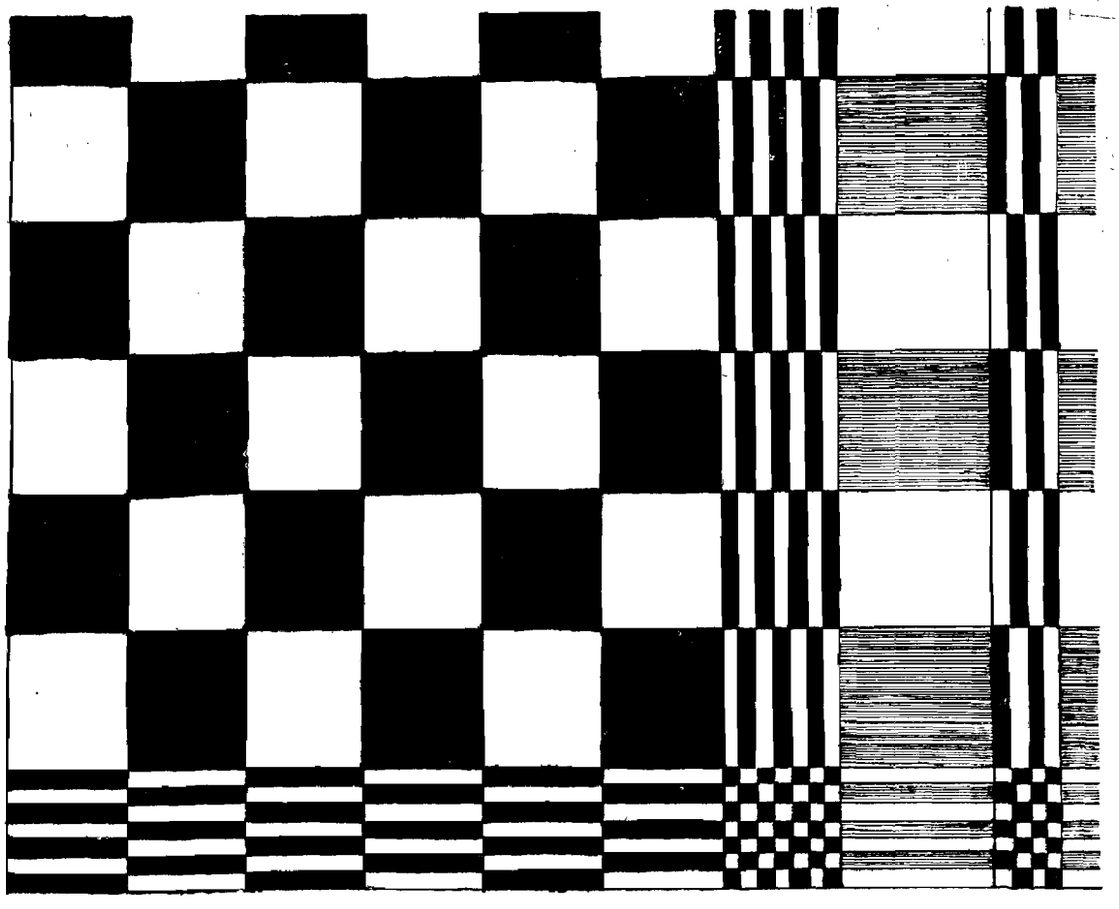


PLATE VIII





Sujanis in variegated colours

APPENDICES

APPENDIX I

TABLE I

List of rural crafts and number of persons employed in production

Name of craft	No. of villages/towns	No. of persons employed in production		
		Persons	Males	Females
1	2	3	4	5
Sujani	1 (Broach town)	14	10	4

TABLE II

Distribution of artisan communities

Name of craft	Name of caste or community	No. of centres surveyed	Number of families	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
Sujani	Muslim	1 (Broach town)	3	14	10	4	..	3 (In own houses)

TABLE III

Distribution of articles of craft by materials used

Name of article	Main material			Subsidiary material		
	Name of material		No. of towns/families engaged in manufacture	Name of material	No. of villages/ towns/families engaged in manufacture	Place from where imported
1	2		3	4	5	6
Sujani 52" X 90" 60" X 90" 66" X 90" 72" X 90"	(i) Cotton Yarn (ii) Rayon (iii) Artificial Silk (iv) Pure Silk (v) Staple	}	Imported from surat	(i) Colours (ii) Jari thread	Imported ,,	Surat Surat
(22 Varieties)	(vi) Cotton		Grown in the surrounding area			

TABLE IV

Designs

Name of craft	Name of article	Number of villages/towns engaged in manufacture indicating the sources from which they receive designs						Name of design		
		Traditional	Self-designed	Middle men who undertake marketing	Design centres	Cooperative sales societies	Other sources	Name	No. of villages engaged in its manufacture	Colour used
1	2	3	4	5	6	7	8	9	10	11
Sujani	Sujani 52" X 90" 60" X 90" 66" X 90" 72" X 90" (22 varieties)	1 (Broach town) 3 Households	*	..	..	..	..	(i) Square (ii) Floral	1 (Broach town) 3 households	Red, Blue, Green, Light Red, Coffee Brown, Light Yellow, Sky Blue, Navy Blue, Violet

* Improvements to suit modern tastes are also introduced in traditional designs which are generally followed.

TABLE V

Consumption and sale

Name of craft	Name of article	No. of villages/towns which entirely produce for use		No. of villages/towns which produce for both personal use and sale	No. of villages/families which produce for sale in open market		No. of villages/towns/families where there are cooperative sales societies
		Domestic use	Use for ceremonial purposes		Order of middle men who advance money and undertake marketing facilities	Others only for sale	
1	2	3	4	5	6	7	8
Sujani	Sujani 52" X 90" 60" X 90" 66" X 90" 72" X 90" (22 varieties)	..	..	..	..	1 (Broach town) 3 households	..

TABLE VI

Cost of production, sale price and earnings

Name of article	No. of centre surveyed	Cost of raw material per lb.		Cost of conversion in to finished product per lb.	Average sale price of finished goods	Average earning per worker per month	Quantity of raw material used per unit of finished goods	No. of man-days required to manufacture per unit of finished goods
1	2	3		4	5	6	7	8
Sujani	1 (Broach town)	(i) Mercerised Staple yarn (ii) Cotton	Rs. P. 4.00 1.12	Rs. 1.05 (for dyeing of yarn and preparation of warp and weft)	Rs. 24.00 (ordinary variety)	Rs. 44.50	(i) 1¼ lbs. (ii) 1¼ lbs. (iii) 2 to 2½ lbs. 4½ to 5 lbs.	6 man-days

TABLE VII

Sale price of Sujani, 1964

Sl. No.	Description of Sujani	Size 60" x 90" Price Rs. P.	Size 60" x 90" Weaving charges Rs. P.	Size 66" x 90" Price Rs. P.	Size 66" x 90" Weaving charges Rs. P.
1	2	3	4	5	6
1	Cotton rough .	18-00	..	21-00	..
2	Cotton medium .	22-00	..	25-00	..
3	Cotton fine . .	24-00	10-00	27-00	12-00
4	Staple mercerised .	28-00	12-00	32-00	14-00
5	Artificial staple mix	32-00	14-00	36-00	16-00
6	Rayon silk mix .	36-00	14-00	40-00	16-00
7	Pure rayon silk .	40-00	16-00	45-00	18-00
8	Pure silk mix .	55-00	18-00	60-00	20-00
9	Pure silk (Bangalore weft) . . .	75-00	18-00	80-00	20-00
10	Pure silk (Chinese weft) . . .	90-00	18-00	95-00	20-00
11	Rayon silk-jari brocade (extra weft) borders . . .	55-00	20-00	60-00	22-00
12	Rayon silk-jari brocade in 4 corners .	65-00	20-00	70-00	22-00
13	Rayon silk-jari brocade design on 4 corners and centre	70-00	20-00	75-00	22-00
14	Rayon silk-jari brocade on 4 corners, centre and borders	85-00	20-00	90-00	22-00
15	Pure Chinese silk-jari brocade on 4 corners, centre and borders	130-00	22-00	135-00	24-00
16	Different varieties in silk-jari brocade	200-00 to 1,100-00	..	200-00 to 1,100-00	..

NOTE:

Col. 4 and 6 show the labour charges when the raw material is supplied by the customer.

TABLE VIII

Skilled craftsmen of each community

Name of village/ town	Name of craft	Name of community	Name of skilled craftsmen
1	2	3	4
Broach	Sujani	Muslim	(i) Minya Mahmed Abdul Rahim
			(ii) Gulam Husen Haji Nabubhai
			(iii) Hafej Abdul Raheman Abdullabhai
			(iv) Abdul Hakim Abdul Raheman
			(v) Gulamkadar Abdul Rahim
			(vi) Gulam Mustufa
			(vii) Minya Ahmed Abdul Rahim
			(viii) Kamaludin Abdul Rahim
			(ix) Abdulmajid Abdul Rahim
			(x) Mohmedbhai Yakubbhai
			(xi) Gulamrasulbhai Abdullabhai

TABLE IX

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

Age group	Persons			Males			Females		
	Total	Workers	Non-workers	Total	Workers	Non-workers	Total	Workers	Non-workers
1	2	3	4	5	6	7	8	9	10
Total	**52**	**21**	**31**	**30**	**17**	**13**	**22**	**4**	**18**
0– 4	6	..	6	4	..	4	2	..	2
5– 9	6	..	6	2	..	2	4	..	4
10–14	10	..	10	6	..	6	4	..	4
15–19	3	1	2	2	1	1	1	..	1
20–24	8	6	2	6	6	..	2	..	2
25–29	3	2	1	2	2	..	1	..	1
30–34	5	2	3	2	2	..	3	..	3
35–44	6	6	..	3	3	..	3	3	..
45–59	4	3	1	3	3	..	1	..	1
60 and over	1	1	..	..	..	..	1	1	..

TABLE X

Literacy according to age and sex

Age group	Persons				Males				Females			
	Total	Illiterate	Primary	Secondary	Total	Illiterate	Primary	Secon-dary	Total	Illiterate	Primary	Secon-dary
1	2	3	4	5	6	7	8	9	10	11	12	13
Total	**52**	**15**	**32**	**5**	**30**	**6**	**20**	**4**	**22**	**9**	**12**	**1**
0– 4	6	6	..	..	4	4	..	..	2	2	..	..
5– 9	6	3	3	..	2	2	..	..	4	1	3	..
10–14	10	2	8	..	6	..	6	..	4	2	2	..
15–19	3	..	2	1	2	..	1	1	1	..	1	..
20–24	8	1	6	1	6	..	6	..	2	1	..	1
25–29	3	..	3	..	2	..	2	..	1	..	1	..
30–34	5	..	4	1	2	..	1	1	3	..	3	..
35–44	6	1	4	1	3	..	2	1	3	1	2	..
45–59	4	1	2	1	3	..	2	1	1	1	..	..
60 and above	1	1	..	..	..	..	..	..	1	1	..	..

APPENDIX II

BROACH

Broach, which is a municipal borough having a population of 73,639 souls, is a taluka and district headquarters. Situated on 21° 40′ North Latitude and 72° 55′ East Longitude, it is built on hillocks rising from the holy river Narmada. It is on the National Highway No. 8 (Bombay-Ahmedabad), and a junction on the Bombay-Ahmedabad-Viramgam main line of the Western Railway. A narrow gauge railway line runs from Broach to Jambusar and Kavi. State Transport buses ply regularly from Broach to almost all the talukas of the district. It is also an intermediate port for coastal trade.

Originally named Bhrigupur after the sage Bhrigu who founded it, Broach is an ancient town, which existed even in the distant past. In Ptolemy's times, it was one of the chief ports of Western India carrying a thriving trade with foreign countries. It developed under the Rajput rulers of Anhilwad after whose decline, it remained under the Musalman kings of Ahmedabad. Plundered by the Portuguese in 1536 and again in 1546, it was captured by Emperor Akbar in 1573. The Portuguese plundered it again in 1614. A British factory was founded in 1616 and a Dutch factory in 1617. In 1675 and in 1686 the Marathas plundered Broach, after which Aurangzeb had its walls rebuilt and named it Sukabad, or the dry city. The Musalman commandant of the port was raised to the rank of Nawab by Nizam-ul-Mulk in 1736. In 1772, the city came under the English rule, was later transferred to Scindia, and finally taken over by the British in 1803. A massive wall of stone stands, east to west, between the river and the town. It is said to have been constructed by Siddharaj Jaisinh of Anhilwad Patan and subsequently repaired and strengthened by Sultan Bahadurshah of Gujarat in 1533 A. D.

The area surrounding Broach and called Kanam is a rich cotton growing area with black soil. Cotton is the most important crop grown in about 5 lakh acres or 52 per cent of the total gross cropped area. There are two cotton textile mills and two ginning factories in the town. *Sujani* (blanket padded with cotton) is the famous handicraft of Broach. It is woven on handlooms, cotton being inserted in squares at the time of weaving. It comes in many varieties, the costlier ones being woven with silk and *jari* threads. The port of Broach handled 20,578 tons of cargo in 1961–62. The traffic is entirely coastal, carried out by country crafts. The main items of import were building materials, salt and onions, while cotton seeds, food-grains, oil cakes and timber constituted most of the exports.

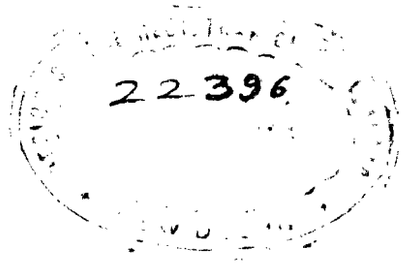
The Dutch factory building, known as the Dutch Kothi is a spacious building with a compound and out-houses now in private ownership. Its gallery contains some good specimens of wooden carvings. The Begum Badi is a 200 years old building, named after one Fatma Khanam, daughter of Mirza Abdul Beg, a wealthy merchant of Broach. The last Nawab of Broach Mirza Moazziz Khan (1768–72) is said to have used it as State building. Very spacious and beautiful, the building faces the river Narmada on the south. In 1772, it was occupied by the East India Company who subsequently sold it to a private person. Imad-ul-Mulk Roza is a beautiful mausoleum in chunam and brick opposite to the Vijalpur railway station in Mohamedpura area. It was built by Changiz Khan in memory of his father, Imad-ul-Mulk Arolan Rumi, the Amir of Sultan Muhamud III of Gujarat. Jacha Wadi in the Ali suburbs is an octagonal mausoleum in stone built in 1563 A. D. by Ain-ul-Mulk in memory of his wife, Jacha Bibi. There are beautiful tugras written by Muhammed Khattat, the famous calligraphist. Beautiful carvings decorate the arches of the dome. The Juma Masjid and an old mound near the river are sites of archaeological interest.

Being the headquarters of the Broach district and taluka, Broach has all the district and taluka offices. Besides having a civil hospital, Broach has another well-equipped hospital, viz., the Bhagubhai Mafatlal Hospital, known as the Sevashram.

A fair with a congregation of about 15,000 people is held on *Shravan Vad* 10 when an image of Megh Raja (God of Rains) made by the leaders of the Bhoi community is worshipped. The Nilkanth Mahadev fair held on *Shravan Vad Amas* is an equally big fair besides some smaller ones, held on Cocoanut Day (*Shravan Sud* 15) Chandani Padvo (*Shravan Vad* 1), Muharram and the Bhidbhanjan fair on every Thursday of *Margashirsh.*

Source:
District Census Handbook 1961, Broach district, p. 38

2. SOAP MAKING AT KAPADVANJ

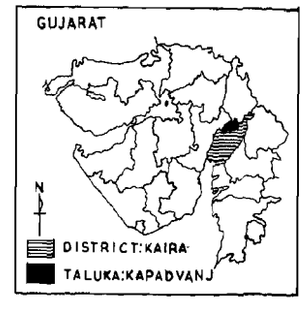


KAPADVANJ TOWN
DISTRICT: KAIRA



REFERENCES

- POND
- SCHOOL
- GLASS FACTORY
- SOAP MAKING
- BUS STOP
- MARKET



SECTION I

INTRODUCTION

Introduction

I.1 The word 'soap' is possibly derived from Latin 'Sapo' which means a pasty mass. Manufacture of soap in its present form is a later development probably since 9th century. The cleaning agents of the ancient days were natural soda ash, natural earth and wood and plant ashes. The earliest known records show that Babylonians, Sumarians, Egyptians and Phoenicians (2800 B.C. to 500 B. C.) were using a salve like preparation obtained by boiling together oils and ash. It is, however, doubtful if such a preparation was ever used for cleaning. Greeks and Romans (600 B. C. to 500 A. D.) who were very fond of cold, hot or vapour baths, rubbed oil on their bodies and cleaned them with mechanical agents like bran, sand, ashes, pumice, clays and juices of plants. *Naturalis Historia* by Pliny (79 B. C.), described boiling of goat's tallow and beach ashes. The preparation thus obtained was used as a cosmetic and a pomade for application to hair and skin.[1]

I.2 Preparation of caustic lime by burning limestone was known as long back as 300 B. C. Pliny also refers to the practice of mixing the Egyptian Nitram (soda ash) with Clace (lime), which was called 'strengthening' or sharpening the lye. Causticizing as we know it now, was well established by the 7th century. In the West, soap making was practised as household industry since very early times. Every household had its own waste fat and wood ashes. Boiling the fat with the sharpened aqueous extract of the ashes produced a mass which was good enough for household washing. Soap making at home continued in the West, especially in rural areas, till the 20th century. By 9th century, Marseilles in France and Genoa, Savona and Venice in Italy had become active centres of this industry, from where it spread to other parts of Europe and by the 12th century it was flourishing at many places.

I.3 Use of cosmetics and face-paints in India goes back to the civilization of Mohenjo-daro. "Materials for toilet and (vanity?) cases for holding them, some of which are made of ivory and metal, prove that ladies at Mohenjo-daro were not probably far behind their sisters of the present day in culture of beauty and knew the use of collyrium, face-paint and other cosmetics."[2]

I.4 The earliest records available show that the people of this country attached great importance to cleanliness even 5,000 years ago, as can be seen from the fact that "The most important feature of the houses at Mohenjo-daro is the presence in them of one or more bath-rooms, the floors of which were fully laid and were connected by means of drainage channels with the main street. The bath-rooms were square or rectangular with pavement usually sloping towards one corner provided with an outlet of water."[3] Besides bath-rooms in dwellings, the Great Bath excavated at Mohenjo-daro testifies to this fact. "Of the larger buildings, other than dwelling houses, the most remarkable is the Great Bath measuring 180 ft. by 108 ft. The bathing pool, 39 ft. long, 23 ft. wide, and 8 ft. deep, occupies the centre of a quadrangle, surrounded by verandahs with rooms and galleries behind them. A raised platform at each end with a flight of steps gave access to the pool which could be filled and emptied by means of a vaulted culvert, 6 ft. 6 inches high. Near the Great Bath was a hot air bath, and

1. Kane J. G., *Soaps, Their Chemistry and Technology*, p. 1, 1959
2. Majumdar, R. C., *Ancient India*, p. 21, 1952
3. Mahajan V. S., *Ancient India*, p. 39, 1962

there were other bath-room establishments at Mohenjo-daro."[1]

I.5 Thus even in olden days man felt the necessity of cleaning his body, his clothes, utensils, etc., and used soft clay, milk, butter-milk, cowdung, decoctions of certain barks, leaves, etc. Use of metals, alloys, fermented liquors and several drugs obtained from vegetable for preservation of health is mentioned in the *Vedas*. Application of soft clay followed by water bath was also a method used for personal cleanliness. Before everyday worship, for certain Brahminic rituals, and on festive occasions the body required to be cleaned with earth, cowdung, wood ashes, etc. The body was also annointed with scented oils, washed with curds, turmeric and powders of sweet scented herbs. Ayurveda also mentions the use of various materials like (1) *amla* (*Emblica officinalis*), (2) *nagormotha* (*Cyperus pertenuis*), (3) oily materials and oils made from almonds (*Amygdala communis*) or sesame (*Sesamum indicum*) oil, (4) lather producing materials like *aritha* (*Sapindus trifoliatus*) and *shikakai* (*Acacia concinna*), and (5) clay, gram flour, milk, honey, etc., for personal cleanliness. Such powders and oils are used in rural areas even to-day. On ceremonial occasions like marriage, *pithi* or turmeric powder mixed with other materials are used while bathing the bride and bridegroom. After illness a person washed his body with decoction of medicinal herbs such as *kumbia* barks, *neem* (*Melia azadirachta*) leaves, etc. All these had a cleaning and refreshing effect on the body. They had also disinfecting properties. Alkaline earth such as *sajjimatti*, soap nuts and soap pods are effective cleaning agents and used as such even to-day. Soap nuts and soap pods are used for washing silk and woollen garments as they are harmless, while ordinary soaps have injurious effect on them. Use of soap-berry in the various countries of the world can be seen from the following extract. "Soap-Berry, the common name of several species of *sapindus* and of the fruits, which are so rich in saponin that they are employed for the same purposes as alkaline soap, before the days of that article. The Chinese prefer them even yet for cleansing the hair and delicate silks. Certain species of *sapindus* yield also an edible pulp, although the seeds are poisonous. One species (*Sapindus utilis*) has been cultivated in Algeria for its berries, which the trees begin to bear in from 8 to 10 years, and *S. Mukorossi*, another Chinese species, is found in Japanese gardens. Our two United States species have this saponaceous quality also and the berries of *S. saponaria*, indigenous to tropical America and the West Indies and even growing in Florida, are much used for washing linen, although said to be injurious if employed too frequently."[2] Use of *aritha* (*Sapindus trifoliatus*) or soap nuts is most common in the rural India even to-day.

I.6 The well-known texts of Sushruta and Charaka mention the preparation of lime and describe the preparation of caustic soda by causticizing aqueous extracts from ashes. The ancient Indians thus had knowledge of the properties of carbonates, caustic, alkali and the vegetable oils.

I.7 It is not known how soap making came to India. The first modern factory in India was established in Meerut in 1879 under the name of the North-West Soap Company. The organised soap industry made its beginning in India at the dawn of the present century.[3]

I.8 At present in Gujarat soap is manufactured both on large as well as small-scale. According to the survey conducted by the Bureau of Economics and Statistics (Gujarat State), there were 352 small-scale* and cottage establishments manufacturing soap (in 1959–60 and 1960–61) of which 87.25 per cent were cottage establishments engaging 9 or less than 9 persons and 12.75 per cent small-scale establishments engaging 10 or more than 10 persons and not registered under the Factories Act. Among cottage establishments, only 1.30 per cent are power operated, as against 11.11 per cent of small-scale establishments which are so.

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1. MAJUMDAR R. C., *Ancient India*, p. 20, 1952
2. *The Encyclopaedia Americana*, Vol. XXV, pp. 154–158, 1952
3. KANE J. G., *Soaps, Their Chemistry and Technology*, pp. 149–150, 1959

* Factories registered under the Factories Act were excluded from scope of this survey.

The soap making industry in Gujarat employs 1,851 persons of which 638 or 34.47 per cent are household members and the rest are outsiders working on wages.

STATEMENT I

Number of establishments and number of persons employed in soap making in cottage and small-scale industries selected for survey, Gujarat State (1959-60 and 1960-61)

Type of industry	No. of establishments			No. of persons employed						Total number of persons employed in the industry		
				Household			Outsiders					
	Power	Non-power	Total	Power	Non-power	Total	Power	Non-power	Total	Power	Non-power	Total
1	2	3	4	5	6	7	8	9	10	11	12	13
I Cottage	4	303	307	4	528	532	27	771	798	31	1,299	1,330
II Small-scale*	5	40	45	11	95	106	35	380	415	46	475	521
Total	**9**	**343**	**352**	**15**	**623**	**638**	**62**	**1,151**	**1,213**	**77**	**1,774**	**1,851**

* An establishment is classified as a cottage industry if the number of persons engaged in it on any day during the year is 9 or less. If the number is 10 or more, and not registered under the Factories Act, the establishment is classified as a small-scale establishment whether it is power operated or not.

Source :

Quarterly Bulletin of Economics and Statistics, Vol. II-No. 1, January-March, 1962

LOCATION

I.9 Kapadvanj, which is the centre selected for the study of this craft, had been a well-known centre of soap making in the past.

Kavi Dalpatram (1820-1898 A. D.), a famous poet of Gujarat, mentions soap and glass manufactured as objects worth seeing at Kapadvanj in his poem **"जोवाजोग जेवी गुजरात"**.

"शमशेर तो शीरोहीनी, प्रतिमा भली डुंगरीपरी, आवता जो आवसुंबे, त्यां छरा लोढी छरी,
वळी कपडवंजी काच साबु रही समीप रचावजो, वळी घर दिशे वरसाद पहेलां आप वहेला आवजो."

Swords from Sirohi are the best; And idols from Dungaripari;

Atarsumba known for its daggers, iron pans and knives is on way.

Kapadvanj also is renowned for its glass and soap;
so get them made under your personal care.

But return home in time before the monsoon sets in.

I.10 About 25 to 30 families were engaged before 40 years in the traditional craft of soap making from the natural earth called *oos* which contains carbonates and silicate of soda mixed with several mineral impurities. The soap manufactured at Kapadvanj was known as *chandi-sabu* because of its silver like white colour. It was also called *tarino-sabu* or floating soap, as it was light in weight and floated on water. The famous Kapadvanji soap was exported to Surat, Bombay and Africa. Artisans of Surat washed silk only with Kapadvanj soap because of its quality and purity. The beginning of this craft at Kapadvanj is lost in antiquity. The town had a glorious past and was a well-known centre of trade in cloth. A brief account of Kapadvanj is given below :

KAPADVANJ

I.11 Kapadvanj, lying on 23° N. Latitude and 73° 7′ E. Longitude is the headquarters of a taluka of that name. Situated on the east bank of the river Mahor, it is connected by Nadiad-Kapadvanj narrow gauge railway line. It is also well-connected by State Transport Bus Service with Nadiad, Modasa, Kaira and surrounding places.

I.12 Kapadvanj seems to have been a settlement of great antiquity. It is one of the oldest towns in Kaira district and dates back to the 11th century. Kapadvanj, according to some, is a corrupt name of Kapad Wanijya or the centre of cloth weaving. Some also say the original name was Kapatpura or the town of deceit. Three historical battles were fought at Kapadvanj. In 1454 Kut-bud-din, the king of Gujarat defeated Mohammed Khilji, the king of Malva. In 1725 the Marathas under Kantaji and Pilaji Gaekwad were defeated by Mogul commander Khanahzad. In 1736 the Marathas and Kolis recovered the town in a joint attack. The Marathas held it till 1817 when in exchange of neighbouring territory of Vijapur, it was made over to the British. Situated on one of the main routes connecting Central India and sea coast, it was an important trade centre in the past. It was known for manufacture of soap, glass, leather *ghee* jars and textiles. Glass and soap were exported to North Africa, Arabia and Persia. Agate and moss pebbles were collected from the river Mazam about 15 miles away and sent to Cambay for processing. The Vohras of Kapadvanj are a well-known community of merchants. The chief objects of interest in the town are *toran* or victory arch in Chalukyan style constructed on the bank of a *kund* and the Batris Kotha Vav or a step-well with 32 apartments built by Siddhraj Jaisinh. A fine Jain temple built in the middle of the last century has richly ornamented interior with marble pillars and pavings.

I.13 According to the 1961 Census the population of Kapadvanj is 27,053. It is equipped with electricity, piped-water supply and underground drainage since 1928.[1]

1. (*a*) TRIVEDI R. K., *District Census Handbook*, Kaira, 1961, pp. 44-45
(*b*) CAMPBELL JAMES M., *Kaira*, pp. 171-173, 1879

SECTION II

CRAFT AND CRAFTSMEN

Craftsmen

II.1 In the past, soap was manufactured by mixing and boiling *oos*, water and non-edible oils. 25 to 30 families were engaged in this craft 4 decades ago. Majority of the workers were Muslims. At present there are five establishments of soap making of which 2 belong to Muslim, and one each to Parsi, Barot and Prajapati. None of these establishments is manufacturing soap from *oos*. Both the Muslim households are staying there for generations. One of the Muslim households has taken up manufacturing soap since six years, while it is hereditary with the other. A Barot household is engaged in this craft since last 35 years. A Prajapati household migrated to Kapadvanj in 1960 and started a soap factory there. A Parsi family now engaged in this craft migrated from Surat to Kapadvanj for business about 45 years ago. It owned a liquor shop which was closed 15 years ago on the introduction of prohibition when it was first engaged in transport activities and took up soap manufacture on a small-scale since about 10 years ago.

Parsi

II.2 Parsi means the people of Pars or Fars, the south-west province of Persia. They are Zoroastrians. The Parsis in India are the descendents of those who were forced out of their country more than 1,280 years ago by the Arabs. They first landed in Diu, then at Cambay and subsequently near Sanjan where they kindled the sacred fire called Iranshah which now burns at Udvada. The traditional belief is that they brought the holy fire unextinguished from Persia.

II.3 Parsis have two divisions, called Shehenshahi and Kadami. These divisions came into existence in 1745 A. D. from a dispute concerning the reckoning of the year. Shehenshahis retained the Indian reckoning while the Kadamis adopted the Persian practice.[1]

Muslim (Shaikh)

II.4 Both the Muslim households engaged in soap making are Shaikhs. "Shaikhs are found in every part of the province. Meaning elder, the title of Shaikh belongs strictly only to three branches of the Kuraish family; the Siddikis, who claim descent from Abu Baker Siddik; the Farukis, who claim descent from Umar Al Faruk; and the Abbasis from Abbas, one of the Prophet's nine uncles. The word Shaikh is a general term of courtesy corresponding to the English esquire, and in India includes the descendants of local converts as well as of foreigners. The men have the title Shaikh or Muhammad placed before their names and the women Bibi after theirs. In so large a class there is much variety of appearance, and as a whole they are hardly to be distinguished from Sayads. They are sober, fairly truthful and honest, and though fond of show and pleasure, are less careless in their money dealings than most Musalmans."[2]

Barot

II.5 Barots or bards are scattered throughout the State. The main occupation of Barots is reciting verses of their own composition or selections from Hindu legends either to praise some renowned warrior, commemorate a victory, record a tragic event or panegyrise a present object. They are genealogists, bards and historians of their patron's family as they maintain *vahi* or book to record birth, death, marriage, etc. They also work as middlemen for arranging betrothal, marriage, etc., or settling problems on the basis of compromise with both the parties. Each caste or community has its separate Barots or bards or herads. They produce the record as an evidence in the court of law on behalf of

1. Mukerjea Satya. V., *Census of India 1931*, Vol. XIX, Baroda, Part I-Report, p. 453
2. *Gazetteer of the Bombay Presidency*, Vol. IX, Part II, pp. 8-9, 1899

their patrons. The patrons give them remuneration both in cash and kind at regular intervals during the year especially at the time of harvesting, Holi, Diwali, Guru Purnima, Navratri, and other auspicious days or on customary occasions like sacred thread ceremony, betrothal, marriage, death, etc.

PRAJAPATI-MARU

II.6 The forefathers of Maru Prajapati family stayed at Mount Abu and were known as Abu Parmar 200 years ago. Thereafter the family migrated to Shanpur, a village in Rajasthan and lived there for about 50 years. They had relatives staying there for 150 years. The craftsman migrated from Shanpur village to Ahmedabad before 10 years alongwith his family. He served at Ahmedabad for 5 years and subsequently migrated to Kapadvanj and started a soap factory. The surname of the artisan is Parmar who belongs to Maru sub-caste of the main caste, Prajapati.

WORKSHOPS AND DWELLINGS

II.7 Of 5 establishments, 3 are workshop-*cum*-dwellings, while the remaining two have separate workshops. All the three workshop-*cum*-dwellings are owned premises, while the two workshops one each of Maru Prajapati and a Muslim household are rented and admeasures 750 sq. ft. each. The rest have an area ranging between 200 to 700 sq. ft. All the five establishments have a separate sale depot or shop in the main bazaar of the town.

II.8 Regarding residential accommodation, four families use two rooms each, while one lives in a single room tenement. Light and ventilation in all the dwellings are good.

LITERACY

II.9 The total family members in all the households engaged in the craft number 49—23 males and 26 females. Of these, 19 or 38.78 per cent are illiterate, 25 or nearly 50 per cent have received primary education and 5 have studied up to secondary level. None is matriculate or above. Among males only 4 out of 23 are illiterate, 16 have studied up to primary and three up to secondary. Out of 26 females, 15 are illiterate, 9 have studied up to primary and 2 up to secondary level.

FAMILY STRUCTURE

II.10 The total number of members in all the five households is 49 giving an average of 9.8 persons per household. Of these, two households one each of Muslim and Prajapati are large size families having 17 and 13 members respectively, whereas of the remaining three the Barot family has 7 members and the Parsi and Muslim have 6 members each. Out of 49 persons, 8 are earners and the rest non-earners. Of 41 non-earners (14 males and 27 females), 12 are children not attending school, 19 are students and the rest females engaged in household duties. None of the females is an earner. The earners are all adult males aged between 20 to 59 years.

SECTION III

RAW MATERIALS

III.1 ALL THE five establishments manufacture washing soap in which the chief raw materials employed in the production are various types of oils and alkalis. The oils used are the cocoanut, *mahuda* (*Madhuka indica*), groundnut, castor and maize. Alkalis used are caustic soda and silicate of soda. Other raw materials are *rajan*, i.e., rosin, colours and water. Cocoanut oil and *doliu* (*Mahuda* oil, *Madhuka indica*) are purchased from Ahmedabad, while groundnut and castor oils are had locally. *Rajan* or rosin (*Pinus longifolia*) is imported from Hoshiyarpur in the Punjab. Caustic soda is obtained from Ahmedabad as well as Bombay, whereas silicate is procured from Nadiad and Boriavi. The required colours in the powder form soluble in water are obtained from Ahmedabad. Raw materials used, their prices and place of procurement are given in the statement that follows.

STATEMENT II

Raw materials

Sl. No.	Raw material	Unit	Price (in Rs.)	Place of procurement
1	2	3	4	5
1	Caustic Soda	300 kg. Barrel	68.50 per 50 kg.	Ahmedabad & Bombay
2	Rajan .	17 to 18 kg. Barrel and Tin	35.00 per 20 kg.	Hoshiyarpur (Punjab)
3	Silicate .	3 to 4 quintel	30.00 per quintel	Nadiad and Boriavi
4	Oils			
	(a) Castor oil	Std. Md.	64.00 per std. md.	Local
	(b) Cocoanut oil	kg. (20)	98.00 per 20 kg.	Ahmedabad
	(c) Groundnut oil	kg. (16) Tin	39.50 per 16 kg. Tin	Local
5	Colours I. C. I.	kg.	120 to 180 per kg.	Ahmedabad
6	Fuel (Fire wood) .	Loose	1.25 per 20 kg.	Local

A brief account of the raw materials n use is given below.

(1) OILS

III.2 Different oils used in the manufacture of soap are:

(a) *Cocoanut Oil*

Cocoanut oil is the most important of the fatty substances suitable for soap making. It has a pleasant odour, and makes a good white soap, lathering freely in both fresh and salt water.

(b) *Groundnut Oil*

Groundnut oil is an edible oil, has a pleasant taste and is mainly used for cooking purposes. The soap gives scanty lather. Gujarat has a large area under groundnut cultivation and has a number of oil mills spread throughout the State, besides plants for extracting oil from groundnut cake which is non-edible, and is also used in soap making. Being a groundnut growing area Kapadvanj itself has five oil mills.

(c) *Castor Oil*

Castor oil can be used either alone or with other oils in soap making. Castor oil is locally available. It varies in colour from light yellow to dark brown. The oil gives a soft soluble soap with caustic soda.

(d) *Mahuda oil*

Mahuda oil is also fairly used in soap making. It is generally used along with other oils to give a balanced softness to the soap. It produces thin but ample lather.

(2) ALKALIS

(a) *Caustic Soda*

III.3 Caustic soda is an important ingredient in soap making. It was formerly obtained by

treating soda-ash with lime water. But this method of making lye is now obsolete as caustic soda is readily available at comparatively cheaper prices. It is available in the form of flakes or lumps packed in cylindrical iron drums. The flakes are very easy to handle but more expensive than solid lumps. Caustic soda is a creamy white substance having a slightly fibrous structure. It is hygroscopic. Available in a variety of grades, it contains various proportions of caustic soda.

(b) *Silicate of Soda*

Silicate of soda is a mixture of soda-ash, fine sand and other ingredients. It has a white colour and is in dense liquid form retained in drum. It makes the finished product heavy in weight. It is procured from Ahmedabad city.

(3) OTHERS

(a) *Rajan (Rosin)*

III.4 It is a brittle and transparent substance. Its colour varies in shade from white to brown according to quality. It is a plant product obtained from pine trees. It increases the cleansing power of soap and promotes formation of lather. It is obtained from Hoshiyarpur in Panjab State.

(b) *Water*

Water is essential for the preparation of solutions of the alkalis and other substances. It is also required to be added in appreciable quantities during the boiling process. Water should be clear and soft, otherwise the impurities in water are likely to be carried into soap.

(c) *Colours*

Variegated colours are used to produce soap of different colours. White, green and yellow colours of I.C.I. are generally used at this centre.

SECTION IV

TOOLS AND TECHNIQUE

I. Tools

IV.1 The tools required are pan, soap cutting machine, chipping machine, stamping machine, frames, etc. The statement below lists the tools and implements required in the manufacture of soap, their uses and prices.

STATEMENT III

Tools and implements

Sl. No.	Tools/ implements	Local name	Price per article (in Rs.)	From where procured	Use	Life years
1	2	3	4	5	6	7
1	Pan	Tavda	Rs. 70 to 650 according to size	Ahmedabad	Boiling	10
2	Press machine	Press machine	550	Ahmedabad	Pressing	10
3	Cutting machine	Kapavanu machine	150	Ahmedabad	Cutting	8
4	Chipping machine	Bhuki machine	125	Ahmedabad	Chipping	5
5	Die	Biba	70	Ahmedabad	Impressing	10
6	Frames	Malakhu, Choki	25	Ahmedabad	Cooling	5
7	Drum	Pip	10	Ahmedabad	Making solution	2
8	Oven	Bhatthi	100	Local	Heating	25

IV.2 The total investment in tools and implements by all the five establishments comes to Rs. 14,500 and ranges between Rs. 1,000 to Rs. 5,000 per establishment. Two establishments of them have invested Rs. 5,000 each, and the remaining Rs. 2,000, Rs. 1,500 and Rs. 1,000 respectively giving an average of Rs. 2,900 per establishment. Brief description of each of the tools is given below.

Pan—Pan is used for boiling the mixture of caustic soda, oil, *rajan*, etc. It is made of iron sheet and varies in size. Small pans are made of one piece but larger ones are made of several pieces rivetted together. Price of a pan varies according to size. It is usually purchased from Ahmedabad.

Soap frames—Soap frames for cooling soap are made of iron sheets and are rectangular in shape. These are of various sizes and capacities. Soap is allowed to settle in these frames till it completely cools down.

Soap cutting machine—Slabs of soap are cut into bars with the help of a cutting machine. The machine has an upright frame with a fixed wire adjustable for suitable distances. The frame is fixed on the one edge of the table. The slab of soap is placed on the table and the frame drawn over the slab cuts in into bars of required sizes.

Stamping machine—Bar soap, cakes and other finished products of soap are decently stamped with name of the manufacturer on one side and the trade marks on the other. The stamping is done with a hand machine. The most significant part is the die of the machine. Various designs are imprinted by changing the die. Manufacturers get dies prepared at Ahmedabad according to the required designs.

Chipping machine—The chipping machine consists of a vertical rotating aluminium disc having sharp teeth. The disc is rotated by a handle attached to the other end of the machine.

Oven—Bhatthi or oven is made of bricks and cement. *Bhatthis* are circular in shape and differ in cost according to their size and structure.

II. Technique

IV.3 There are three well-known methods of soap making, namely the cold process, the semi-boiled method and the full-boiled method. At Kapadvanj soap is manufactured by semi-boiled method described below:

IV.4 First of all caustic solution is prepared by dissolving solid caustic soda crystals in water in a drum. In about 20 kg. of water, 3 kg. of caustic soda are added and the solution is stirred constantly for 3 to 4 hours by means of a *tavetha* or a stirring rod made of iron. A hydrometer is used to measure the specific gravity of the solution. The strength of caustic lye should neither be weaker nor stronger than the one required to start saponification. Generally the lye of 50° tw. is considered suitable. When the solution of the required strength is ready it is poured in the pan placed on the oven. Heat is applied for an hour or so till the solution becomes hot. Oils of cocoanut, groundnut, *doliu* (*Madhuka indica*) and maize are added in required proportion. The proportion of various oils depends on the quality of the soap to be manufactured. Thereafter the solution is constantly stirred with the help of a *tavetha* or big iron ladle for three to four hours.

IV.5 *Rajan* and castor oil are mixed in a small drum. *Rajan* which is in solid form easily dissolves in castor oil. The mixture is then heated on an iron *sigree* or a portable iron grate for about 30 minutes. The resultant solution is added to the contents in the iron pan and stirred constantly until it gets completely mixed with the solution of caustic soda and oil. Silicate of soda, a dense liquid is thereafter added to the mixture and stirred. After adding silicate, it becomes a thick paste. The pan is removed and contents of the pan are poured in soap frames made of iron sheets. The entire process takes about 4 to 5 hours. The thick mass of soap is allowed to remain for 3 days in frames for cooling. The frames are then emptied by slowly striking them against the floor, giving out large rectangular blocks, which are cut into slabs of smaller sizes with the help of a long steel wire fixed to wooden handles at two ends. The wire is placed just over the marks made on the blocks and then drawn through. The operation is known as slabbing operation. The slabs are cut into bars or pieces of desired size and shape with the help of a cutting machine which has a verticle wire adjustable at suitable distances, attached to an upright frame. The slab of soap is first placed on the table and the wire drawn over it cuts it into required size and shape. The soap bars are uneven and are polished by the stamping machine used for impressing the trade mark. The upper die is attached to the iron rod of the stamping machine, while the lower die is placed in a copper case in which the soap is put. The machine is operated by the pressure of legs applied on the mechanism at the bottom. The iron rod moves down with the upper die and presses the upper part of the soap, leaving its impression on the soap. There are various dies with different designs and description thereon. The *bhuki* or chips are obtained by operating the chipping machine. Chipping machine consists of vertically rotating aluminium disc having sharp teeth. The disc is joined with a long circular rod fixed at the other hand to the iron wheel having a wooden handle. The machine has a stand on which soap is placed. The iron wheel when rotated with a handle, turns the circular disc, which cuts soap into chips which come out from the holes of the aluminium disc, and are collected in wooden boxes placed below.

Process of Manufacturing Soap from Oos

IV.6 The old process of manufacturing soap from *oos* is not followed now. It is described below, as it will be found interesting.

Oos which is a compound of carbonates and silicate of soda with several mineral impurities is found deposited in layers in saline land. It is a white efflorescence occuring on the surface of the earth found immediately after the end of the monsoon and collected in winter. Vanzaras, a pastoral community used to collect it in the past from saline tracts and sell it to the

manufacturers. Sometimes they collected it themselves from the near-by areas.

IV.7 *Oos* was first mixed with lime and dissolved in water to remove its impurities. Small tanks of bricks plastered with lime known as *tanka* 4 to 5 feet deep, 5 to 7 feet long and 5 to 6 feet broad were used for the purpose. *Lakda-ni-machi* or a frame of wooden strips crossing each other at right angles placed at the middle of the tank divided it into upper and lower portion, the former for keeping the mixture of *oos* and lime and the latter for collecting the solution. This wooden frame is covered with grass known as *saghatara-nu-ghas* available in plenty in near-by areas. A powdered mixture of *oos* and lime is filled in the upper portion on the wooden frame covered with grass. Water is poured slowly on the powdered mixture with bucket, till the tank is filled. Because of chemical reaction of lime and other ingrediants in *oos*, alkalies required in soap making dissolve in water in about 2 hours. After two hours, a small hole kept at the bottom of the tank is opened to allow the solution to come out. This solution is filled in the buckets and collected in a big iron pan kept on *bhattha* or oven. Sometimes the process of obtaining caustic solution from *oos* was carried out repeatedly in four to five different tanks of requisite capacity. The upper portions over the false bottoms of the tanks was first filled with *oos* and water poured over it and allowed to macerate for sometime till the soluble salts got dissolved in water (which take 2 to 3 hours generally). The resultant solution of the first tank is taken out from the bottom cock and poured over the *oos* in the second tank and allowed to macerate till the soluble salts are dissolved in it. The solution of the second tank is taken out and poured over the *oos* in the third tank. The process is repeated till the liquid gains the required strength necessary for saponification. *Mahuda* oil or *doliyu* is added to the solution in the proportion of 50 per cent of the solution. In other words 5 mds. of oil is added to 10 mds. of solution. The mixture is boiled in the iron pan for 10 to 12 hours and continuously stirred with *tavetha* or a wooden ladle. After 10 to 12 hours of boiling, soap in the form of foams floats over water in the pan. This is collected with *jhara* or a perforated ladle in a *chokdi* or a rectangular receptacle constructed on the ground for cooling. It is 5 feet long, 4 feet broad and one foot deep. Within 2 to 3 hours it cools down and becomes a dense paste, which is again placed in a pan and pounded with a wooden *dhoka* with a continuous rotary movement so that the paste becomes fine and smooth. When this process is over *gola* or round pieces of soap are prepared from the paste on a marble stone with the palm of the hand.

SECTION V

FINISHED PRODUCTS AND MARKETING

Finished Products

V.1 Lata or soap bars, *goti* or square and rectangular pieces of various sizes and shapes and *bhuki* or chips are the usual forms in which soap is sold. Bars and soap cakes bear the trade mark of the establishment on one side and impressions of birds, animals and flowers on the reverse to make it attractive. Prices vary according to the quality and quantity of the product.

V.2 Finished products are stored in wooden boxes. *Lata* or soap bars and cakes are wrapped in printed paper bearing the trade mark and the address of manufacturing firm, which also serves the purpose of advertisement. The wrappers are attractive and printed in green, blue and black. But plain brown paper marked with rubber stamp showing the trade name, etc., is used in large packings. The *bhuki* or chips are packed in transparent plastic bags having capacity of one kilo or two.

Marketing

V.3 The finished products are sold wholesale as well as retail. All establishments have their sale depot in the main bazaar of the town. Wholesale purchasers are either the local traders or the merchants of the surrounding villages. The sale transactions are mostly in cash but in some cases credit is also given. In that case money is recovered within 15 to 90 days. Soap is transported in hand-lorry to the near-by villages and by S.T. bus to places at a distance over 8 to 10 miles.

SECTION VI

ECONOMIC CHARACTERISTICS

VI.1 A NUMBER of factors like investment, market, type of raw materials used, etc., affects the economics of the industry. It provides employment to 14 hired workers and 8 family workers. The following statement shows the extent of investment, production, employment and income of the industry.

STATEMENT IV

Employment and production

Sl. No. of establishment	Investment in tools and implements (in Rs.)	Approximate value of annual production (in Rs.)	Persons employed in production		Approximate net income per annum (in Rs.)
			Household	Hired	
1	2	3	4	5	6
1	1,000	14,000	1	5(Muslim)	2,800
2	5,000	40,000	1	4(Muslim & Hindu)	4,000
3	5,000	125,000	4	4(Maru Prajapati)	10,000
4	2,000	9,000	1	1(Kachhiya Patel)	1,000
5	1,500	10,000	1	1(Muslim)	2,000

VI.2 Total annual production of soap per annum can be valued at Rs. 1.98 lakhs approximately. Production of individual units varies according to the size of establishment and ranges from Rs. 9,000 to Rs. 1.25 lakhs per annum. Investment in tools and implements ranges between Rs. 1,000 and Rs. 5,000. The total investment in all the five establishments comes to Rs. 14,500. All the establishments have invested their own capital in the industry. The industry provides employment to 22 persons of whom 8 or 36.36 per cent are family workers and the rest are hired workers. The hired workers belong to Muslim, Maru Prajapati and Kachhiya Patel communities. They are paid monthly salary at the rate of Rs. 65 and employed throughout the year. The total number of working days comes to 300 per year as the establishments remain closed on Sundays and holidays like Holi, Divali, Muharram, Id, etc. They work for 8 hours a day, i.e., 8 A.M. to 12 noon and 2 P.M. to 6 P.M. Summer is the peak season and monsoon the slack season, winter being medium. Additional hired workers ranging from 5 to 8 in number are employed during peak season. There is no guild, society or association connected with the craft.

VI.3 Approximate net income from the industry can be estimated roughly at 10 per cent of the total production cost. For producing 200 kg. of soap the cost of input factors can be roughly accounted for as under:

Input factors	Unit	Value in Rs.
Various types of oils	160 kg.	175
Caustic soda & silicate	40 kg.	35
Fuel, labour and other charges . . .	..	15
Total		**225**

VI.4 The total annual net income from this industry can be estimated at Rs. 19,800, and varies from Rs. 1,000 to Rs. 10,000 per establishment.

VI.5 The Parsi family has a subsidiary occupation, viz., sale of trunks etc., and one of the Muslim household sells other soaps like Lux, Sunlight, etc., besides those which are locally manufactured. The rest of the units do not go

in for any subsidiary occupation. The hired workers have also to supplement their income by selling vegetables, making *bidi*, etc.

TRAINING

VI.6 Neither the owner nor the hired workers have taken scientific training in soap making at any institution. They have acquired the skill and mastered the technique by experience. Barot and Muslim owners had traditional skill while the Prajapati was formerly selling soap as a hawker and had also worked in soap making industry for 7 to 8 years. Others had no such experience either traditional or otherwise. None of them has received any scientific training in soap making. Soap making industry demands greater skill and up-to-date scientific knowledge for quality production. It will be difficult for an industry worked on a household or small-scale basis to withstand the competition of large firms and their quality do not keep pace with technological advance.

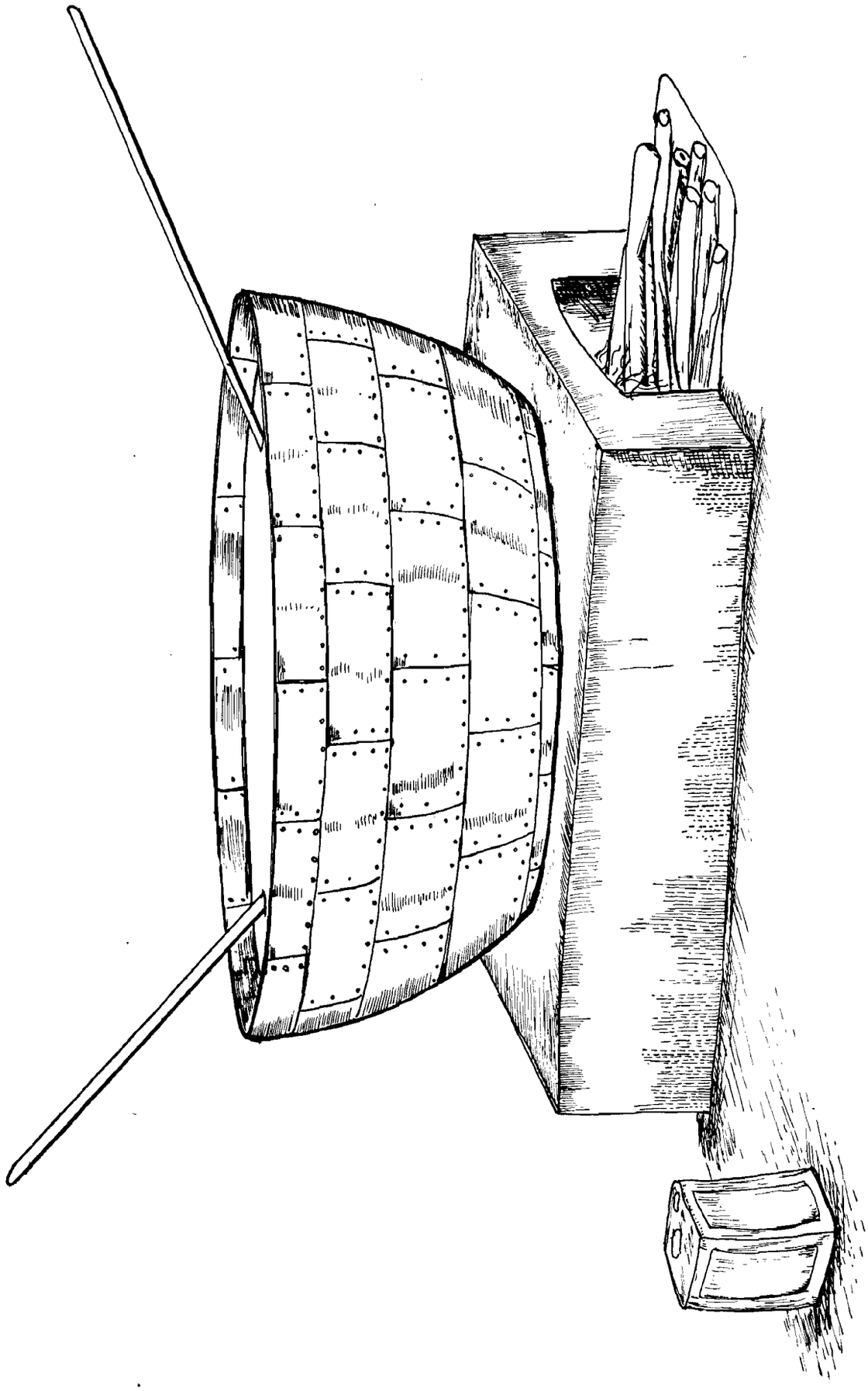
HEALTH

VI.7 Sturdy and robust physique is indispensable for the artisans as they have to deal with heavy instruments like iron pans, soap frames, etc. They have also to work constantly in heat near fire and handle boiling solution of caustic soda which affects adversely the eye-sight. Constant dealing with caustic soda and soap also causes skin diseases, malformation of skin, and black spots in the plam of the craftsmen.

FUTURE

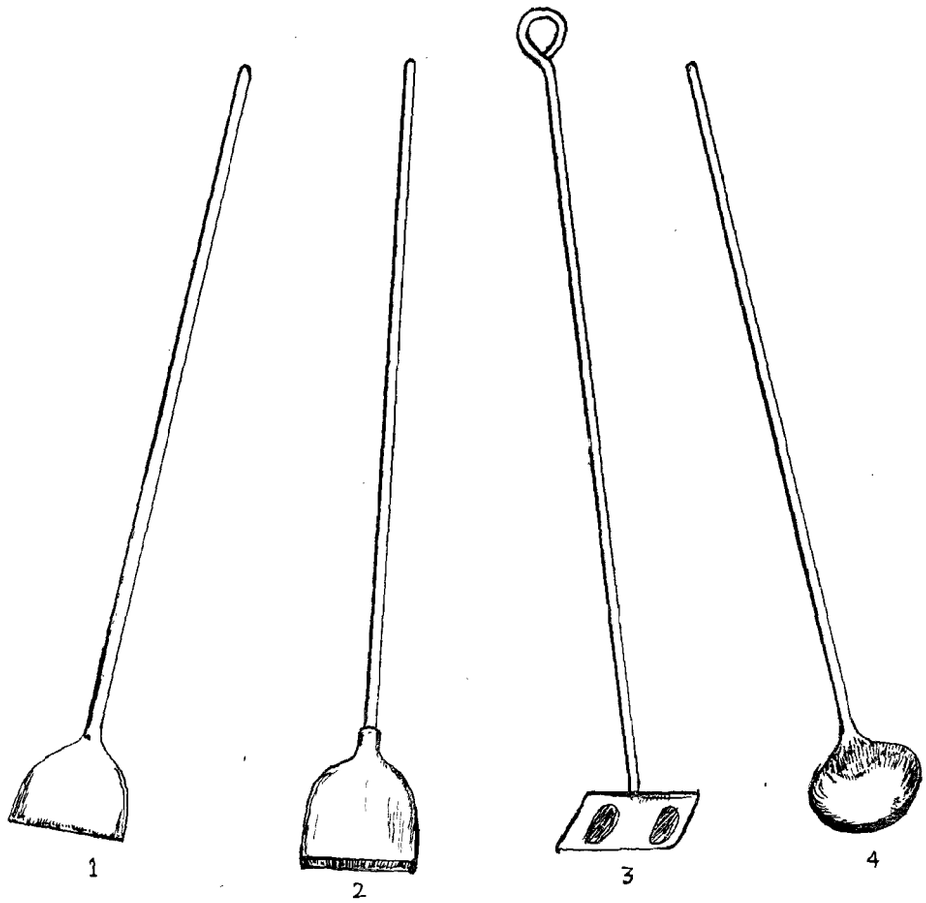
VI.8 The *per capita* consumption of soap in India is much less compared to European countries. There is a steadily increasing trend in the consumption of soap. The future demand for soap will increase even at a greater pace because of (1) increase in population, (2) rise in income levels, (3) impact of urbanisation on rural areas, (4) changes in the habit of the people as regards cleanliness and hygiene, (5) improvement in water supply, etc. The industry at Kapadvanj which is so far worked on small-scale has been able to command a good market, as the soap manufactured is comparatively cheaper than the expensive brand produced by larger establishments and preferred by a section of consumers who are mostly from rural areas. Moreover because of the relative cheapness of labour available at the centre and assured market in villages make its production fairly remunerative. The cottage and small structure of this industry contributes sizeable amount in soap production. But with the advent of time the small and cottage sector will have to adopt more scientific method of soap making by utilizing better tools, implements and technical know-how. Some of the establishments at Kapadvanj are anxious to take up manufacture of toilet soap if the requisite financial assistance and training are made available to them by Government. For, whereas hand-driven appliances now in use do not warrant accuracy and precision in quality, high cost of raw materials, stand in the way of their storage in sufficient quantity, because of their limited financial capacity. The shortage of raw materials affects production and result in customers not getting goods in time.

PLATES

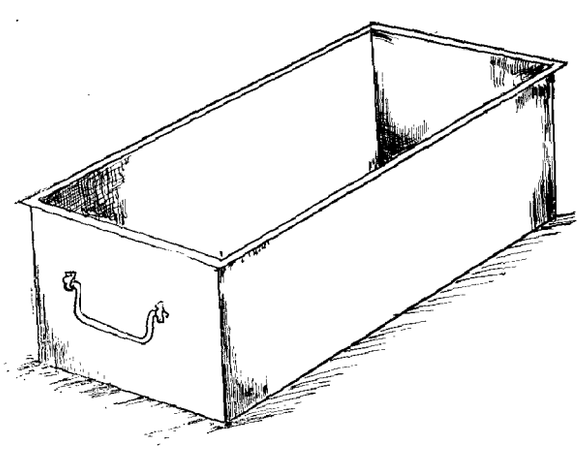


Iron pan for boiling soap solution

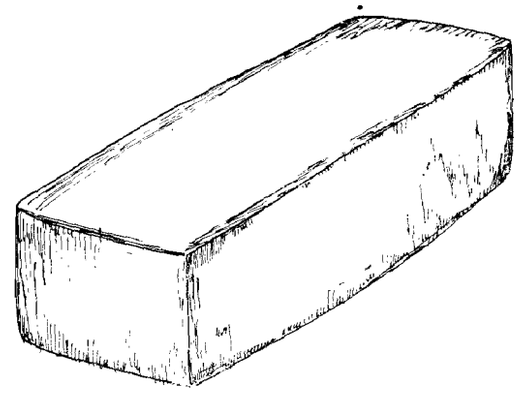
PLATE II



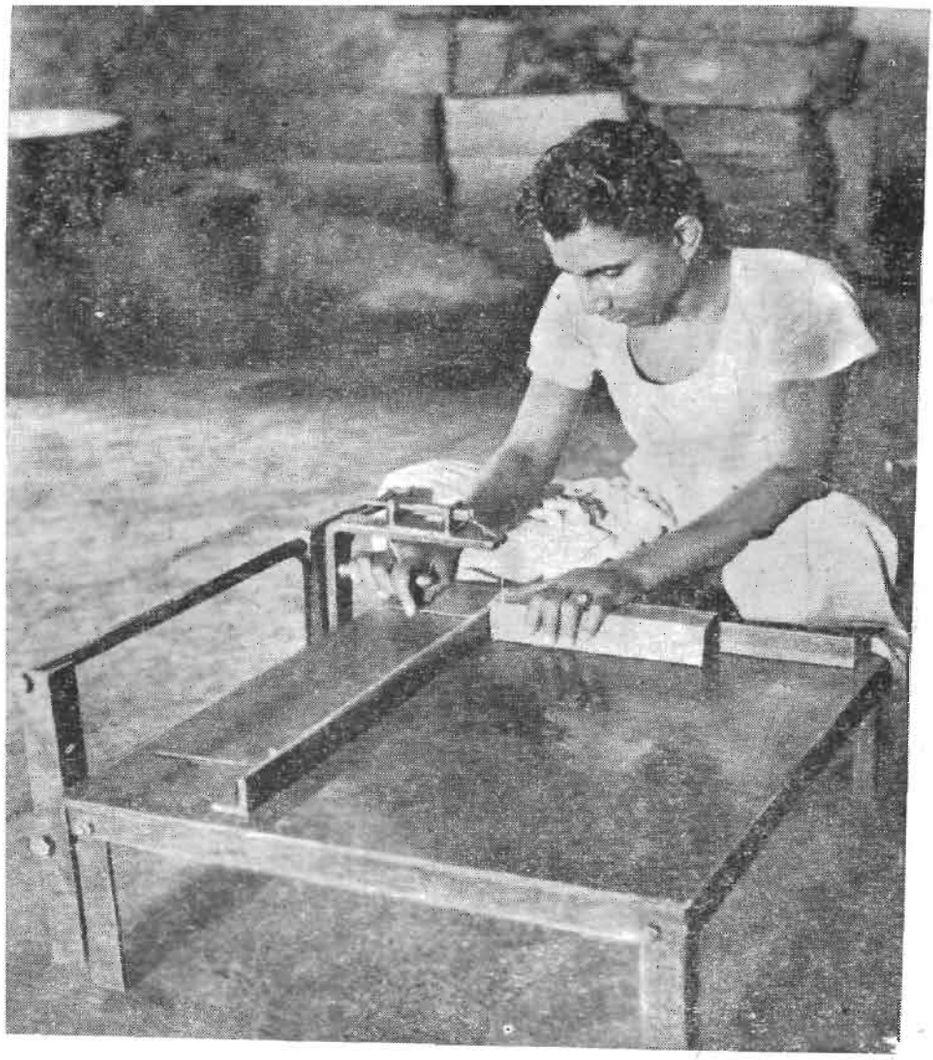
1. *Tavetha*; 2. *Doya*; 3. *Pavdi*; 4. *Kharvi*



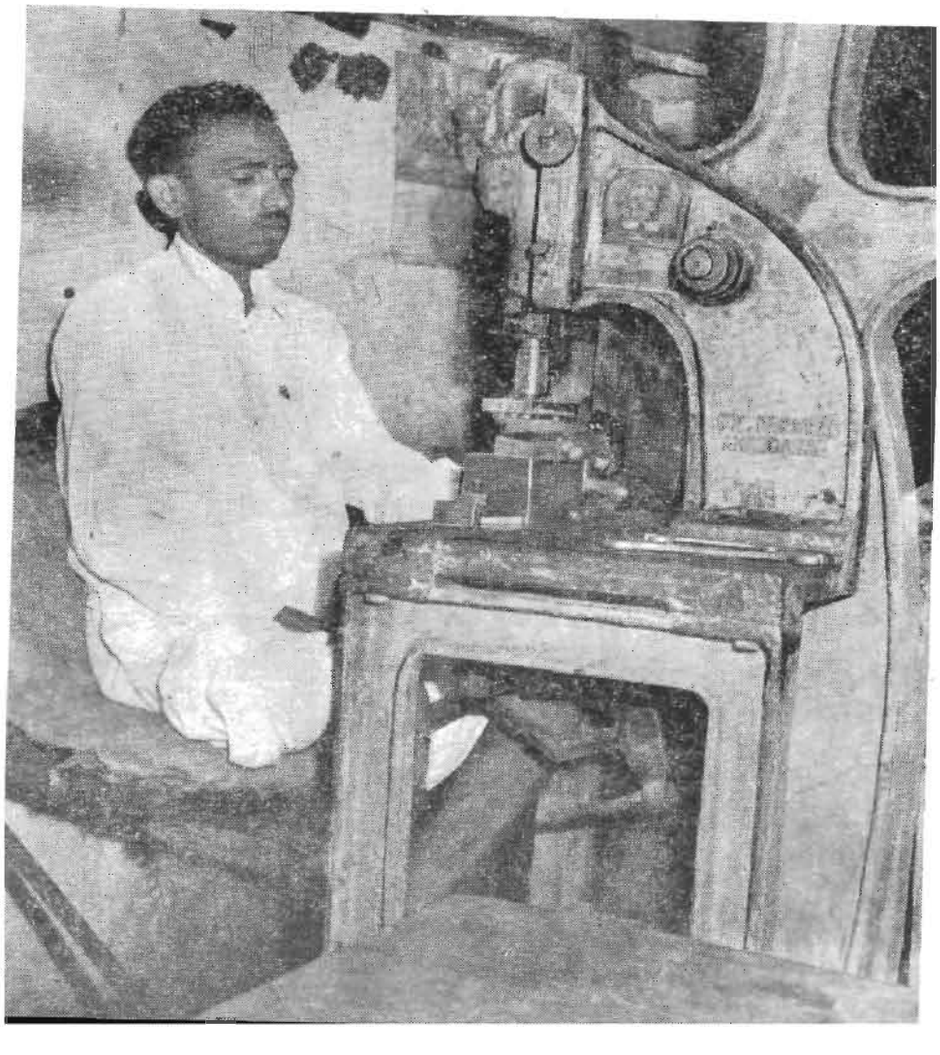
Soap frame



Soap block taken out from the frame

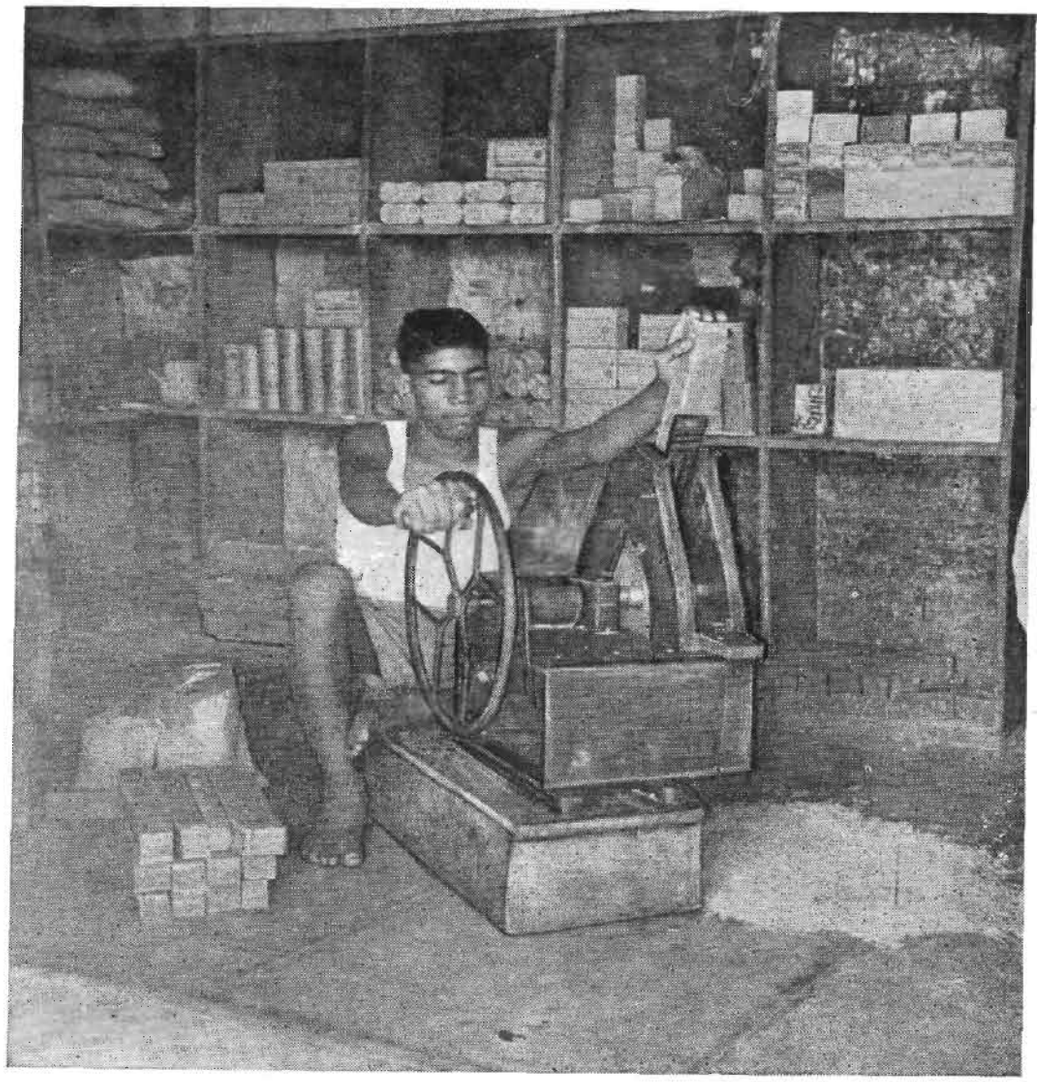


Cutting machine

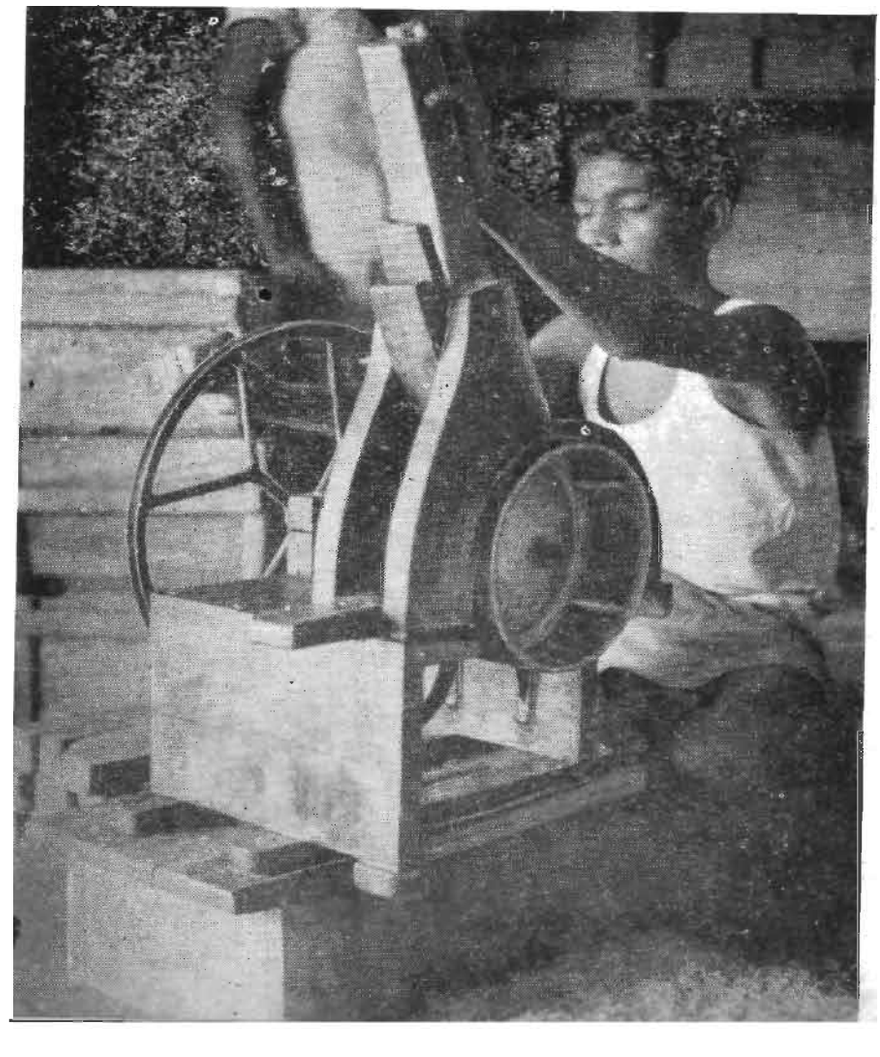


Pressing the trade-mark on soap cakes

PLATE IV

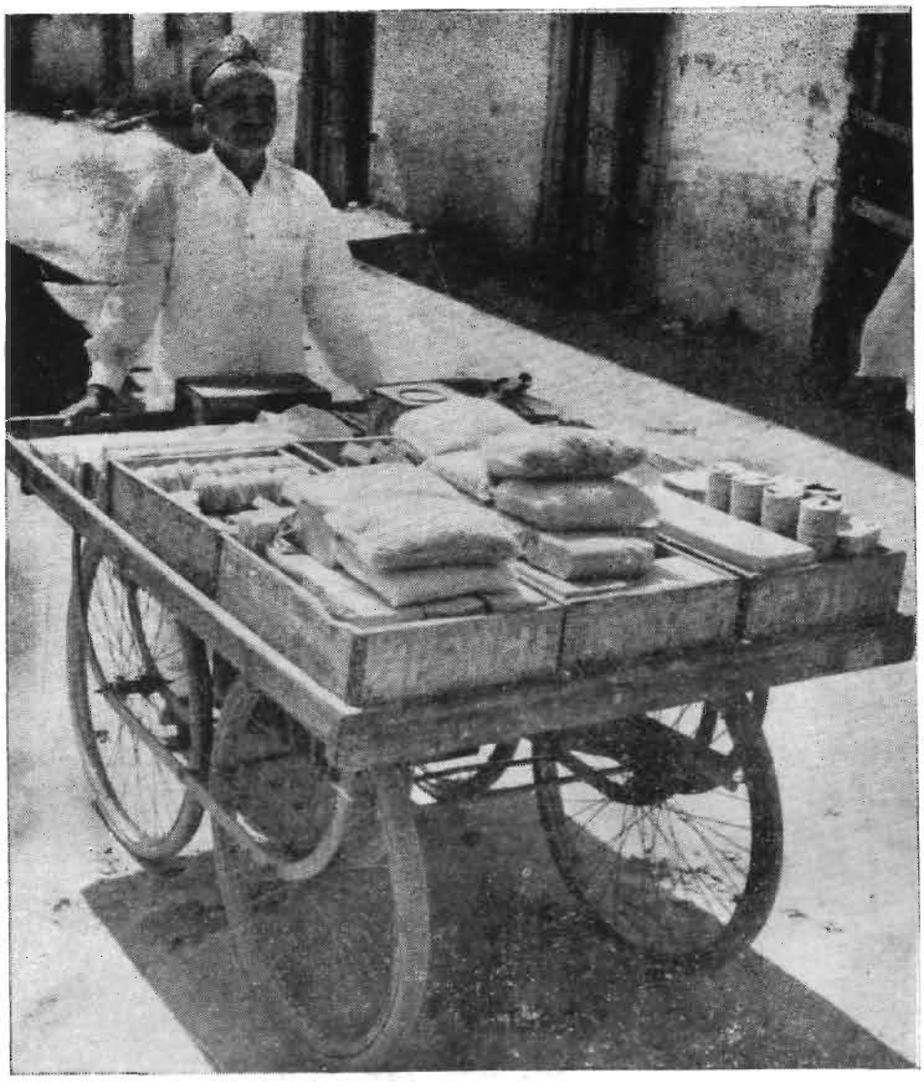


Cutting soap into chips





Soap bars and cakes ready for sale



To the consumers

APPENDIX

APPENDIX

TABLE I

Number of family members employed in production

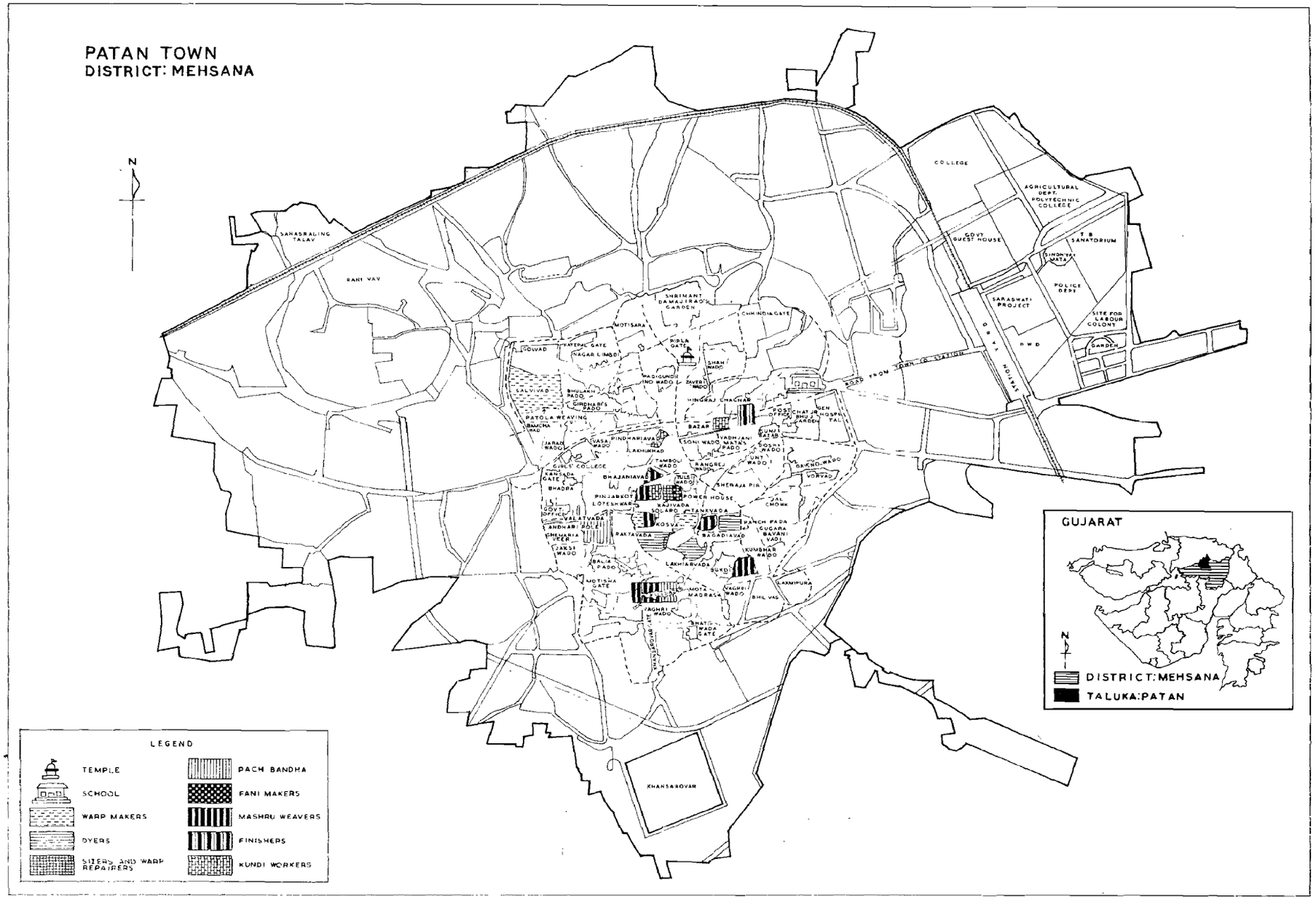
Name of craft	No. of village/town surveyed	No. of family members employed in production		
		Persons	Males	Females
1	2	3	4	5
Soap making	1 Kapadvanj	8	8	..

TABLE II

Distribution of artisan communities

Name of caste or community	No. of villages/towns surveyed	Approximate No. of families	Total number of adult family workers			No. 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
Total	**1**	**5**	**8**	**8**	..	--	
Muslim	1 (Kapadvanj)	2	2	2	..	..	In own workshop
Prajapati	-do-	1	4	4	..	..	-do-
Barot	-do-	1	1	1	..	..	-do-
Parsi	-do-	1	1	1	..	..	-do-

3. MASHRU WEAVING OF PATAN


PATAN TOWN
DISTRICT: MEHSANA
N
SAHASRALING TALAV
RANI VAV
COLLEGE
AGRICULTURAL DEPT. POLYTECHNIC COLLEGE
GOVT GUEST HOUSE
T B SANATORIUM
SARASWATI PROJECT
POLICE DEPT
SITE FOR LABOUR COLONY
GARDEN
P.W.D
CIVIL HOSPITAL
SHRIMANT DAMAJIRAO'S GARDEN
MOTISARA
KHANSAROVAR
GUJARAT
DISTRICT: MEHSANA
TALUKA: PATAN
LEGEND
TEMPLE
SCHOOL
WARP MAKERS
DYERS
SIZERS AND WARP REPAIRERS
PACH BANDHA
PANI MAKERS
MASHRU WEAVERS
FINISHERS
KUNDI WORKERS

SECTION I

INTRODUCTION

Introduction

I.1 Food and clothes have been the primary needs of man. The satisfaction of hunger is no doubt the strongest urge in a living being; but no less strong are the urges to cover his body, to protect himself from the inclemencies of Nature and to adorn oneself according to his means and taste.

I.2 In India, the textile art is very old. Cotton spinning and cotton weaving go back to the earliest recorded days of civilisation. Cotton fabrics have been found in the excavations at Mohenjodaro, the ruins of which, as is well-known to-day, are attributed to the 3rd millennium B.C. The mention of silk and silkworms is also found in the early epics of India. Silk has been the special product of China, but it is possible that it was introduced into India long before the age of the epics.

"Banaras silk is also mentioned in the Buddhists Jatakas, and Egyptian mummies are known to have been wrapt in Indian muslin."[1] The Indians turned this material into a highly specialised craft and Indian silk products were prized greatly in other countries until recent times.

I.3 Use of mixed silk and cotton fabrics in textile seems to have been introduced in this sub-continent only after the arrival of Muslims as the prohibition in Mohomedan ceremonies against wearing pure silk garments, very possibly, was the great incentive to the invention of methods by which artistic effects of silk might be secured without violation of that injunction. Mixed silk and cotton textiles called *mashru* seems to have been thus introduced. The term *mashru* means permitted and seems to refer to this prohibition of use of pure silk by Muslims. *Mashrus* are made also of pure silk or cotton, but the true ones are those in which silk and cotton are mixed so that even the orthodox Muslim can wear it.

I.4 *Mashru* at Patan is a fabric with art silk yarn as warp and cotton yarn as weft unlike *Himroo* in which cotton yarn is used as warp and silk yarn as weft.

> "Mixed silk and cotton fabrics are met with all over India, and many of them are exceedingly beautiful, as for example those with a wavy line or *khanjari*... Mashrus both in pure silk or pure cotton or still more abundantly mixed silk and cotton have come to the exhibition from practically every province. They constitute one of the most significant of Indian textiles..."

This extract about *mashru* work from Sir George Watt's '*Indian Art at Delhi*-1903' shows the popularity of this craft throughout India till the beginning of the 20th century. Some of the main centres of *mashru* weaving in India are Aurangabad, Banaras, Murshidabad and Tanjore. Patan in Gujarat having about 200 families engaged in the craft has been an important centre of *mashru* weaving since 12th century.

Glory That was Patan

I.5 Situated on the bank of the river Saraswati, Patan is a railway station on Mehsana–Kakoshi metre gauge railway line of the Western Railway. To-day it is the only important centre of *mashru* weaving in Gujarat with regular and continuous production all round the year. Originally known as Anhilwad Patan it was founded by king Vanraj of Chavda dynasty in the Samvat year 802 (746 A.D.). Patan was at the zenith of its glory during the reign of king Siddharaja Jaisimha (11–12th century).

1. Shanti Swarup, *The Arts and Crafts of India and Pakistan*, p. 80, 1957

I.6 The following descriptions of the capital itself are, however, to be found in the *Koomar Pal Charittra* and *Ras Mala.*

"Unhilpoor was twelve coss in circuit, within which were many temples and colleges; eighty-four squares; eighty-four market-places, with mints for gold and silver coin. Each class had its separate quarter, as had each description of merchandise—elephants' teeth, silks, purples, diamonds, pearls, etc., each had its separate square. There was one market-place for money-changers; one for perfumes and unguents; one for physicians; one for artizans; one for goldsmiths and another for silversmiths; there were distinct quarters for navigators, for bards, and for genealogists. The eighteen 'wurun' inhabited the city; all were happy together. The palace groaned with a multitude of separate buildings—for the armory, for elephants, for horses and chariots, for the public accountants and officers of state. Each kind of goods had its separate custom-house, where the duties of export, import, and sale were collected—as for spices, fruits, drugs, camphors, metals, and every thing costly of home or foreign growth. It is a place of universal commerce. The daily amount of duties is one lakh of tunkhas. If you ask for water they give you milk. There are many Jain temples, and on the banks of a lake is a shrine to Sehesling Muha Dev. The population delights to saunter amidst the groves of chumpas, palms, rose-apples, sandal trees, mangoes, etc., with every variegated creeper, and fountains whose waters are *umrut*. Here discussions take place on the Veds, carrying instruction to the listener. There is no want of Jain priests, or of merchants true to their word, and skilled in commerce; and there are many schools for teaching grammar. Unhilwara is a sea of human beings. If you can measure the waters of the ocean, then you may attempt to count the number of souls. The army is numerous, nor is there any lack of bell-bearing elephants."

"Of all this splendour, it is melancholy to relate, hardly a vestige remains. The relics of Unhilwara lie in a flat country within and around the walls of the modern city of Puttun; but, like those of Wullubheepoor, they are discovered only by excavation. Chiselled marble, however, instead of Babylonish brick, forms the debris of the capital of Wun Raj. It was brought probably, in part at least, from the hills of Arasoor, whose blue outline may be beheld on the horizon of this scene of sandy desolation. A portion still remains of the well which was constructed by the Queen of Bheem Dev I., and the site of the splendid reservoir of Sidh Raj is indicated at a distance by an octagonal Moslem tomb, which now occupies a mound in its centre. With the rest, six centuries and the fury of the Mohummedans have done their work. That 'which Cambyses or time hath spared', moreover, 'avarice now consumeth', and the poor cold ashes of Unhilwara are sold for a pitiful gain by her vulgar Mahratta lords, ignorant as they are alike of her glory and of their own dishonour."[1]

I.7 To-day it is known all over the world for 'Patola' a pure silk *sari*, the greatest masterpiece of the Indian dyer's and weaver's art. It is also known for colourful clay toys and glazed pottery. It is quite possible that these crafts might have been developed at Patan only because it remained a capital of Gujarat for a long period and during that period it must have attracted skilled craftsmen from different corners of the country. It is a class II town of Mehsana district having a population of 51,953 persons (1961 Census) and headquarters of a taluka and a subdivision. It is connected by State Transport bus routes with Ahmedabad, Mehsana, Chanasma, etc.

1. FORBES, A. K., *Ras Mala*, pp. 249–250, 1924

SECTION II

CRAFTSMEN

CRAFTSMEN

II.1 THE TRADITIONAL *mashru* weavers at Patan are from two communities (1) Khatri and (2) Shaikh. It is believed that Khatris came to Patan from Champaner. Shaikhs belong to Muslim community and seem to have come to Patan in 1200 A. D. during the reign of Kumarpal, a Hindu king of Patan. It is very difficult to trace the origin of the Khatris in absence of any authentic data. However, the legend relating to their origin is reproduced below.

KHATRIS

Name and Origin

"Khatris or weavers, ... are found all over the Presidency. They call themselves Kshatris or Kshatriyas and claim a Kshatriya origin, those in Gujarat claiming to be Brahma Kshatris. As a rule they are tall and fair and they wear the sacred thread. Like the Brahma Kshatris, their favourite objects of worship are Devis or goddesses, and even in the south of the Presidency their home tongue is interspersed with many Hindustani words. These facts would seem to suggest that they originally belonged to the great Kshatri race of the Punjab, but the custom of widow marriage which obtains amongst them, and their ceremonies which closely resemble those of Kunbis in the Deccan, of Smart Deshasth Brahmans in the Karnatak and of Vanias in Gujarat, would suggest some admixture at least of local castes and tribes.

* * * *

Khatris are hereditary silk and cotton weavers. They weave women's robes, waist-cloths, shoulder-cloths and bodice-cloths. Besides weaving they string on wire or thread gems and pearls, make fringes, threads for necklaces, tassels, netted work, and hand and waist ornaments. Their industry has been much crippled since the introduction of machine-made piece-goods.

Division

The social organization of the caste is very intricate. It cannot be said with certainty how many endogamous divisions they have. Broadly speaking, they may be said to consist of the following groups:

1 Brahma Khatri	7 Maratha
2 Gujarati	8 Sahasrarjuna
3 Istari	9 Surti
4 Kapur Khatri	10 Somavanshi
5 Karnatak	11 Suryavanshi
6 Kayat	

The above divisions neither eat together nor intermarry. The Marathas, Gujaratis, Surtis, and Karnataks are of the territorial type. The Somavanshis claim descent from *soma* the moon, the Suryavanshis from *surya* the sun, and the Sahasrarjunas from a mythological hero of that name. Brahma Khatris are an offshoot of the Khatris, claiming a superior status or they represent the Brahma Kshatris proper (*see* BRAHMAKSHATRI). The origin of the other divisions is unknown.

* * * *

They have also *kuls* and *gotras* as follows:

Kuls

Bhangde	Konka
Chavan	Kukare

Gotras

Bharadwaja	Parashar
Gautam	Shandilya
Jamadagni	Valmiki
Kashyap	Vashishtha
Narad	

In some places marriages are prohibited between members belonging to the same *kul*, in others sameness of *gotra* is a bar to intermarriage, while again in some places both

gotras and *kuls* must be different for the contracting parties. Many members do not know to which *gotra* they belong, in which cases either *kuls* or surnames are considered in settling marriages. Marriage with a father's sister's, mother's sister's, or mother's brother's daughter is not allowed. A man may marry two sisters and brothers may marry sisters. Girls are generally married between five and twelve, boys between seven and twenty-five. Polygamy is permissible, but polyandry is unknown.[1]

* * * *

SHAIKH

II.2 As regards the origin of the Shaikhs it is said that the title Shaikh (meaning elder) belongs strictly only to three branches of the Khuraish family to which the Prophet himself belonged. On the strength of the Prophet's tradition (Hadith) that "all converts to my faith are of me and my tribe"[2], the term is now indiscriminately applied to local Hindus and other converts, as well as to foreigners. This has given rise to the saying : A Brahman without a caste is an Audich and a Musalman of no family is a Shaikh.

HOUSEHOLDS ENGAGED

II.3 About 200 households, 100 Muslims and equal number of Khatris and 2 of Prajapati caste are engaged in *mashru* weaving at Patan. Out of these 200 households, 160 have been surveyed comprising 82 or 51.25 per cent Muslims, 76 or 47.50 per cent Khatris and 2 or 1.25 per cent Prajapatis (Kumbhar). All these households have been engaged in this craft traditionally. *Mashru* weaving is their only source of income. They work for about 8-10 hours a day in the craft which leaves no spare time for them to do any other work to raise their income. Both the males as well as females of the household work in the craft as can be seen from the fact that the 160 households which have been surveyed contribute 439 workers, 215 males and 224 females. Thus there is an equal proportion of male and female weavers in this craft. All of them, except only 5, are adults and are above 14 years of age. Various processes like warp making, dyeing of warp and weft, sizing, calendering, etc., associated with the craft of *mashru* weaving are carried out by the members of the households which are traditionally engaged in this craft. The distribution of households engaged in different branches of the craft is detailed below.

Process	No. of households engaged
Warp making	5
Dyeing of the warp and weft	4
Repairing of the warp threads damaged at the time of dyeing	15
Sizing of the warp threads	6
Preparation of *rach*, i.e., heddle	10
Making of a new *fani*, i.e., reed	2
Weaving and weft making	200
Finishing, i.e., washing the *mashru* cloth	2
Kundi, i.e., calendering of *mashru* cloth	8

II.4 Over and above, there are 13 master weavers, i.e., *mashru* trader-*cum*-weavers who belong to Khatri community, besides six traders, one Patel and five Jains. There is also a cooperative society named 'Shri Patan Mashru Hath Vanat Kamdar Sahkari Mandli Limited' engaged in the business of *mashru* on a cooperative basis.

WORKSHOPS AND DWELLINGS

II.5 Various processes mentioned above are carried out in the different localities of the town where the households engaged in these processes are residing. The location of the workshops of the different processes is as under:

Process	Locality
Warp makers	Salvivad, Loteshwar, Tankvada and Kosva
Dyers	Panch Pada, Raktavada and Lakhiarvada
Sizers and warp repairers	Kajivada
Rach Bandha	Andhari Pole, Kalibazar and Valatvada
Fani makers	Kajivada
Mashru weavers	Khatris in Bagadiavad, Koso, Solaro and Bukdi and Muslims in Pinjarkot, Bhajaniavad and Kalil Bazar
Finishers	Hingraj Chachar
Kundi worker	Pinjarkot, Bazar and Pindhariavad

1. ENTHOVEN, R. E., *The Tribes and Castes of Bombay*, Vol. II, pp. 205-208, 1922
2. *Ibid.*, Vol. III, p. 325-, 1922

II.6 The residences of the *mashru* weavers are workshop-*cum*-dwellings. Out of 160 households, 153 or 95.62 per cent households have their workshops in their own houses while the remaining 7 or 4.38 per cent have their workshops in rented premises. Out of 82 Muslim households, 78 or 95.12 per cent have their workshops in their own houses while the remaining 4 or 4.88 per cent have them in rented houses. Amongst 76 Khatri households, 73 or 96.05 per cent have their workshops in their own houses while 3 or 3.95 per cent take them on rent. Two Prajapati households have their workshops in their own houses. 149 or 93.12 per cent of the workshops are situated in the front room, 7 or 4.38 per cent at the rear of the house and the remaining 4 or 2.50 per cent on the upper storey of the house. There is not a single workshop situated away from the residence of craftsmen. The portions of the dwellings in which the weaving workshops are situated are spacious and well-ventilated as the work is such that it requires space, light and air for convenient working.

II.7 59 or 34.50 per cent of the surveyed households live in single room, 83 or 51.88 per cent in two rooms, 16 or 10 per cent in three rooms, and one each have four and six rooms. Accommodation available varies between 51 to 100 sq. feet and more than 250 sq. feet, the latter accounting for 86 or 53.75 per cent of the households.

LITERACY

II.8 There are 970 persons, 498 males and 472 females residing in 160 *mashru* weaving households under survey. Of these 970 persons, 326 or 33.61 per cent are illiterate. 33 or 3.40 per cent are literate without any educational level and 542 or 55.88 per cent have taken primary education, 62 or 6.39 per cent have taken secondary education, 4 or 0.41 per cent are matriculates and 3 or 0.31 per cent are graduates. Thus 69 or 7.11 per cent only have taken secondary or higher education. Amongst males 62 or 12.45 per cent have studied up to secondary or higher standard against 7 or 1.48 per cent of females up to secondary level. Though the rate of literacy is high, there are only 4 matriculates and 3 graduates which goes to show that the *mashru* weavers do not care to give higher education to their children but prefer to train them in their craft so that they can give some helping hand to them and enable them to make both ends meet.

II.9 The following statement compares the proportion of literates in the families of craftsmen with that of Patan town and taluka.

STATEMENT I

Comparative study of literacy

Category particulars	Percentage of literates		
	Total	Males	Females
1	2	3	4
I Mashru craftsmen at Patan	66.39	76.71	55.51
II Patan town	46.83	59.81	33.23
III Patan taluka	30.22	40.14	19.85

The above statistics show that the percentage of literacy is significantly high among *mashru* weavers as compared to others in Patan town and taluka. Sexwise study of literacy also discloses the same tendency.

TYPE OF UNITS

II.10 There are 5 establishments engaged in warp making, 4 in dyeing the warp and weft threads, 15 in repairing the warp threads damaged during dyeing, 6 in sizing, 10 in making *rach*, i.e., heddle and 2 in making new *fani*, i.e., reed. There are about 200 households of weavers having about 400 throw-shuttle looms. There are 2 workshops for finishing the *mashru* cloth and 8 for calendering it. There is one carpenter who makes and repairs tools and implements required in the craft. For the sale of ready-made goods there are 19 traders. Out of 160 *mashru* weaving households, only one household employs 2 hired workers, while all the rest carry on the occupation with the help of family members only. *Mashru* weaving is thus a household industry entirely dependent on family labour. All the artisans work either for the master weaver or trader or cooperative society.

II.11 *Mashru* weavers of Patan have organised themselves into a cooperative society, which was started on 15th January, 1957 with only

34 members and a share capital of Rs. 525. The society has made steady progress and at present its membership has increased to 39. It has a share capital of Rs. 5,625, including the shares worth Rs. 1,000 purchased by the Government of Gujarat. It has working funds to the tune of Rs. 21,210.79 P. and its turnover in 1964–65 stood at Rs. 183,034.87 P.

The society imports cotton yarn from Saurashtra Cooperative Spinning Mill, Limbdi and Art Silk of Indian Rayon Corporation and Baroda Rayon from Surat. The society supplies them to the different branches of the craft to get the various processes done through the artisans on piecework basis. The finished product is also sold by the society to the traders. Nowadays the market is confined to Gujarat, Rajasthan and Madhya Pradesh.

SECTION III

RAW MATERIALS

RAW MATERIALS

III.1 THE MAIN raw materials used in *mashru* weaving are mill-spun undyed cotton yarn No. 14 and artificial silk yarn of 150 count or silk yarn. The cotton yarn is available from the mills situated in Ahmedabad and Surendranagar districts, while artificial silk and pure silk yarn are available at Surat which itself is an important marketing and handicrafts centre. For dyeing the yarn the colours manufactured by I.C.I., Ciba and Atul companies are used and purchased from Ahmedabad market. In ancient times pure silk yarn was used as warp and cotton yarn as weft. But after the invention of artificial silk yarn and rise in the prices of pure silk yarn, most of the *mashru* is woven now with artificial silk yarn as warp and cotton yarn as weft. However, there are 5 to 6 weavers who use even at present pure silk yarn as warp and cotton yarn as weft. Previously pure silk yarn was imported from Italy or China but nowadays it is received from Bangalore. All these materials are mostly purchased on cash basis.

III.2 The prevailing prices of the raw materials and the unit in which they are available are given below.

STATEMENT II

Prices and the units of raw materials

(April 1966)

Sl. No.	Name of raw material	Unit	Price	Place from where purchased
1	2	3	4	5
1	Artificial silk yarn of 150 count	One box of 100 kg. containing 48 cones, each weighing about 2 kg.	Rs. 1,312 per box	Surat
2	Bangalore silk yarn	One bundle weighing 1.1 kg.	Rs. 115 per kg.	Surat
3	Cotton yarn No. 14 (12 N. F.)	One bale containing 40 bundles, each weighing about 5 kg.	Rs. 960 per bale	Mills of Ahmedabad and Surendranagar districts
4	*Colours*			
	(a) Green	In the packing of 2½ kg. or 5 kg.	Rs. 40 per kg.	Ahmedabad
	(b) Pink (500%)	In the packing of 2½ kg. or 5 kg.	Rs. 80 per kg.	Ahmedabad
	(c) Pink (100%)	-do-	Rs. 35 per kg.	„
	(d) Black	-do-	Rs. 30 per kg.	„
	(e) Lemon	-do-	Rs. 26 per kg.	„
	(f) Blue (Kutcha)	-do-	Rs. 36 per kg.	„
	(g) Red	-do-	Rs. 16 Per kg.	„
5	Tannic acid (Bush Co. England)	1 kg.	Rs. 120 per kg.	Bombay
6	Glue	1 kg.	Rs. 2.75 per kg.	Patan

III.3 No difficulty is experienced in obtaining these raw materials except the tannic acid which is used in dyeing pink colour. For this acid they have to pay exorbitant price of Rs. 120 per kg. as it is a material imported from England. Local made tannic acid does not give good results and so they use imported material which is in short supply because of import restrictions and has to be purchased at high prices from Bombay market. Its use is, therefore, restricted to pink colour only, though it was used in dyeing green, pink and purple colours hithertofore.

III.4 All the raw materials except tannic acid are freely available in open market. The traders, therefore, do not keep them in stock but purchase them according to their requirements. The tannic acid which is available only at Bombay always remains in short supply because of import restrictions. They, therefore, purchase it even at an exorbitant price and keep in stock according to their requirements, as and when the dyers happen to go to Bombay. The total annual average quantity of different raw materials used at the centre are given opposite with their value.

STATEMENT III

Annual consumption of raw materials

Sl. No.	Name of raw material	Approximate quantity used during the year	Approximate value in rupees
1	2	3	4
1	Artificial silk yarn of 150 count	26,000 kg.	Rs. 351,000 @ Rs. 13.50 per kg.
2	Cotton yarn No. 14 (12 N.F.)	39,000 kg.	Rs. 187,200 @ Rs. 4.80 per kg.
3	Colours	1,250 kg.	Rs. 31,250 @ Rs. 25 per kg.
4	Tannic acid	28 kg.	Rs. 3,360 @ Rs. 120 per kg.
5	Glue	1,500 kg.	Rs. 4,125 @ Rs. 2.57 per kg.

III.5 As regards fuel and power used in the craft, it may be mentioned that the craft is entirely run on manual labour and no power or fuel is utilised in the manufacture of *mashru* except in sizing, dyeing and calendering wherein firewood is used as fuel for preparing starch, boiling the artificial silk yarn in coloured solution, and preparing wheat flour paste.

SECTION IV

TOOLS, TECHNIQUE AND DESIGNS

Tools

IV.1 The tools and implements used in weaving the *mashru* cloth are all age-old instruments and the main among them is the throw-shuttle pit loom. Other tools used are spinning-wheel, reed, heddles, shuttle, bobbins, etc. The prices at which they are available are as under.

Name of implement	Local name	Price per article Rs. P.
Throw-shuttle pit loom	*Fatka shal*	250-00
Handloom (with hand shuttle)	*Hath shal*	150-00
Spinning wheel	*Charkho*	30-00
Reed	*Falko*	0-75
Fly shuttle	*Kanthlo*	6-00
Hand shuttle	*Kanthlo*	4-00
Bobbin	*Bobbin*	0-25
Wooden stand for making heddles	*Akhado*	12-00

The approximate price of different parts used in the loom is given below.

Name of implement	Local name	Price per article Rs. P.
Take-up beam	*Lapeto or Tur*	15-00
Picking stick	*Hatho*	5-00
Tradle	*Pavdi*	4-00
Heddle	*Rach*	3-50 to 7-00
Reed	*Fani*	5-25 to 10-50
Stick	*Lakdi*	0-50
Pulley	*Chakardi*	0-50
Rope	*Rash*	5-00
Scissors	*Katar*	2-50

All the tools and implements used in *mashru* weaving are manufactured by the local carpenters except the bobbins which are bought from Ahmedabad market. The bobbins discarded by the mills of Ahmedabad are again used in *mashru* weaving and purchased at Rs. 3 per dozen. About 20 to 25 years back the rates of all these tools and implements were practically half the present rates.

Technique

IV.2 In *mashru* weaving pure silk or artificial silk yarn is used in warp and cotton yarn in weft. There are 13 master-weavers, 6 traders and 1 cooperative society who supply the required raw materials and get various processes done through the artisans and sell the finished products. Various stages of manufacture are described below.

Tani or Warp Making

IV.3 The trader or the master craftsman supplies about 100 cones of artificial silk yarn at a time to the warp makers for making the *tani* or warp. There are 5 workshops for warp making at Patan. The *tania* arranges these 100 cones on the ground keeping 10 cones in each line. He then takes thread from each cone, and prepares a *tani* with the help of a big *falka* made of wooden chips, revolving horizontally. After preparing the *tanis* on *falkas* they fold them into hanks. The usual length of each *tani* is 64 yards and weight 1.25 kg. While preparing the *tani*, the cross threads, which are called *jog* or lease, are passed through the warp and tied to *tani* to keep the inter-section intact by keeping an equal number of threads up and down. All other parts and appliances of the looms may vary, and even be either of the most complicated and elaborate or of the primitive type, but this simple yet perfect contrivance for keeping the warp threads in order cannot be dispensed with. The *tanis* in the form of hanks are then sent to dyers for dyeing. For the labour charges of *tani* making *tania* gets 35 to 40 paise per kilogram of art-silk, i.e., Rs. 70 to 80 for making *tanis* of all the 100 cones. As regards pure silk warp the ready-made *tanis*, each weighing 1.1 kg. are obtained from Surat.

Dyeing

IV.4 Coloured yarn is used in *mashru* weaving. The dyers use *kutcha* colours manufactured by Ciba, I.C.I. and Atul companies. These colours do not possess durability, though they are brilliant in effect. There are four workshops for dyeing the warp and weft threads. The method of dyeing the yarn is simple. The colour is prepared in a big vessel of brass or copper, by dissolving dye-stuff in cold water added proportionately. Hanks are then soaked into it for about half an hour, whereafter they are boiled for about 13 to 20 minutes in a coloured solution to allow the colour to properly penetrate into the yarn. After about an hour when the solution becomes cool, the hanks are taken out of the solution, washed in clean water to remove the excess colour and then dried in a place not open to the sun. The warp hanks are then sent to the sizer and weft hanks are sent to the weaver. The dyeing charges vary with the colour used. For red, yellow and black colours the dyer gets Rs. 2.25 per hank while for purple, green, blue and pink colours he gets Rs. 3.37 per hank of artifical silk weighing 1.25 kg. For dyeing the weft threads he gets Rs. 3.25 per bundle of 5 kg. As regards pure silk, dyeing and sizing are done at one place and its charges are Rs. 20 for 64 yards of warp threads.

Repairing the Warp

IV.5 Before sizing, the warp threads which are damaged during the dyeing operation are repaired. This operation is known as *kutcha* work in local parlance. 15 households are engaged in this work. The warp repairer receives the coloured warp from the dyer and proceeds as under.

The warp is given a dressing by stretching it out in the open. For this purpose, two wooden poles are firmly fixed to the ground at two different ends. Warp is stretched over these poles by looping them at each end. Dust and dirt are removed and broken ends are carefully mended. Long *jog* threads are put in place of short ones inserted at the time of warp making. The warp is then removed as follows.

The warp is first removed at one end and rolled round the arm so that it forms a loop. The looped warp is thereafter removed from the arm and twisted into a hank. The hanks thus prepared are sent to the sizer.

Sizing

IV.6 The sizing operation is known as *pucca* work in the local parlance. For sizing, a solution of glue is prepared by boiling it in water. About $\frac{1}{2}$ lb. of solution is mixed with $1\frac{1}{2}$ gallons of water in a big vessel. About 50 grams of groundnut oil is then added to it. The warp is soaked into this solution and stirred constantly for 5 to 7 minutes to enable every portion of the warp to get uniform sizing. It is then taken out of the vessel, squeezed and stretched once again as in the case of *kutcha* work, and dried in the sun. The warp threads damaged at the time of sizing are again repaired at this stage. Within an hour the warp gets dried. The sized warp is then rolled as before and sent to the weaver.

IV.7 As regards labour charges of *kutcha* work the warp repairer gets 37 to 44 paise per hank, while for *pucca* work the sizer gets 87 paise per hank. For sizing one hank, the sizer uses 50 grams of glue and 50 grams of groundnut oil, thus after deducting the cost of materials used, the sizer gets only 67 paise per hank as remuneration for his labour.

Fani or Reed Making

IV.8 There are only two *fani bandhas* (reed makers) at Patan who prepare new *fani*, i.e., reed. Both are Muslim artisans—one of them is Gulam Mohomed aged 80 years and the other is his nephew. Reeds are prepared from the skin of reeds. These reeds being light in weight are convenient in handling and, are, therefore, used in preference to metallic reeds. They are also cheaper than metallic reeds.

IV.9 The raw materials for reed making are cotton threads, half round teak laths and strips of reed. Cotton threads and teak laths are purchased from Patan, while strips of reed are purchased from Ahmedabad. In reed making, the *kamri* or laths are fixed in pairs about four inches apart from each other. A thick strip of

reed is placed between the laths and bound with the help of a cord for the protection of the finer strips which are successively tied, one adjacent to the other. The space between the two strips is regulated by the thickness of the cord itself. The whole frame is thus built up with strips appearing like a comb.

IV.10 The space between the strips of the reed is called dent. The work is so very minute that for pure silk weaving, where metallic reed is used, one inch of space contains as many as 120 dents. The artisan gets 75 paise per *bandh* or tie which contains 80 dents, as labour charges for reed making. The number of *bandhs* depends upon the type of design. In simple design *fanis* of 7 *bandhs* are used while in complicated designs *fanis* of 14 *bandhs* are used. Preparing a *fani* of seven *bandhs* normally takes 3 days. For this the artisan gets Rs. 5.25 and that too after the labour of 5 to 7 hours a day. As the raw materials cost Rs. 2.25, his net gain comes to Rs. 3 which works out to one rupee per day. Prevailing labour charges for reed making are not commensurate with the hard labour involved in its technique; and therefore it has not proved to be sufficiently attractive to experienced artisans, who do not stick to the job. The three sons of Gulam Mohomed, who are well versed in reed making have thus taken to *bidi* making where they get better remuneration for their labour. Also the reeds once prepared last for a pretty long time and, therefore, the employment in this job is not continuous.

Rach or Heddle Making

IV.11 The traders decide the type of design to be woven according to the demand and give order to *rach bandha* to prepare *rach* or heddle. The *rach bandhas* are so very familiar with the various designs that they prepare the *rach* for a particular design without any further instructions. Some traders, however, make signs on the reeds by tying the threads on the dents of the reeds and on the basis of these signs the *rach bandhas* prepare the *rach*. There are about ten households doing *rach* work at Patan. The main raw material for the preparation of *rach* are glazed thread of 2/20 and 3/10 which they purchase from Surat at Rs. 8.50 per kg. The teak sticks which are used in *rach* making are to be supplied by the weavers while the *fani* or reed is supplied by the traders. The labour charges for the preparation of *rach* depend upon the number of *bandhs* of a *fani*. The artisans get 50 paise per *bandh* as their labour. For preparing a *rach* having seven *bandhs* they take about two days and get Rs. 3.50 in all as their labour charges. Deducting the price of glazed thread worth 19 paise per *bandh*; their net earning comes 31 paise per *bandh*, or Rs. 2.17 for a *rach* of seven *bandhs*' *fani*. The *rach* once prepared can be used for weaving 128 yards of *mashru* cloth of the same design. Thereafter the glazed threads get worn out due to the friction of warp threads and becomes useless. The weavers then cut the *rach* threads and take away the teak sticks supplied by them and return the *fanis* to the traders with the *mashru* cloth woven by them.

Preparing Weft

IV.12 The weavers are given skeins of cotton yarn for preparing the weft. First the skeins of cotton yarn, if uncoloured, are being boiled in water so as to remove dirt and make them soft. The weft skeins are then removed from boiling water and thoroughly dried and mounted on *firka* or cylindrical reel made of bamboo strips having one vertical stick passing through the centres which serves as handle. The yarn is then wound on suitable sized bobbins about 4 inches long made from bamboo or some other kind of wood hollowed in the centre. The bobbin is fixed on the spindle of the *charkha* or spinning wheel and *firka* or reel is fixed on the wooden stand kept opposite the *charkha*. The end of the thread is tied on the bobbin fixed on the spindle. When *charkha* is rotated, the bobbin also rotates and winds the thread over it, unwinding it from the *firka* which rotates in the reverse direction. The bobbin is replaced as it gets filled. The weft thread is now ready for the next operation, i.e., weaving. The winding of the weft on the bobbins is most important. If it is badly done it would affect the quality of the cloth. This is particularly applicable in the case of winding of bobbins for the fly shuttle. Loose, uneven shoots, knots, loops, and all sorts of disfigurements due to careless winding result in breaking of threads and flying the shuttle

out of the loom. A well wound bobbin runs off quite freely in a single thread, from beginning to the end and affords convenience to the weaver to produce decent cloth. This work is, therefore, mostly attended to by the expert artisan himself.

WEAVING

IV.13 The loom used by the weavers is the fly shuttle loom. It is installed usually in the front room, slightly raised above the level of the ground. The weaver sits in a pit some 20 to 22 inches deep so that the beam is immediately over his thighs. The loom consists of a beam called *lapetan* or *tur* made of some heavy wood on which the cloth as it is woven is wound up. At each end a stout iron rod projects which is let into corresponding holes in a firmly fixed block of wood so that the beam may rotate. At a short distance from each end, two holes are bored at right angles through the beam into which a stout stick is inserted, with its end resting on the ground, so that the warp remains tightly stretched while the beam is rotating.

IV.14 The heddle (i.e., *rach*) consists of a pair of sticks connected by a series of pairs of loops of well-waxed cotton thread, the upper loop passing through the lower. The warp threads are passed through both the loops, i.e., through the somewhat circular apertures formed when the two sticks are moved slightly towards each other. The heddles are suspended from a beam overhead. These heddles are attached to the *pavdi*, i,e., treadle by means of cords rolled over pullies. The weaver works not only with both hands but also with both feet. By pressing the *pavdi*, some definite heddles rise while the others are let down. The up and down movement of heddles carries warp threads with them and makes room for the shuttle of weft thread to cross over from one direction to the other. When the heddles are raised successively by operating different treadles, the alternate threads of the warps are raised along with them opening the necessary sheds through which shuttle containing weft passes and thus cloth with required design is woven. The number of heddles depends upon the type of design.

IV.15 The slay (*hattha*) helps in driving home each successive weft thread. It is suspended by two cords from the roof and consists of two beams, the upper one being rectangular in shape for convenience of holding. These are connected together so that the *rach* can play horizontally whereby all strain on the warp due to incorrect suspension of the slay is avoided. The *rach* consists of a comb of thin flat (split) strips of reed. They are placed side by side, each being tied to its neighbour by string above and below. The thickness of the string gives sufficient space between each successive tooth. Two or more warp threads are inserted in each division of the *rach* according to convenience. There is a smooth beam of wood on which the warp is supported.

IV.16 The whole length of the warp is spread out horizontally on the loom according to the space available. It is kept stretched properly with the help of warp beam to which a rope is attached and tied down to a wooden peg (*hathela*) within easy reach of the weaver's right hand. As weaving proceeds and more warp is required, the weaver loosens the rope attached to the peg and winds the woven cloth on to the beam. The warp which is yet to be stretched horizontally between the *lapetan* or beam and warp-beam is hung loosely over a bamboo.

IV.17 The shuttle known as *kanthla* is like a canoe in shape. It is made of wood and has a very smooth and polished surface. Along the centre in a hollow place there is a thin iron pin which can be lifted up at will. On to this, the bobbin on which the weft yarn has been wound is slipped, and fastened down. The weft yarn is moistened before weaving. There is a hole through the side of the shuttle on the inner side of which is attached with wax a smooth glass bead to reduce friction. The end of yarn is put close to the inner side of this bead and sucked through by the weaver.

IV.18 After the warp has been spread on the loom and all the instruments kept ready, weaving begins. The weaver gives motion to the loom through the treadles worked by his feet. The treadles (*pavdi*) are in the lower part of the loom situated in the pit. By working the treadles the weaver raises or lowers the threads of the warp. The heddles, the treadles and the threads of the warp are all interconnected and each alternate

motion of the foot for raising or depressing the warp threads forms a shed. There are shuttle boxes at both the ends. The shuttle is pushed through the shed from end to end across the slay by pickers attached to a string arrangement pulled with right hand from side to side while beating is done by pulling the slay with the left hand. The process is continued and the weft thread passes successively through the alternate openings of warp threads. This net work forms the fabric. The process is repeated in quick succession working out an elaborate design of the *mashru*.

IV.19 After *mashru* is woven, it is taken off the loom, folded and sent to the washerman. Labour charges of weaving depend upon the breadth and design of the cloth. For plain and simple design having 27 inches width, the charges are Rs. 14 for weaving 64 yards of length, while for complicated designs of the same width and length the charges are Rs. 21. The year 1966 being scarcity year there was poor demand of *mashru* as its main users these days are Adivasis and agriculturists who have no purchasing power due to the failure of crops and consequent fall in the demand for labour. But in normal years labour charges vary between Rs. 20 and 38 for the plain and designed piece 64 yards in length and 27" width.

Finishing

IV.20 After the woven cloth is removed from the loom it is sent for washing. Before washing, the cloth is cut into pieces of 5 metres each and then sent to the washerman for washing. The method of washing is simple. The cloth is washed in cold water and then dried and folded double again and again from end to end, keeping the right side of the cloth inside, till its length is reduced to 9". Then it is folded breadthwise keeping the final fold 14" × 9". The folded pieces are then sent to *kundivala* for calendering. As washing charges, the washerman gets 11 paise per piece regardless of its breadth.

Kundi

IV.21 *Kundi* or calendering is the final process in *mashru* manufacture. For *kundi* work a folded piece is laid on the hal (round wooden log and beaten for 10 to 15 minutes with two wooden hammers in turn, one big and the other small, by two persons who sit facing each other, so that the shine may come on the right side of the cloth. The beating is done on the off side of the cloth. Thereafter paste of fine wheat flour is applied to some of the folds of the cloth and they are then dried in the sun. This paste serves the purpose of starch. After they are dried, water is sprinkled on them with hand or mouth and they are again beaten for about ten minutes in the manner stated above. This serves the purpose of ironing the cloth and making it shining. The pieces are then pressed for half an hour in a hand press for fine folds. Finally they are returned to the traders who pay the *kundivala* 44 paise per piece.

Change in Technique

IV.22 There is practically no change in the technique and processes used in *mashru* weaving except that the majority of the *mashru* weavers have switched on to fly shuttle looms instead of handlooms, the percentage of which is negligible. Secondly due to the availability of the ready-made cones of artificial silk yarn, the process of filling the bobbins with the help of electric machine from the hanks has been eliminated in the manufacture of *mashru*. The advantages of the fly shuttle looms are mainly two:- (1) The weaving can be done with increased speed. As one hand only is required to work the picking stick, the left hand remains free to manipulate the batten the beat of which is consequently increased and made much more rapid. (2) Webs of larger width, which would be impossible to weave with a hand shuttle, can by means of the fly shuttle, be as quickly woven as narrow ones. Looking to these advantages, the *mashru* weavers have switched on to the fly shuttle looms.

Designs

IV.23 There is not much variety of motifs in *mashru* weaving at Patan. Generally *mashru* is a plain cloth with stripes of different colours, viz., red, green, yellow, etc. The more popularly known designs are *katario*, *chundadi*, *lili* and *lal kankani*, *kamkhi*, *asli* and *nakli sodagari*, *arbi*, *tran kankani*, and fancy *butti*. All these designs are traditional.

Katario and *sodagari* are mainly marketed in Rajasthan, *arbi* and *kamkhi* in Madhya Pradesh, *chundadi* in Rajasthan and Gujarat, while *lila* and *lal kankani* and fancy *butti* in all the three regions above referred to. The *mashru* cloth having all these designs except *arbi* is mainly used in *kapda*, i.e., blouse. *Arbi* designed cloth is mainly used in petticoat. The main users of *mashru* cloth are rural folk and Adivasis of Gujarat, Rajasthan and Madhya Pradesh who do not prefer any change in design made by the trader with the result that the traders have to return to the age-old traditional designs. All the designs used in *mashru* are geometrical. Detailed description of some of them is as under.

KATARIO

IV.24 This design consists of parallel stripes of red and yellow colours. The breadth of the red stripes is one inch while that of yellow 1/2 inch. Within each yellow stripe, are two thin parallel stripes—one each of red and green colour. The breadth of these parallel stripes is 1/10 of an inch, which are cut by a series of vertical red stripes 1/10 of an inch in breadth.

CHUNDADI

IV.25 In red background there are clusters of four white dots at equal distances of 1/2 inch. All the four dots together look like a star. Though the dots are in parallel lines, the combination of four dots remains exactly in the centre of the other combinations in lines, above and below.

LILI AND LAL KANKANI

IV.26 There are parallel stripes of green and red colour in *lili kankani*. The breadth of green stripes is 1/2 inch while that of red stripes 1/10 of an inch. Again in each red stripe, there are yellow squares at an equal distance of 1/20 of an inch. The measurement of each side of the square is 1/20 of an inch. In *lal kankani* the colours of the stripes are reversed.

KAMKHI

IV.27 This design has thin white parallel lines in red background. The distance between the two parallel lines is 3/5 of an inch.

TRAN KANKANI

IV.28 This design has parallel stripes of green and yellow colours with red border between the two. The breadth of green stripes is 1/2 inch, while that of yellow stripe a little more than 1/2 inch. In each yellow stripe there are three red stripes each having breadth of 1/5 of an inch. In each red stripe are series of rectangles at an equal distance of little less than 1/10 of an inch. The length of one side of the rectangle is 1/10 of an inch while the breadth is little less. Because of three rectangles arranged one above the other in parallel lines the design is known as *tran* (i.e., three) *kankani*.

SECTION V

FINISHED PRODUCTS AND MARKETING

FINISHED PRODUCTS

V.1 THERE ARE various designs in *mashru* cloth. The details of some of the designs have already been discussed in the preceeding paragraphs. The rates per yard of the finished products are given below.

STATEMENT IV
Finished products

Sl. No.	Name of design	Length in yard	Width in inches	Rate per yard (April 1966) Rs.
1	2	3	4	5
1	Lili Kankani	5.50	27	1.80
2	Fancy Kankani	5.50	27	1.75
3	Fancy Sadi	5.50	27	1.75
4	Nakli Sodagari	5.50	27	1.75
5	Lal Katario	5.50	27	1.75
		,,	33	2.15
		,,	36	2.40
		,,	39	2.70
6	Safed Katario	5.50	27	1.75
		,,	33	2.15
		,,	36	2.40
		,,	39	2.70
7	Chundadi	5.50	27	2.11
8	Tran Kankani	5.50	27	1.80
		,,	33	2.20
		,,	36	2.45
9	Kamkhi	5.50	27	1.80
		,,	33	2.15
		,,	36	2.40
		,,	39	2.70
10	Fancy Khanjar	5.50	27	1.75
		,,	33	2.15
11	Sadi Safed	5.50	39	2.70
12	Sadi Lal	5.50	39	2.70
13	Panch Patti	5.50	33	2.15
14	Arbi	5.50	36	2.40
15	Katar Butti	5.50	36	3.00

V.2 The rate per yard also depends upon the pick of cloth. For heavy picks the rate is higher. The rates per yard given in the above statement are for the cloth woven with artificial silk yarn as warp and cotton yarn as weft. The cloth in which pure silk yarn is used as warp and cotton as weft, the rate varies from Rs. 9 to Rs. 12 per yard according to the design. But the percentage of such cloth in the total manufacture is negligible because of the high price of silk which restricts its demand and confines it to Gujarat State only. It is assessed that annually about 400,000 yards of *mashru* cloth worth Rs. 8 to 10 lakhs is manufactured at Patan of which about 70 per cent is sent to Madhya Pradesh and Rajasthan, while the remaining 30 per cent is consumed in Gujarat itself. As regards the storing arrangement of finished products, the traders who get this cloth woven keep it in their own warehouses. They have not to keep the stock for a long time as they get the cloth woven after obtaining the orders from retail traders in the villages of Gujarat, Madhya Pradesh and Rajasthan States, who are their usual customers. The main consumers of *mashru* cloth nowadays are the tribes and people from rural areas and hence their demand as already seen, always depends upon the success of the agricultural season. The demand of *mashru* cloth decreases in the years of famine or scarcity when the traders have to stock it in their godowns. But such a contingency does not arise in normal years when they supply it to retail traders according to their demand. *Mashru* cloth is in heavy demand during the marriage season as it is mostly used for making *chania* or petticoat for the bride. Thus during the months of Kartik to Vaishakh, i.e. , November to May the demand is greater than during the remaining months, i.e., Jyeshtha to Ashvin, i.e., June to October.

MARKETING

V.3 During local enquiry it is learnt that in the past major production was meant for export to Aden, Kuwait, Syria, Africa and Arab countries. But nowadays the *mashru* woven at Patan is mainly marketed in the villages of Gujarat, Madhya

Pradesh and Rajasthan which the traders visit for obtaining orders from the retailers. The cloth is then supplied to them according to their demand by the State Transport buses or rail routes whichever is convenient. The cloth is mostly sold to retail traders on credit of 2 to 3 months. This limit is sometimes extended if it is not sold on the expiry of this period. But in most of the cases they get money within 3 months at the latest. But Shri Patan Mashru Hath Vanat Kamdar Sahakari Mandli Ltd. carries on its transactions through bank. The society sends the railway receipt through the bank under intimation to the trader who obtains the railway receipt against full payment in cash. The society keeps stalls in the exhibitions of handloom cloth arranged at different places. The former Baroda State used to organise such exhibitions. The ruler also gave encouragement to this craft by purchasing *mashru* cloth from the weavers.

PROBLEMS OF MARKETING

V.4 The main competitor of *mashru* trade at Patan is Ajamgadh, a village in Uttar Pradesh State, where *mashru* weaving is done on a large scale. The difference between the *mashru* of Patan and that of Ajamgadh is that in Ajamgadh raw materials used are inferior in quality and further that all the different processes which are done on the yarn at different places by different artisans at Patan are carried on at Ajamgadh by the weaver himself at his own place. In the result the cost of the cloth woven at that place remains less than that done at Patan. The *mashru* of Ajamgadh is imported at Patan by one trader who has his office at Ajamgadh. He gets the last two processes, i.e., finishing and calendering done at Patan and then sells it to the retail traders at a little lower rates. Other traders have, therefore, to decrease the sale price of *mashru* of local manufacture in order to withstand outside competition. The result is that to get enough profit the traders decrease the labour charges of weaving to bring down cost. The *mashru* weavers thus get lesser remuneration for weaving. Moreover due to increase in the price of artificial silk yarn owing to increase in excise duty, the cost of *mashru* production has gone up. The *mashru* traders, therefore, resort to the device of decreasing the labour charges paid to weavers, to maintain the price level. This will be evident from the fact that the weaving rates in 1965–66 were Rs. 14 for ordinary designs and Rs. 21 for complicated designs, as against Rs. 22 and Rs. 32 respectively 20 to 25 years ago. The remuneration paid to the weavers has declined heavily during the last 25 years not only in terms of money but also in real value as the purchasing power of the rupee has gone down considerably due to rise in the level of prices. This has resulted in the artisans giving up their age-old profession.

SECTION VI

ECONOMIC CHARACTERISTICS

VI.1 THE MASHRU traders are reluctant to disclose the total amount of their investment or the source of their borrowings. It is, however, learnt that they raise funds required to run their business from their own resources. As regards the amount of investment by each weaver, he is required to invest a maximum amount of Rs. 500 out of which an amount of Rs. 250 is spent on loom and the rest on spinning wheel, wooden sticks, etc., per establishment. The Mashru Hath Vanat Kamdar Sahakari Mandali Limited has a working capital of Rs. 21,210–79 paise. The society has raised this capital by issuing shares of Rs. 25 each. It has 39 shareholders. The Government of Gujarat has purchased shares worth Rs. 1,000 in the name of the Governor of Gujarat in order to give encouragement to this declining handicraft. The society also obtains loan from the cooperative bank to run its business.

COST OF PRODUCTION

VI.2 The following table shows the quantity and cost of raw materials and labour charges for manufacturing 20 metres of *mashru* cloth.

STATEMENT V

Cost of production

(year 1966)

Item	Quantity required in kilograms	Price per kg. Rs.	Cost Rs.
1	2	3	4
RAW MATERIAL			
Artificial silk yarn of 150 count . .	1-25	13.50	16.40
Cotton yarn No. 14 (12 N. F.)	1-88	4.80	9.02
LABOUR CHARGES			
For warp making	..	..	0.50
Dyeing of warp (tani)	.	..	2.81
Repairing of warp (tani)	..	..	0.37
Sizing of warp (tani)	..	..	0.87
Weaving	..	..	5.00
Finishing	..	..	0.11
Kundi work	..	..	2.20
Miscellaneous charges	..	..	0.22
Total	..	..	**37.50**

VI.3 Thus the cost price of manufacturing 20 metres of *mashru* cloth comes to Rs. 37.50, i.e., Rs. 1.88 per metre which is sold at Rs. 2.15 per metre. Thus the trader gets 27 paise per metre, which works out to a gross profit of 14.37 per cent.

EMPLOYMENT

VI.4 The warp makers, weavers, finishers and *kundivalas* work during the whole day whenever they get time. But dyers, repairers and sizers of warp threads work only during morning hours, as they have to work in open streets in sunshine and, therefore, find it convenient to work during early hours of the day. All the artisans work for about 8–10 hours a day during all the seasons, but the working season of *kundivalas* ends on the *Rath-yatra* day (i.e., second day of Ashadh) and again starts on Dassera, (i.e., 10th day of Ashvin), as the flies stick to the cloth and die when wheat paste is applied to it during monsoon. In order not to hurt the feelings of the neighbouring Hindu, residents, *Kundi* work is stopped during this season. Moreover all the *mashru* traders being Hindu, out of their regard for *Ahinsa* they do not give *mashru* cloth to *kundivalas* for calendering. As regards the holidays observed Hindu artisans do not work on the New moon or *Amavasya* day while Muslim artisans do not work on the eleventh day of every Muslim month. Both these artisans do not work on the days of their festivals.

INCOME

VI.5 Out of 498 males, 224 or 44.98 per cent are earners, against 225 or 47.67 per cent returned as earners out of 472 females in 160 households engaged in *mashru* weaving. 215 males and 224 females are engaged in *mashru* weaving whereas 9 males and 1 female earn their livelihood from *bidi* making and other services, etc., about 42

members working in *mashru* weaving supplement their livelihood by engaging themselves in gainful activities like *bidi* making, sale of cloth, etc., during slack season, i.e., monsoon or spare time. 160 households surveyed in this craft are distributed in Statement VI in four income ranges.

VI.6 The statement shows that only 19 households or 11.88 per cent earn more than Rs. 801 and above whereas 141 or 88.12 per cent get less than Rs. 801 per annum. The fact that there are only 2 households each in the income range Rs. 1,501 to 2,500 and Rs. 2,501 and above shows that the craft is not sufficiently remunerative.

STATEMENT VI

Distribution of households according to annual income

Annual income range (in Rs.)	No. of households	Percentage to total
1	2	3
Below 800	141	88.12
801-1,500	15	9.38
1,501-2,500	2	1.25
2,501 and above	2	1.25
Total	**160**	**100.00**

SECTION VII

ORGANISATIONAL CHARACTERISTICS

VII.1 THERE ARE 13 master weavers, 6 traders and one cooperative society who are controlling the *mashru* industry at Patan. All the artisans work for the master weavers, or traders or society. The traders purchase raw materials and get the various processes executed through different artisans working at their own house. They take back the finished products from them after paying their wages. They also pay them wages in advance in case of need. Another aspect of organisation is the cooperative aspect which has proved beneficial to the members numbering 39 by eliminating the middleman.

TRAINING

VII.2 The *mashru* weavers do not get any technical education in weaving from any technical institution or training centre. But the weaver trains his children in weaving as an apprentice in his own house, where he learns the various processes of *mashru* weaving and, in course of time, becomes a skilled weaver.

SOCIAL AND PERSONAL CHARACTERISTICS

VII.3 The family of an artisan engaged in *mashru* weaving consists of 6 members on an average. The average size of the working members comes to 2 and that of non-working members to 4. By the very nature of the craft more than 1 member are required in *mashru* weaving which needs the helping hand of female members of the household. The alternate change in different operations is conductive to keep up the interest of the worker.

VII.4 The nature of work involved in various branches of this craft is lengthy and cumbersome. The wrapping of yarn gives pain to both the hands and waist whereas sizing, dyeing and weaving have proved painful to legs and hands on account of constant movement of these parts, while staring on the threads during weaving is troublesome to the eyes. The artisan should have a healthy body to face the strainful work of the craft. Hindu artisans are strictly vegetarians and muslim artisans are non-vegetarians. No special case of a particular disease caused by any particular operation has come to notice during the course of enquiry. However, the artisans generally experience pain in legs on account of constant movement of paddle or treadles by legs and waist because of the sedentary nature of work. Tea, *bidi*, *pan* and snuff are taken frequently by the artisans as intoxicants. Sometimes, they visit cinema shows and dramas for recreation. Some Hindu artisans attend *bhajan*, *kirtan* and *katha* on sacred days of the month. Similarly, Muslims attend *namaz*. Hindu celebrate festivals like Divali, Holi, Navratri, Gokul Ashtami, Ramnavmi, etc., and Muslims observe Muharram, Ramzan, Bakri Id, etc.

SECTION VIII

FUTURE

VIII.1 THIS CRAFT had a glorious past but now it is gradually declining. Once the *mashru* cloth was used by the members of royal families and nobles of their courts while to-day it has become the dress of Adivasis and rural folks. The main reasons for the decline of this handicraft can be summarised as under.

(1) Due to the availability of cheap machine made *mashru* cloth from Italy and Japan, the Indian *mashru* has well nigh lost its foreign market.

(2) Due to change in the taste of the people the local demand has considerably decreased.

(3) In old days pure silk yarn was used as warp in *mashru* weaving but nowadays the prices of pure silk have gone very high and due to the invention of artificial silk yarn the traders have started using it as warp in place of silk. The artificial silk yarn though cheap is not durable. It does not bring out that appearance and lustre which result from the use of pure silk. This has been the cause of its loosing former market.

(4) In past the colours used for dyeing silk yarn were prepared from lac and *kirmaj*. These dyes were fast and bright in effect. But after the availability of the foreign made colours, the dyers switched over to the use of readymade dyes as they were cheap, and also less laborious in use. Nowadays these dyes are not available because of import restrictions hence dyers use local made dyes which are bright but not *pucca* and hence the *mashru* cloth woven with the yarn dyed with such colours cannot be washed. The consequent deterioration in its quality has led its former patrons to give up the use of this cloth.

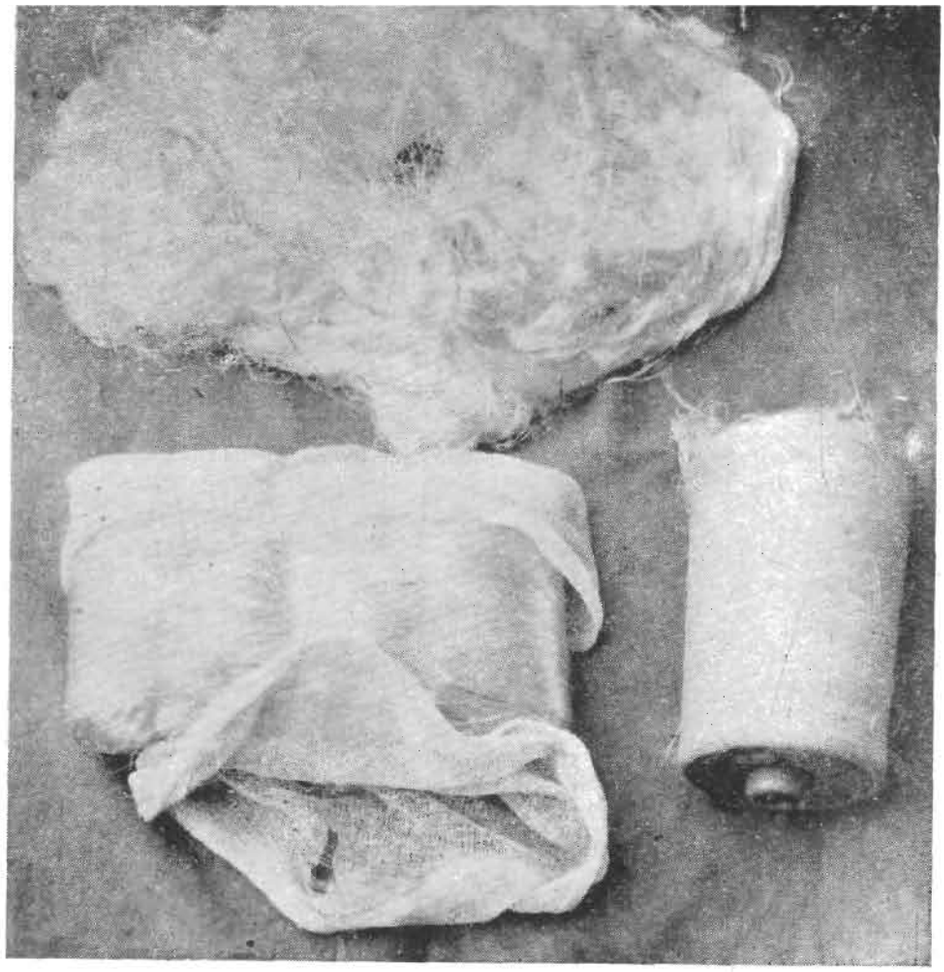
(5) Unless the import of cheap *mashru* of Ajamgadh at Patan is stopped, this handicraft which was once the pride of Patan will not survive, as Patan traders cannot face the competition of *mashru* woven at Ajamgadh at lower rate, and processed at Patan which the importer sells in the name of Patan *mashru*.

(6) The increase in excise duty on the artificial silk yarn very seriously affects the market of *mashru*. Because of such increase the cost price of *mashru* cloth naturally goes high. Traders cut down the labour charges paid to artisans, as they cannot afford to raise the price of *mashru* cloth, as they have to face the competition of machine made cloth.

VIII.2 The *mashru* industry of Patan at present stands on a weak foundation. Since the last century, it has been struggling for existence and its survival to-day is a testimony to the tenacity, patience and heroism of the Indian artisan. The small *mashru* weavers possess neither the required venture capital nor the working capital. Inadequate income does not allow him the necessary reserves to improve his implements. In the result, he is forced to carry on his trade with outdated machinery and equipment. The artisans engaged in the craft do not find it remunerative, and have, therefore, to change over to other occupations or services. Under the circumstances, new workers are not attracted towards this craft, and the artisans engaged therein divert their children to other occupations.

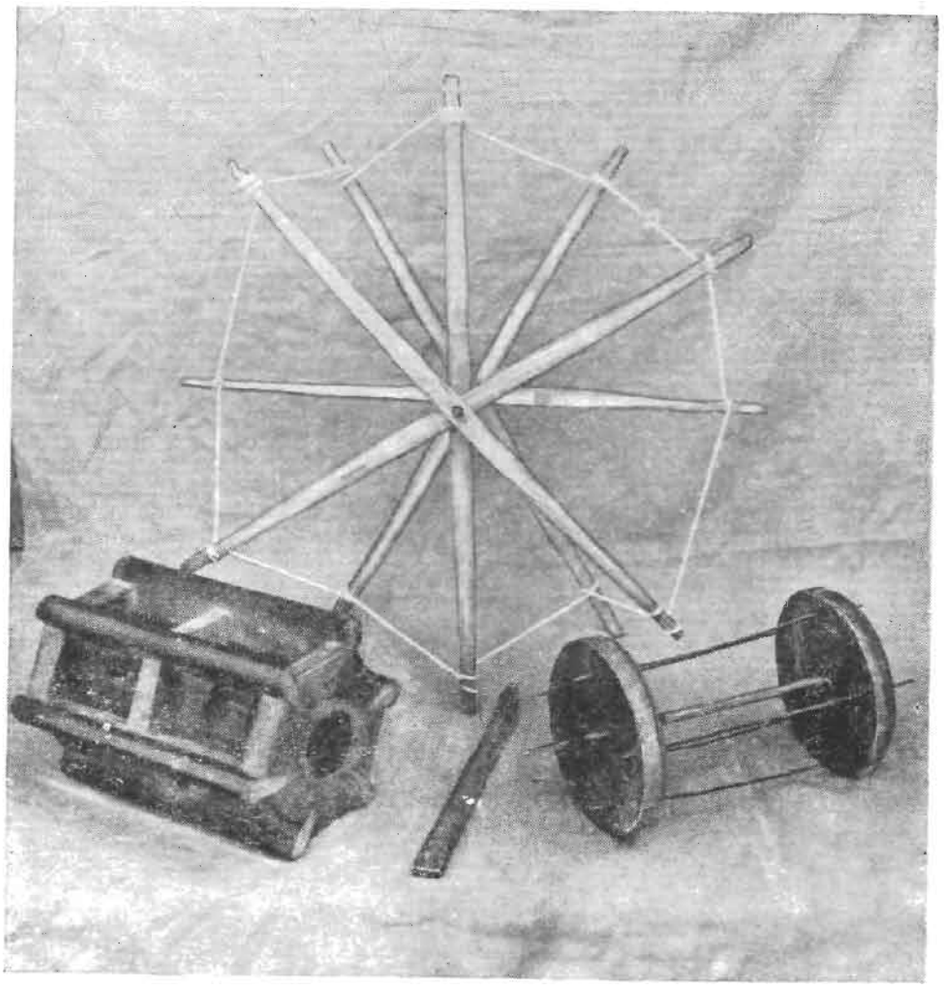
VIII.3 The cooperative society which has enrolled only 39 members so far should increase its membership and be in a position to improve the working conditions of the artisans. In order to put this handicraft on a sound footing the demand of *mashru* should be accelerated by making it popular among the people of all classes by displaying its various designs and exhibiting the variety of uses to which it can be put.

PLATES



Artificial silk—the principal raw material

1

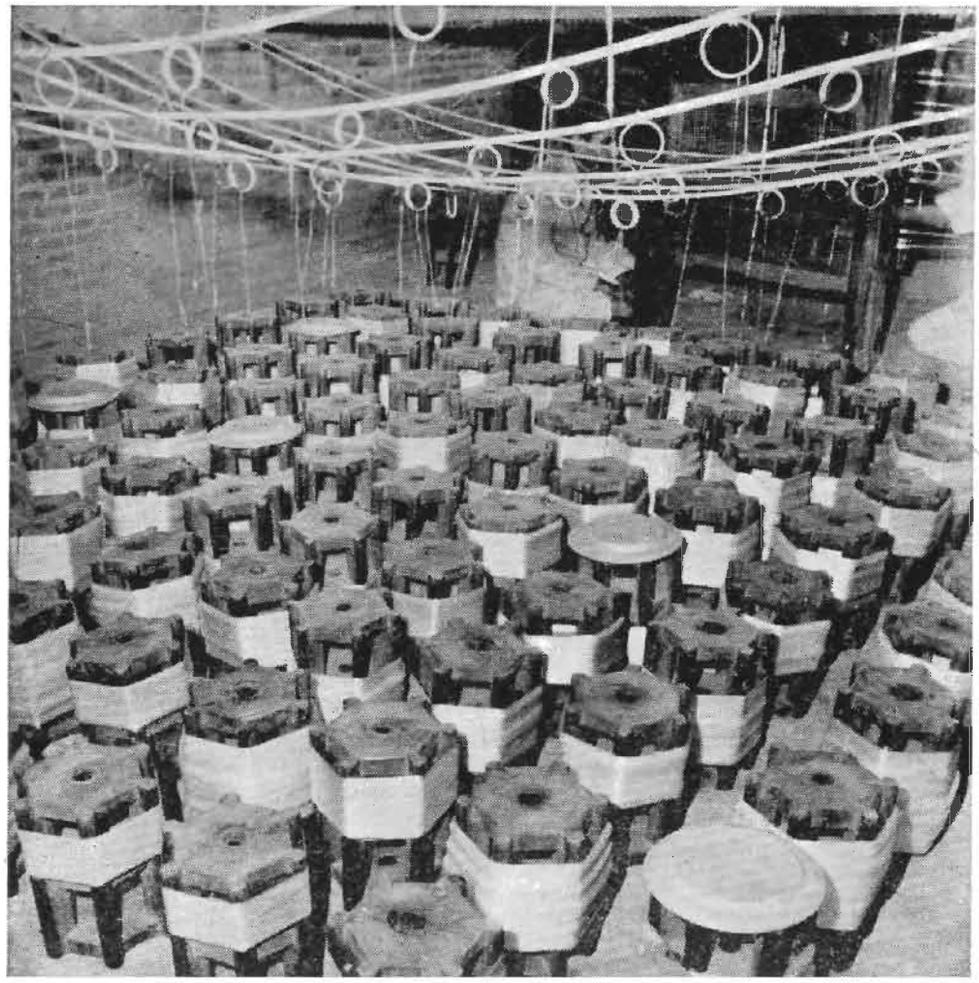


1. Firka; 2. Bobbin; 3. Iron strip; 4. Reel

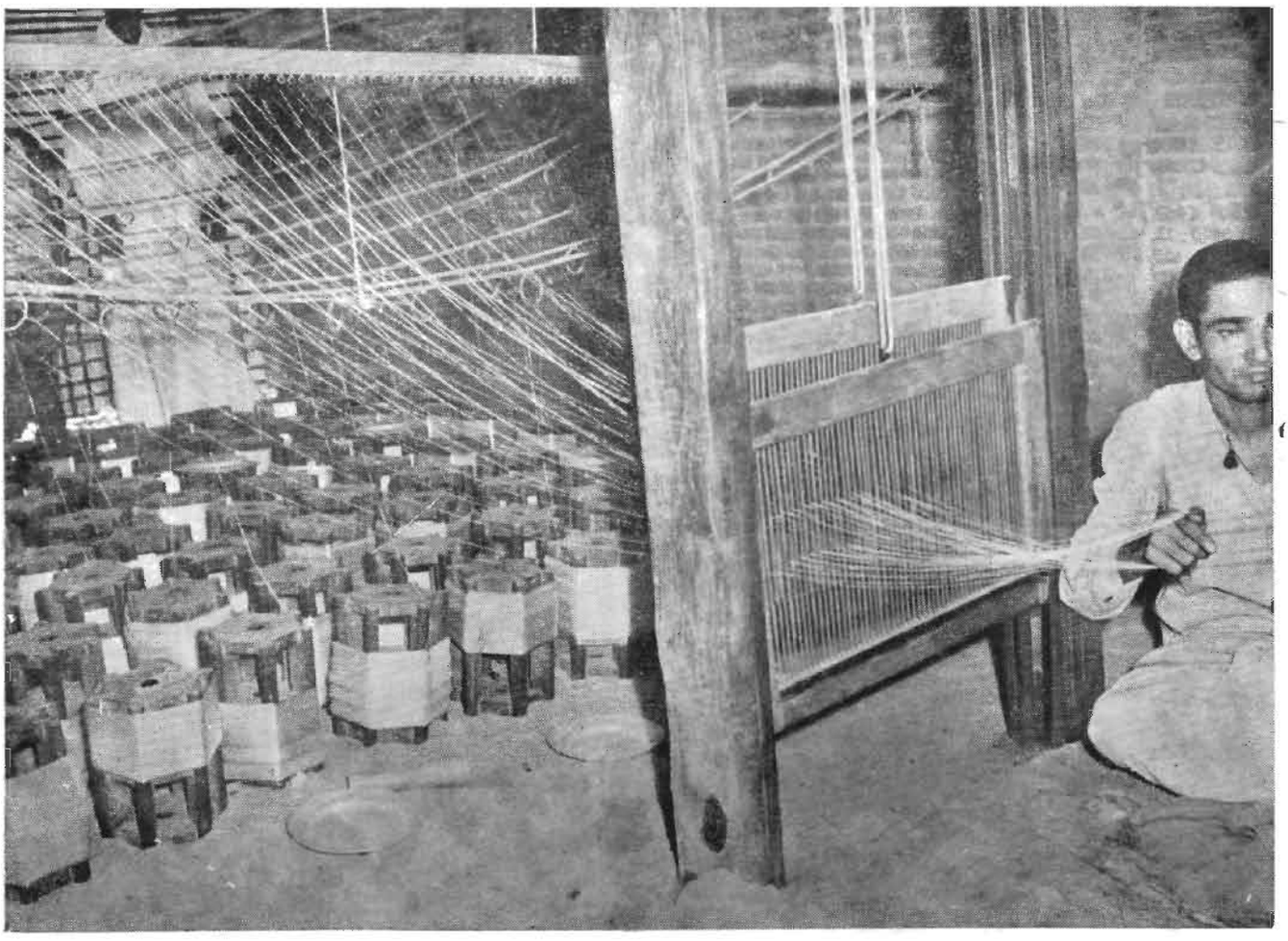
2

4

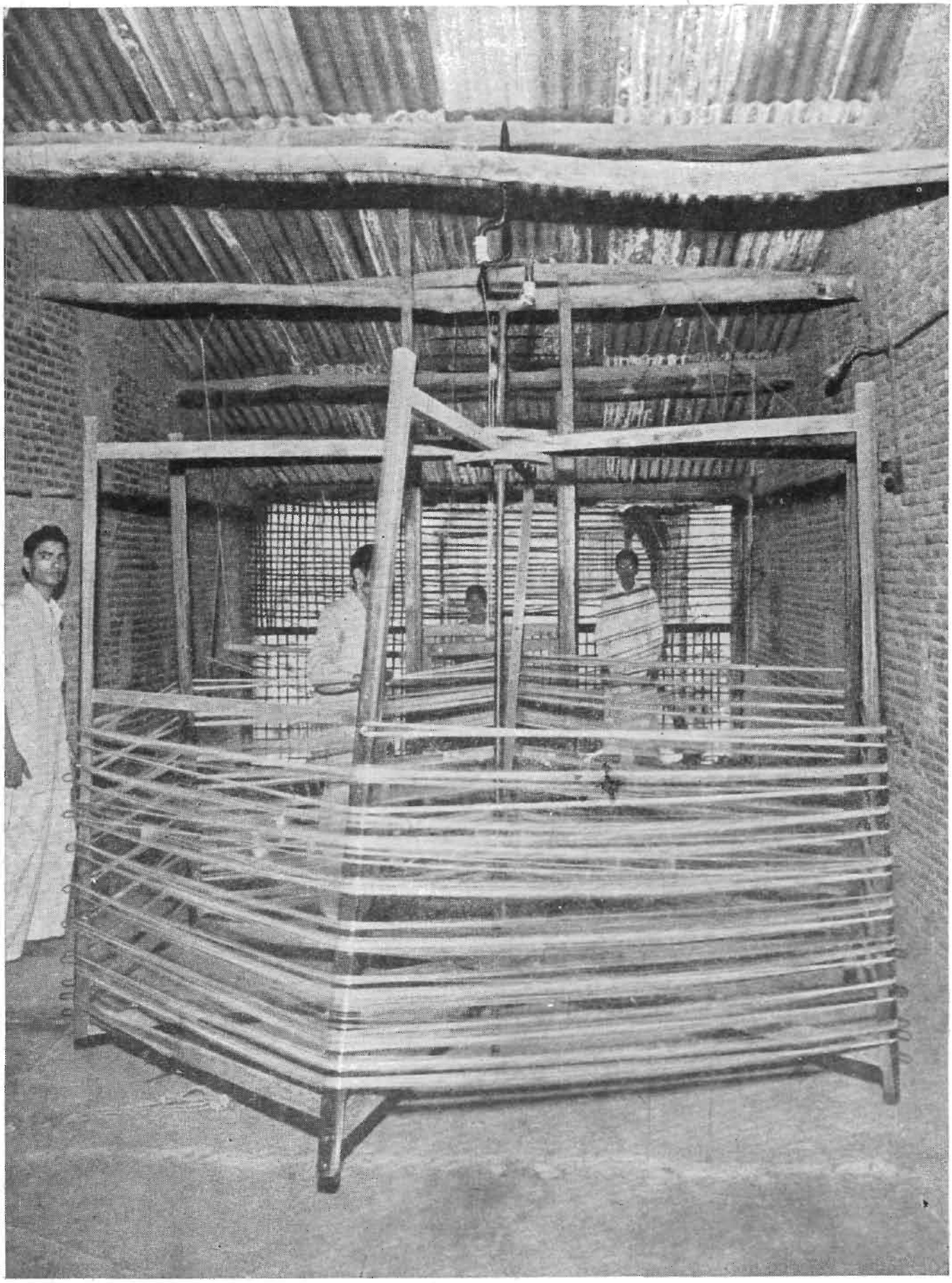
3



Bobbins ready for warp making

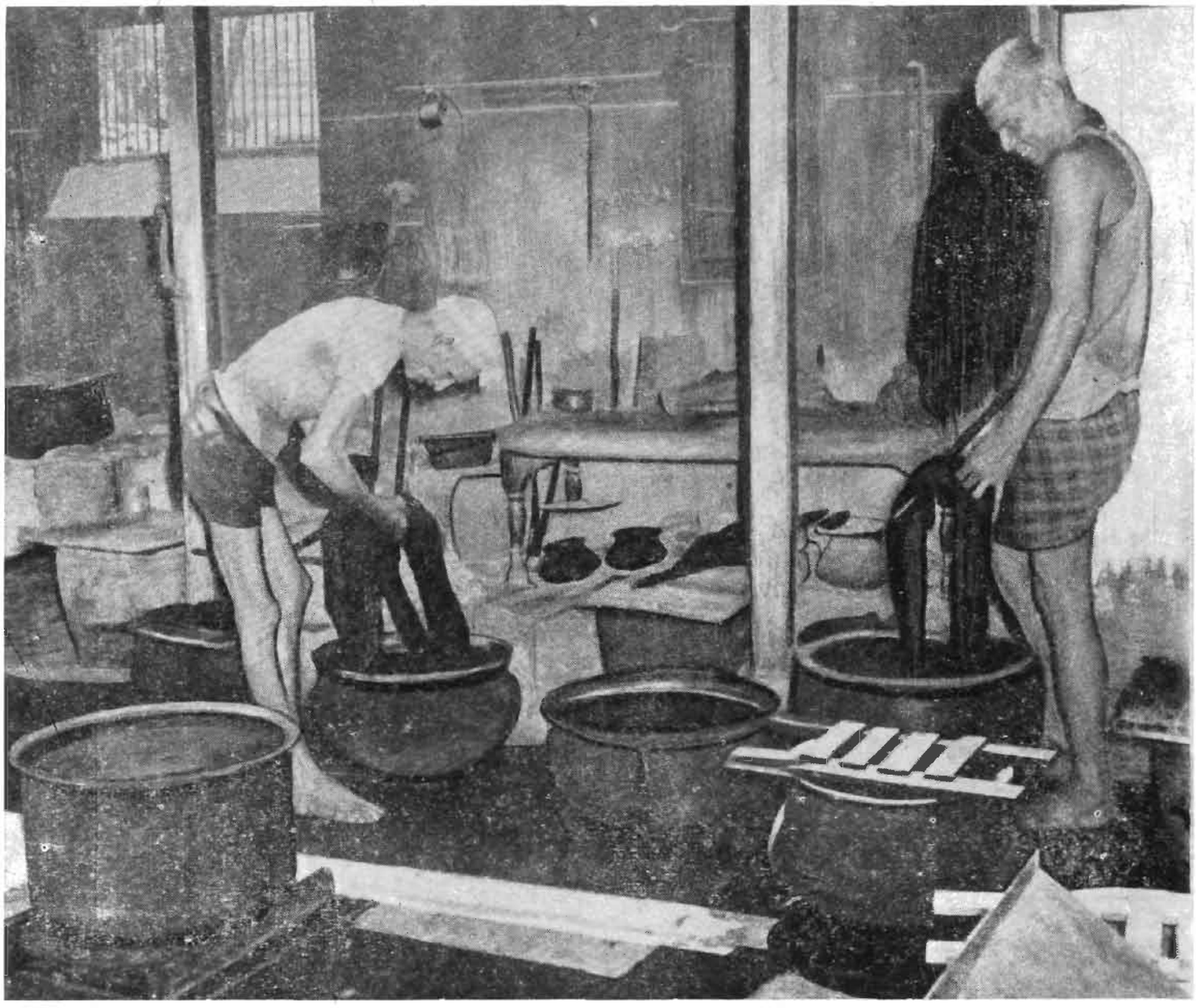


Warp making

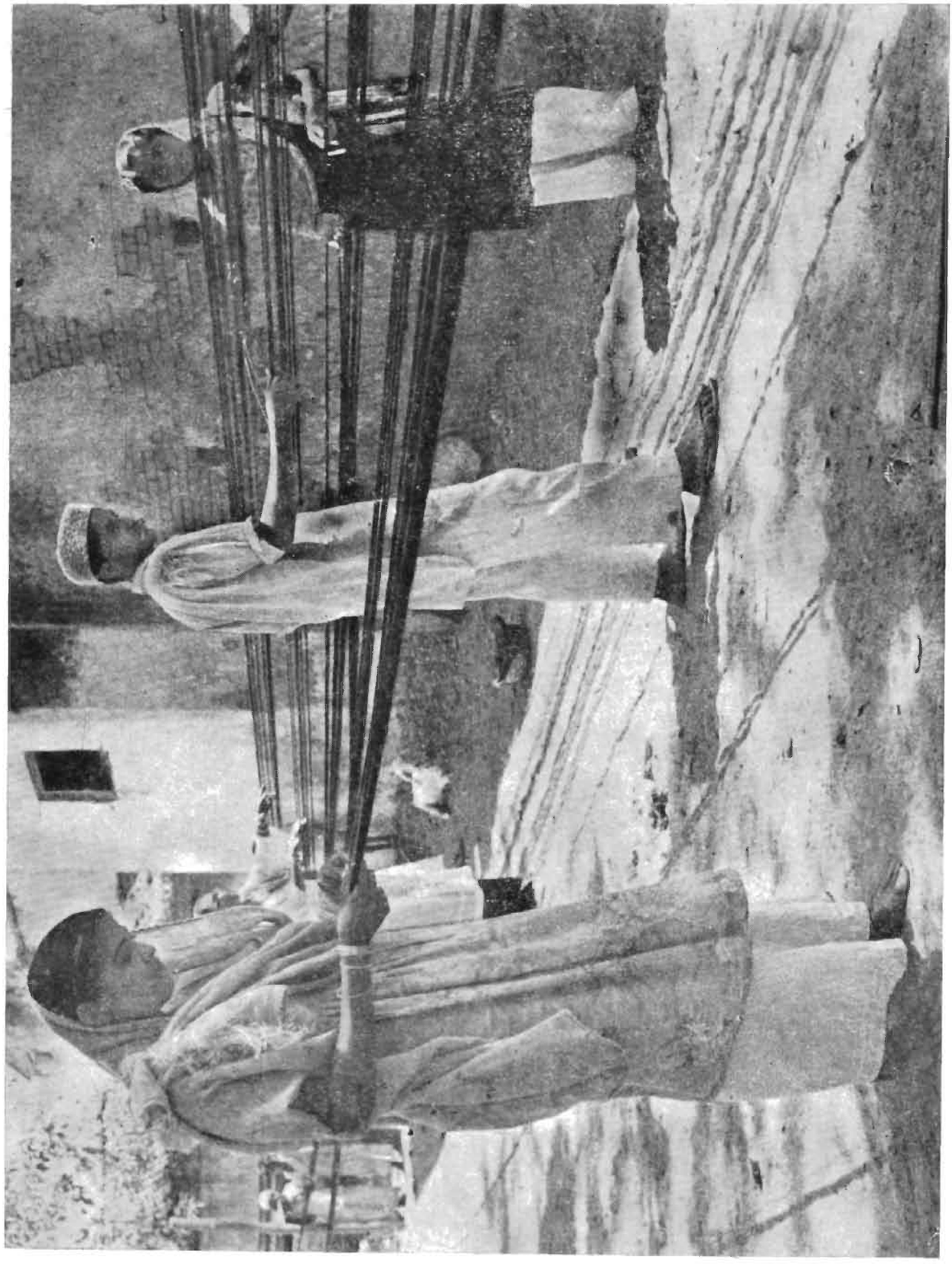


Winding of warp on falka (warping frame)

PLATE IV

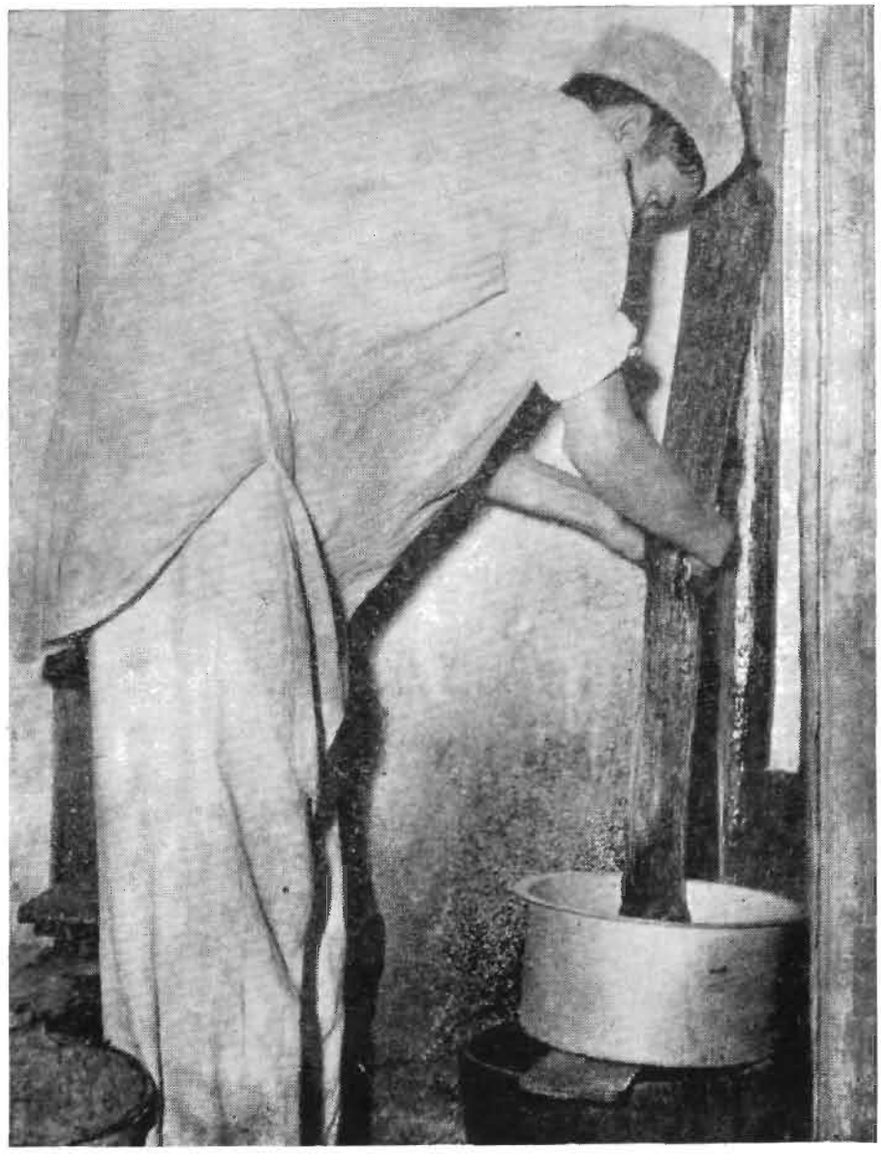


Dyeing the yarn



Mending the warp damaged during dyeing

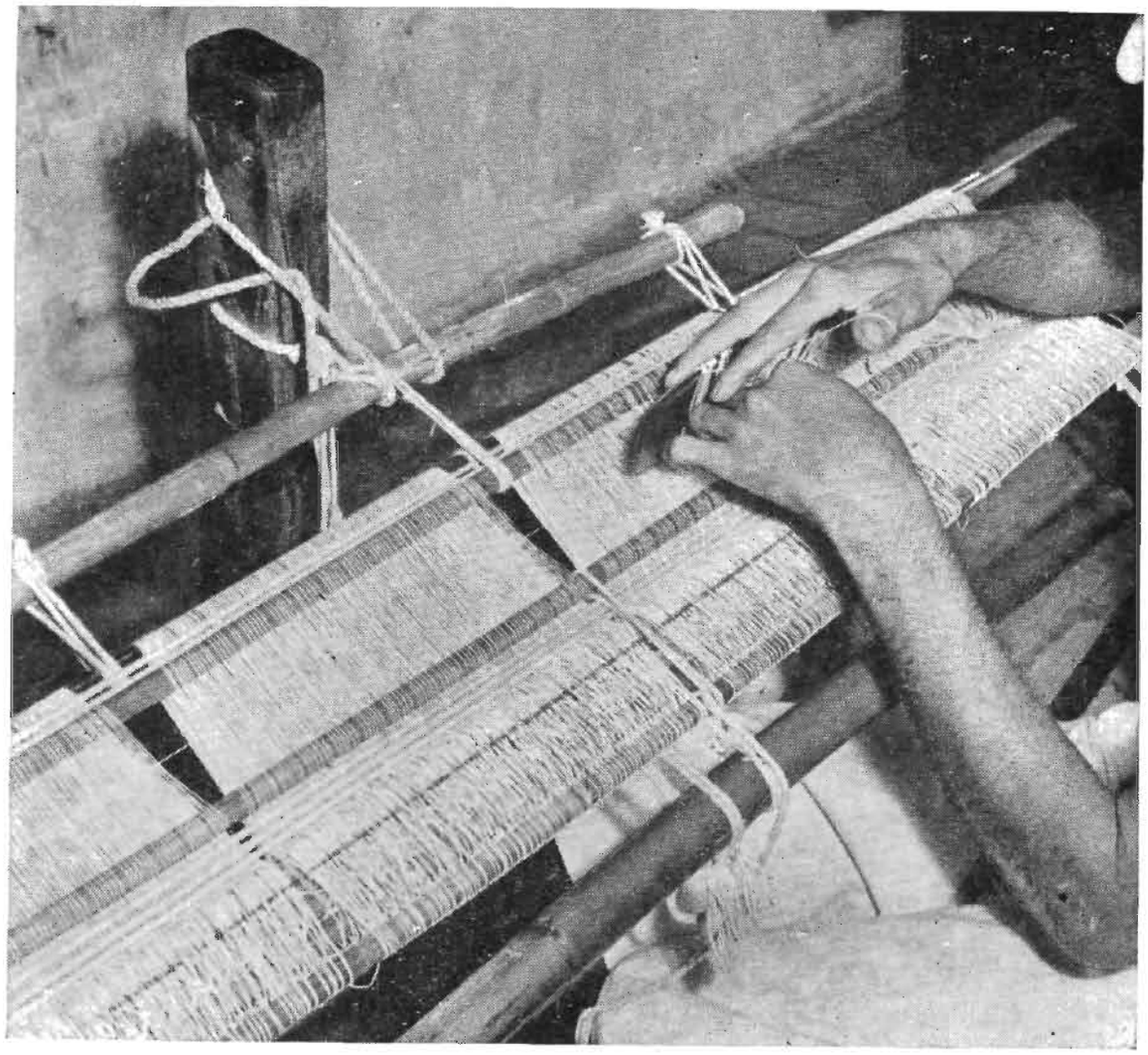
PLATE VI



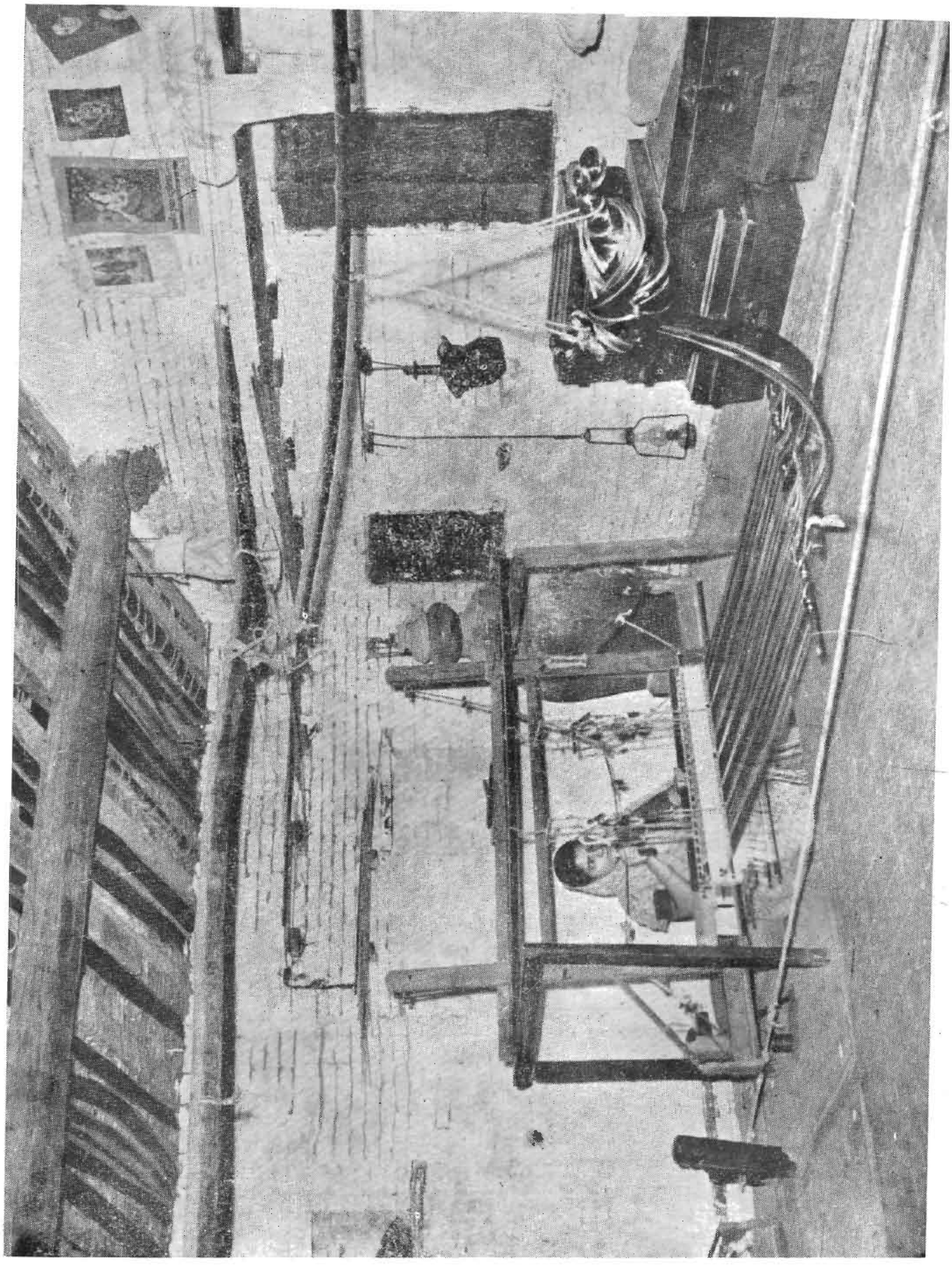
Sizing the warp



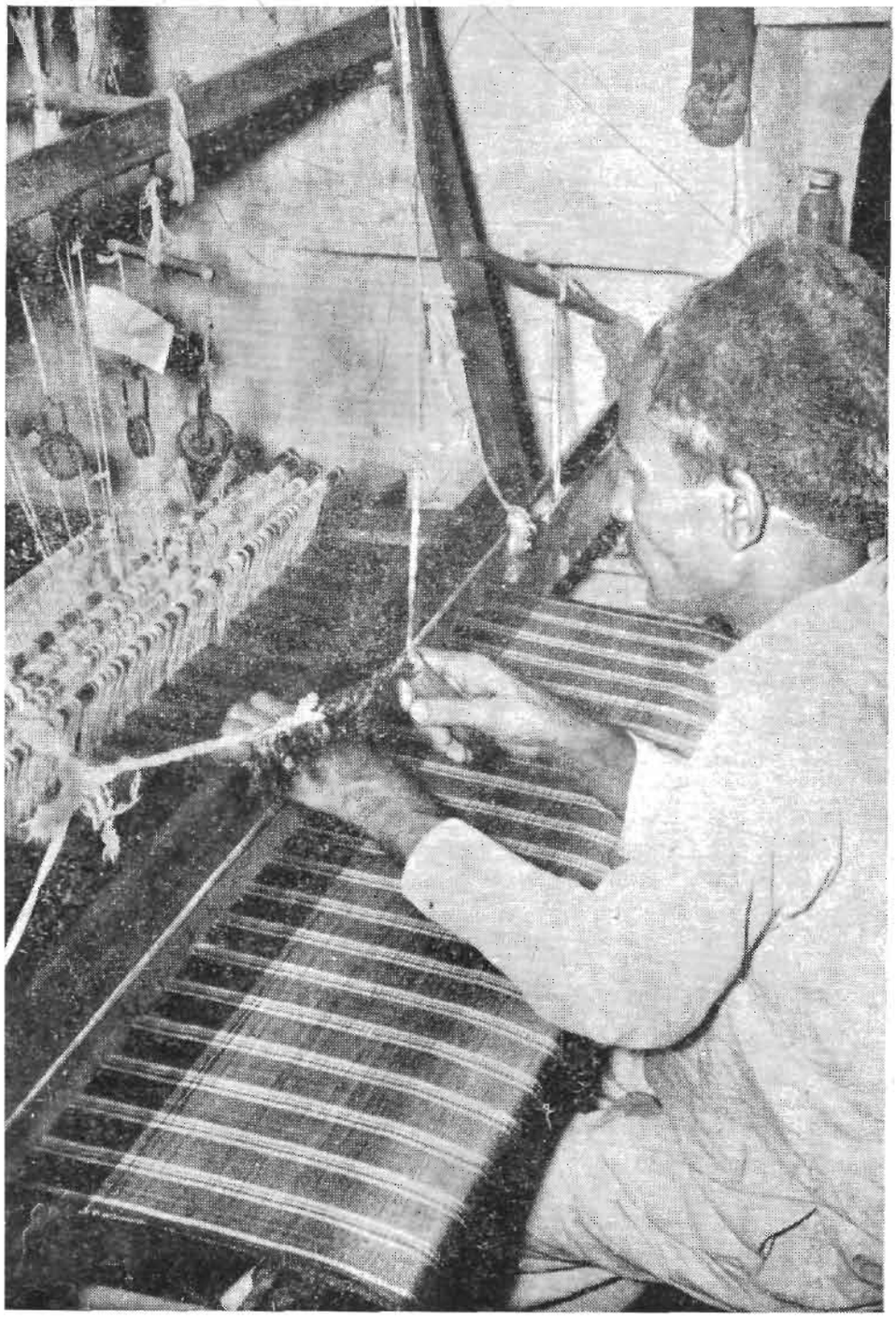
'Rachh' or heddle making



Close-up of 'rachh'

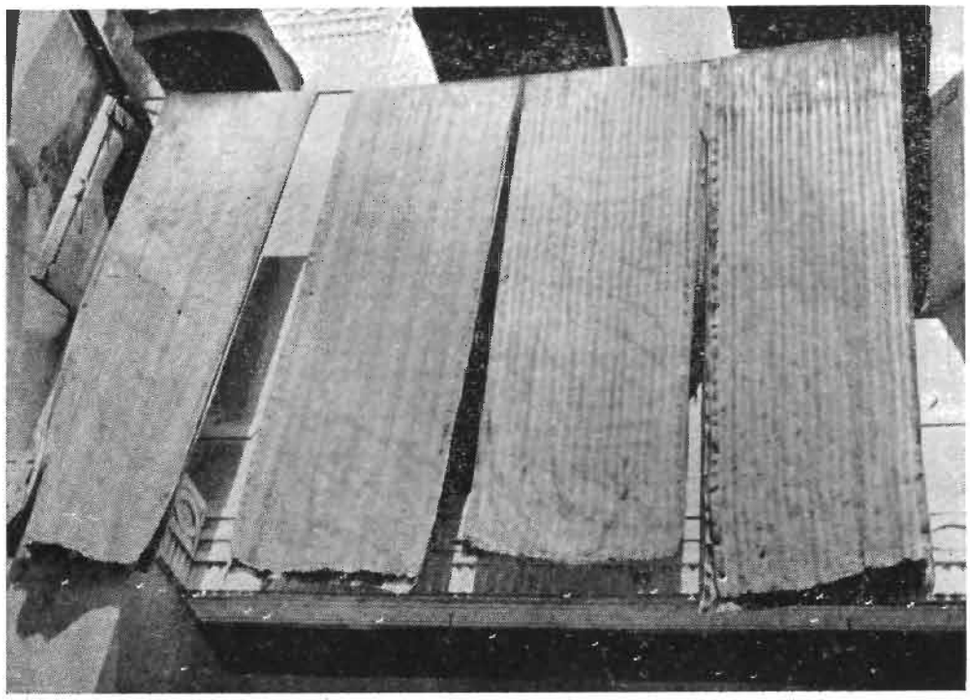


The Loom.

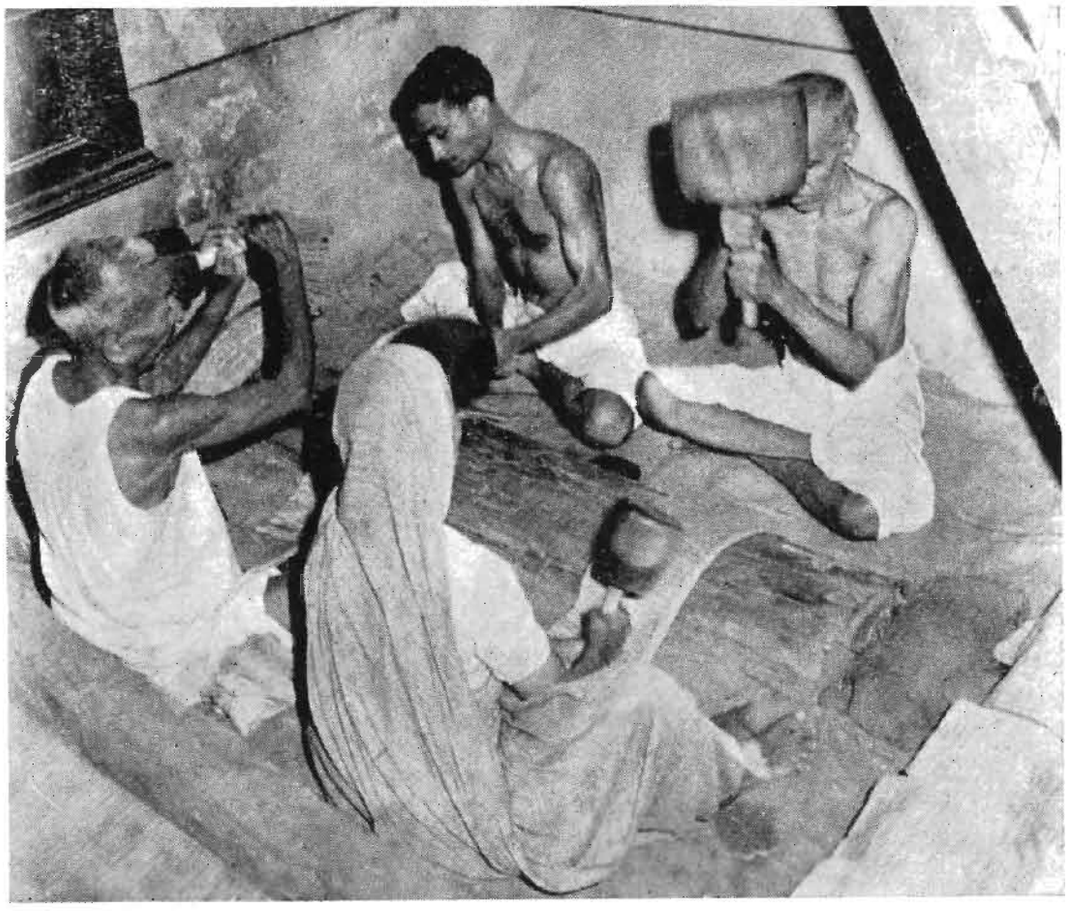


Mashru weaving

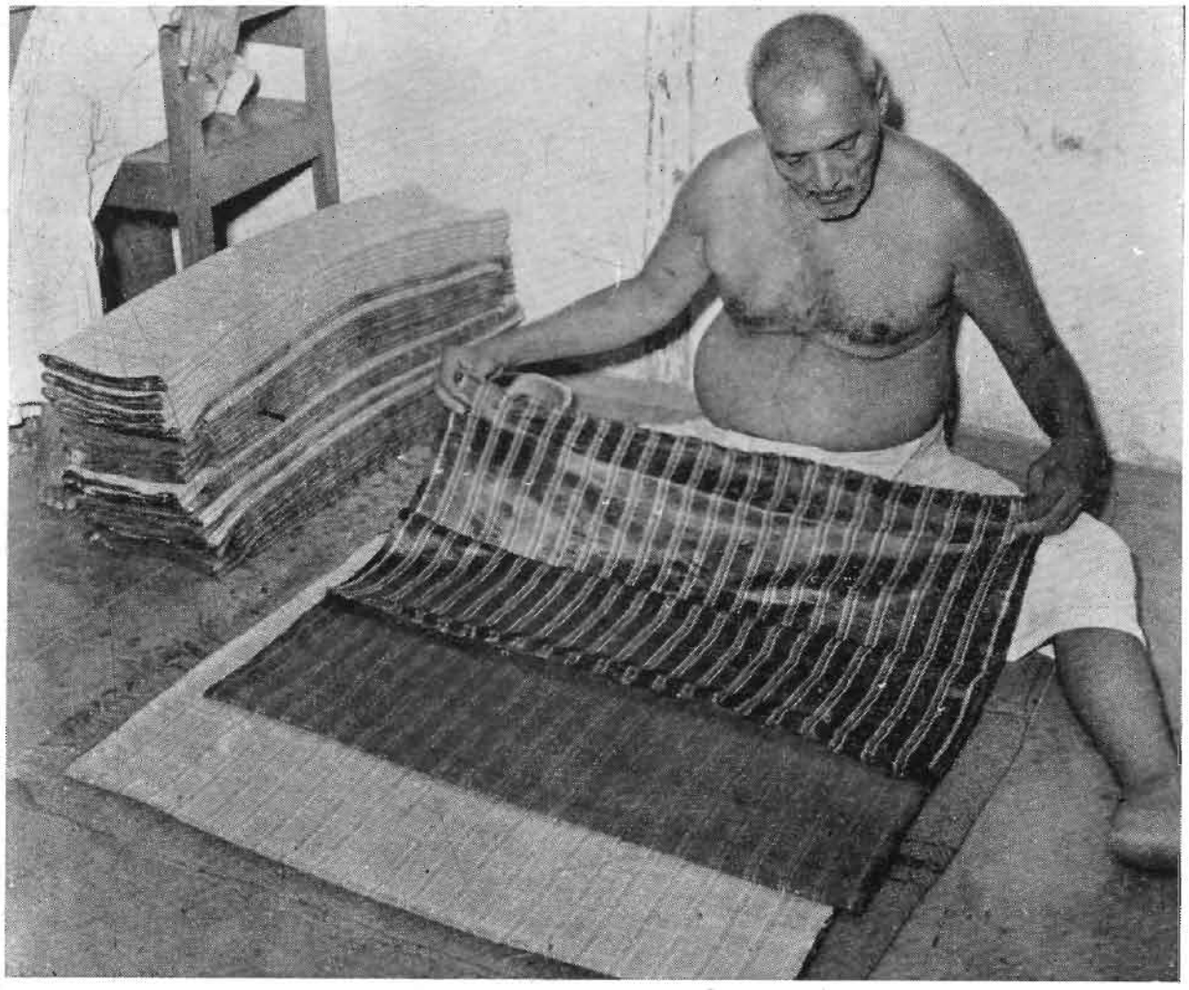
PLATE X



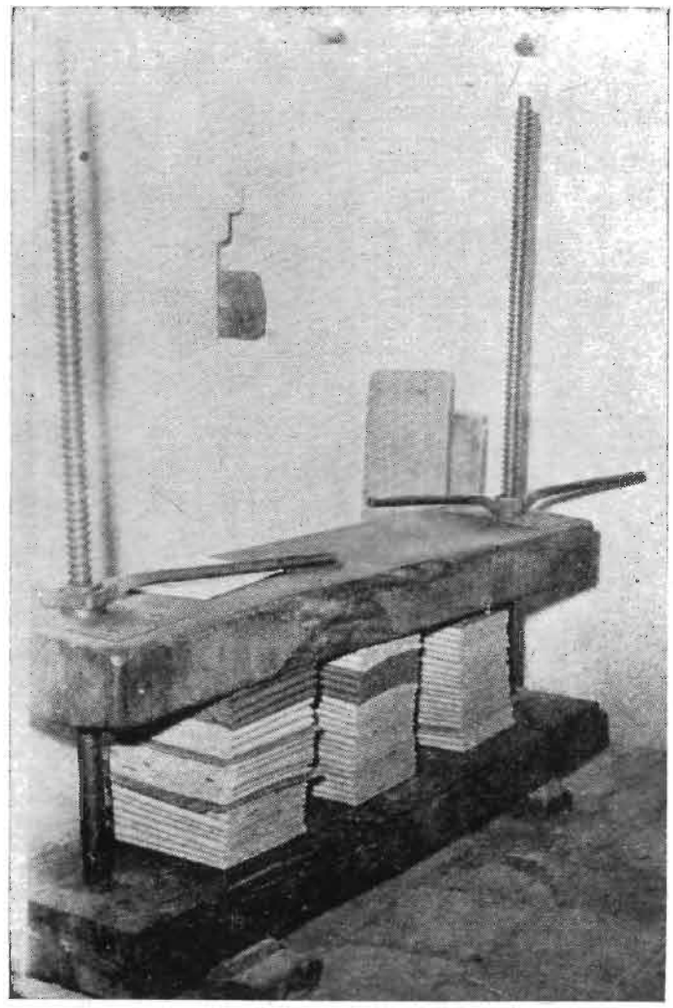
Drying the starched pieces



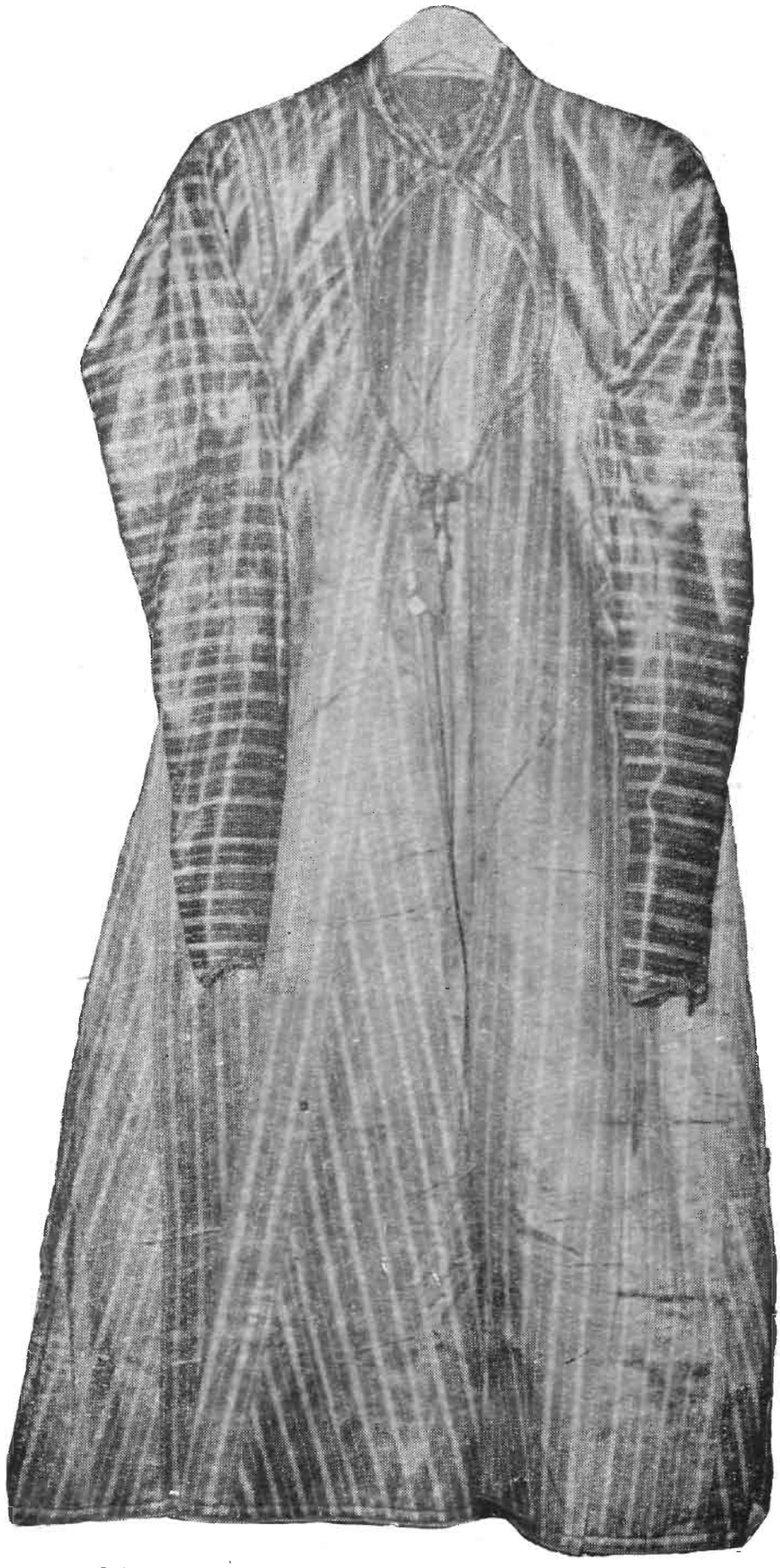
Kundi



Folding into pieces

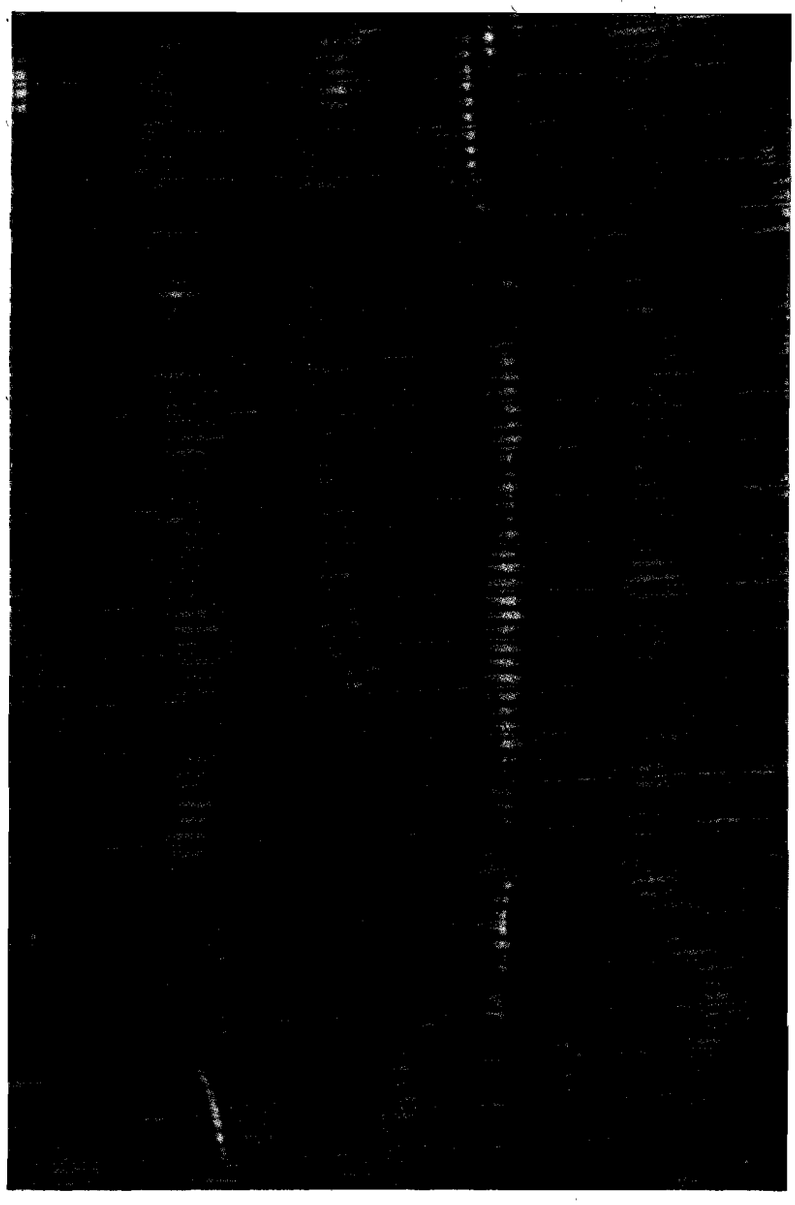


A hand press for final folds



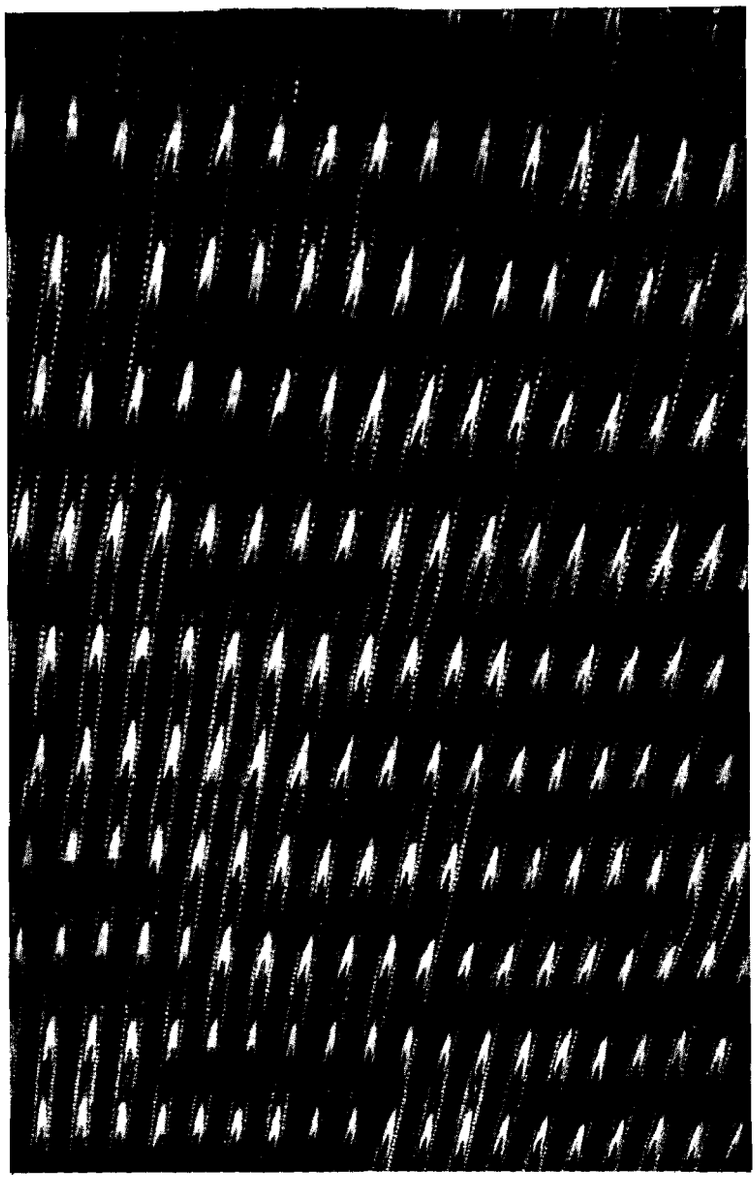
Mashru jama—used by a royal family in the past
(By Courtesy : *Surat Museum*)

PLATE XIII



Mashru woven in design called chhari katar

PLATE XIV



Mashru woven in design called chhari katar with kankani



Sale to customers



Office of the
Patan Mashru Hath Vanat Kamdar
Sahakari Mandli, Ltd.

APPENDIX

APPENDIX

TABLE I

Number of persons engaged

Name of craft	Town	No. of family workers engaged in production		
		Persons	Males	Females
1	2	3	4	5
Mashru weaving	Patan	439	215	224

TABLE II

Distribution of artisans by caste

Name of craft	Caste	No. of families surveyed	Number of adult family workers			No. of families working under cooperation
			Persons	Males	Females	
1	2	3	4	5	6	7
Mashru weaving	1 Shaikh	82	202	94	108	14
	2 Khatri	76	234	118	116	..
	3 Prajapati	2	3	3	..	..
	Total	**160**	**439**	**215**	**224**	**14**

TABLE III

Designs

Name of article	Name of design	Size	
		Length (yds.)	Width (Inches)
1	2	3	4
Mashru cloth	Lili Kankani	5.50	27
	Fancy Kankani	,,	,,
	Fancy Sadi	,,	,,
	Nakli Sodagari	,,	,,
	Lal Katario	,,	27, 33, 36 39
	Safed Katario	,,	27, 33, 36, 39
	Chundadi	,,	27
	Tran Kankani	,,	27, 33, 36
	Kamkhi	,,	27, 33,36, 39
	Fancy Khanjar	,,	27, 33
	Sadi Safed	,,	39
	Sadi Lal	,,	39
	Panch Patti	,,	33
	Arbi	,,	36
	Katar Butti	,,	36

TABLE IV

List of skilled craftsmen of each caste

Town	Craft	Caste	Name of skilled craftsmen
1	2	3	4
Patan	Mashru weaving	1 Shaikh	Nannamiya Dadumiya
			Nizamuddin Noormiya
			Kadarbhai Jamalbhai
			Hasammiya Shaikhmiya
			Nannamiya Chhotamiya
		2 Khatri	Nandlal Kishanlal
			Kantilal Motilal
			Surajlal Maganlal
			Manilal Mohanlal
			Ramanlal Manilal
		3 Prajapati	Mohanlal Shivlal
			Ghordhanbhai Bhagwandas

4. GLASS WORK AT KAPADVANJ

SECTION I

INTRODUCTION

Introduction

I.1 Glass is understood by general public as a hard, transparent, brittle, and uninflamable material. But to the scientists or technicians it is an inorganic product of fusion which has been cooled to a rigid condition without crystallisation. It is a substance having principal and essential constituent of silica and alkali. It may be considered as consisting of one or more salts, which are silicate with bases of potash, soda, lime, oxide of iron, aluminium or lead—in any of which compounds one of these bases may be substituted for another provided one alkaline base be left.

I.2 Glass in the natural or native form is found in the vicinity of volcanoes and in impure semi-transparent form varying in colour from grey to black. But the artificial glass is one of man's versatile creations. It plays an ever-increasing role in modern civilization. During the current century there is wide expansion in the use of glass, and technological changes in the manufacture of glass have been astonishing. Naturally with the modern scientific advance and technological revolution, knowledge of glass making has become specialised and known to the scientists, experts and people associated with the glass industry. This monograph on glass making at Kapadvanj attempts to give the salient features of craftsmen's skill, past glory of the craft and its subsequent decay. It would be really interesting to know how the illiterate craftsmen far behind the modern scientific and technological knowledge manufactured glass articles with elementary and traditional equipment and tools. In the past artistic glasswares were also made in India and even exported. Pliny has recorded that Indian glass was superior among all others, because it was made of crust and powdered crystals.

Antiquity of the Craft

I.3 It is not known exactly when and where the glass was first manufactured. Pliny[1] records that glass was produced accidentally by the fusion of silicon or sand and soda in the open fire. He narrates the episode that Phoenician merchants returning from Egypt to Syria with a cargo of nitrogen or soda, when cooking on the sandy beach under Mount Carmal, formed a fire place of blocks of soda, and accidentally produced glass in consequence of fire by the fusion of sand and soda. It is considered to-day by many as a legend. For many years it was held that artificial glass was first made in Egypt but there is now much evidence that it originated in Asia Minor, probably Mesapotamia. The following extract giving an account of antiquity of glass by Sir W. M. Flinders Petrie[2] is interesting.

> "The earliest glaze known is that on stone beads of the Badarian age in Egypt, about 12,000 B. C. This is green. That civilization was intrusive, probably from Asia. Green glaze was applied to powdered quartz basis for making small figures about 9,000 B.C, and was ever after so common in moulded beads that it was certainly of Egyptian manufacture."
>
> "The oldest pure glass is a moulded amulet of deep lapis lazuli colour, of about 7,000 B.C. Fragments of green opaque glass inlay appear in the lst dynasty about 5,000 B.C. Striped black and white glass amulets came in the 11th dynasty, about 3,800 B.C. An elaborate fused glass mosaic of a calf is in jewelry of 3,300 B.C. from Dahshur. Blue translucent beads appear about 1,570 B.C. All of these occurrences

1. Alexander Nesbitt, *Glass in Egypt, Phoenicia and Greece*, p. 9
2. *Encyclopaedia Britannica*, Vol.10, pp. 398–400, 1939

of datable glass in Egypt were probably due to importation from Asia."

Speaking of the antiquity of ancient Indian glassware, T. N. Mukherji writes :

> "The manufacture of glass was known in ancient India. As early as eight hundred years before Christ, i.e., at the time when the Yajur-Veda was composed, glass was one of the articles of which female ornaments were made. It is also mentioned in the Mahabharata, and in another old book called Yuktikalpataru the effects on the human system of drinking water out of a glass tumbler are stated to be the same as those of drinking out of a crystal cup."[1]
>
> "In the *Ain-i-Akbari* glass for windows is included in the list given by its author of building materials, and is said to have cost Re. 1 for 1¼ seer or 4 dam for one pane. Abul Fazl in his descriptions of Behar and Agra also mentions glass-making, and writes of Allore, 'Here are considerable manufacturers of woollen carpets and glass.' A glass *gulab* bowl and a *hukka* bowl found in the Muhammadan capital, Bijapur, were shewn by Major Cole, R. E., at one of the Simla Art Exhibitions. These he described as probably of the sixteenth century. They were of thick white glass, cut or moulded in a hexagonal diaper pattern with fluted necks, and of undoubtedly Indian design though of far superior workmanship to anything produced in this country of late years."[2]

Regarding glass industry in India, George Watt mentions in *A Dictionary of the Economic Products of India*, published in 1890 as following :

> "Now-a-days, indeed, the glass-making industry is almost entirely confined to a few families in the Lahore, Karnal, Jhelam, and Hoshiarpur districts of the Punjab; in the Bijnor and Saharanpur district, N.W.P.; in Lucknow; in Ahmadnagar, Kaira, and Baroda in Bombay; in Seoni, Central Provinces; in Patna, Bengal; in Jeypore; and in the North Arcot District of Madras. In these localities the glass-makers for the most part, confine their manufactures to rude globes, silvered inside with mercury and tinfoil, small coarse glass toys, rude bottles for attar, and to a greater extent beads and bangles."[3]

I.4 Indian glass was superior to all others as the artisans made it from crushed and powdered crystal. Exquisite glass artwares were made and exported in ancient times as can be seen from the artistic pieces displayed in some of the museums of the world. During Mogul times, beautiful cut-glass *hukka* bowls were very popular. The Indian women fancy for *chudis* or colourful glass bangles of Firozabad and a few other popular centres of India was responsible for the mass production of this article. In the last quarter of the 19th century, the craftsmen made *surahis*, water vessels, cups, plates, flower vases, flasks, walking sticks with *reh*, an impure carbonate of soda with the help of crude tools, implements and wheel with perfect skill on a small scale as mentioned in the records of Pliny.

I.5 With a view to utilise *reh* or *oos* available in Northern India, the Department of Agriculture and Commerce of the Government of India tried to foster and improve the making of glass beads in these parts of the country. A special engineer[4] conducted experiments on beads for devising patterns and tools. He tried methods employed in Venice and worked on furnaces constructed on the English pattern about 1870 A.D. The experiment disclosed that impurity of *reh* produced inferior beads but was not useful in making colourless window glass of good quality. Moreover, heating of *reh* in a particular furnace also required skill for building that type of furnace and also for working it. The beads produced being inferior in quality, the process proved to be more expensive. Due to lack of proper knowledge of manufacturing refined glass and absence of required type of material for the purpose, the artisans concentrated on the manufacture of glass in the form of

1. MEHTA RUSTAM, J., *The Handicrafts and Industrial Arts of India*, p. 88, 1960
2. GEORGE WATT, *A Dictionary of the Economic Products of India*, pp. 503–504, 1890
3. *Ibid.*, p. 504
4. *Ibid.*, p. 505

beads and bangles to cater the large demand of the native population.

KAPADVANJ—A SELECTED CENTRE

I.6 Kapadvanj, one of the oldest towns of Kaira district is said to date back to the 11th century. The name Kapadvanj or Kapadwanijya itself expresses its huge trade (viz., *vanaj* or *wanijya*), of cloth, (i.e., *kapad*) manufactured there. It is situated on the slope of the bank of river Mahor on 23° north latitude and 73° 7′ east longitude. It is the terminus of the Nadiad-Kapadvanj narrow gauge railway line about 25 miles from Nadiad. It is the headquarters of the taluka of the same name and connected by State Transport bus services with Nadiad, Modasa and surrounding areas. The total area of the town is 1,030 acres and 3 gunthas and has a population of 27,053 (1961). Literates account for 13,632 persons or 50.39 per cent and that of illiterates 49.61 per cent.

I.7 The town is surrounded by a fortwall with gateways on four sides which are gradually disappearing. There are buildings of five to eight centuries old and the site of the more ancient town is still there near the fortwall. Three historical battles were fought at Kapadvanj. In 1454 Kut-bud-din, the king of Gujarat, defeated Mohammed Khilji, the king of Malva. In 1725 the Marathas under Kantaji and Pilaji Gaekwad were defeated by Mogul commander Khanahzad. In 1736 the Marathas and Kolis recovered the town in a joint attack. The Marathas held it till 1816–17 when they exchanged it with the British for the neighbouring territory of Vijapur. A *toran* or victory arch in Chalukya style, a *kund* and the *Batrish kotha vav*, a step-well with 32 apartments built by Siddharaj Jaysinh on account of medicinal properties of the waters of a pool at that site, are fine specimens of architecture and protected monuments. There is a beautiful mosque in the Vohra locality, a richly ornamented marble Jain temple and many old buildings rich in wood carving. It was famous for the manufacture of soap, glass, leather, *ghee* jars and cloth weaving. Iron ore also used to be smelted there. Being an important trade centre between Central India and seacoast, it exported its goods to Central India and glass and soap were exported even to North Africa, Arabia and Persia before the advent of railways. Agate and moss pebbles used to be collected from the bed of the river Mazam about 15 miles from this town; and sent to Cambay for processing. The working of mines of manganese ore discovered by Messrs. Killick Nixon and Company of Bombay 50 years ago are closed for the past 25 years. Most of the handicrafts of the town have now fallen into decay. Cotton and groundnut are chief agricultural produce of the taluka. There are cotton ginning and pressing factories, oil mills and a rice mill. Hindu and Muslim merchants are engaged in trade and commerce. The Vohras—Shia Muslims, a well-known and rich community of merchants of the town have settled in Bombay and other cities of India and abroad.

I.8 The municipality runs the civic administration of the town very smoothly. There are a well equipped hospital and an arts and science college besides a number of primary and secondary schools. It is equipped with electricity, water-supply and underground drainage system.

HISTORICAL BACKGROUND

I.9 The history regarding the name of the first artisan who started making of glass articles and the exact period of commencement of this work at Kapadvanj is lost into antiquity. While quoting the following passage from the Journal of Indian Art in *A Dictionary of Economic Products of India* (1890 A.D.), George Watt admires it as most interesting since perhaps it described the only branch of the Industry worthy of the name of art manufacture.

> "Kapadvanj, in the Kaira district, is the only place in the Bombay Presidency where glass is manufactured in its primitive state from a natural earth called *us*, which is a mixture of the Carbonates and Silicates of Soda with several mineral impurities. It is, however, remarkable for its iridescent properties and good colour, resembling the antique Venetian. The shapes are quaint and beautiful. It is said that crude glass of the value of about 3 lakhs of rupees is annually sent to Bombay for foreign export by some Bhoras and Banias, and that it is purified and turned into various shapes in the glass manufactories of Europe. It would

be interesting to find out some more definite statistical account of this trade, which, though at present represented by a few pots and bottles, may, if well regulated, develop into an important item of the manufactures of Bombay."[1]

I.10 According to the above description, flourishing trade in glass existed during the early period of 19th century at Kapadvanj. This can also be supported by the local enquiry according to which four skilled artisans were invited with a monthly salary of Rs. 45 to England to show the indigenous method of glass making during the reign of Queen Victoria somewhere in 1895 A. D. The existence of both these factories on its present site for the last three centuries as stated by the owners shows that the industry is about 300 years old.

I.11 A few artisans engaged in glass-blowing at Lahore used to collect fragments of white European glass and melt them for moulding cheap articles like chimnies and bottles. The artisans of Kapadvanj also worked in a similar fashion. The artisans of Hoshiarpur also worked on the same lines.

I.12 The artisans at Kapadvanj manufacture zinc and lead applied glass globes which are used in embroidery work known as *abhala bharat* or *shishdhar* embroidery. It is also used in ornamental decoration of wall and earthen pots particularly in Gujarat. This type of glass has been mentioned by the author of *the Journal of Indian Art,* while observing that "Art at Karnal, the glass globes are made which when silvered inside are broken up into the small mirrors used in *shishdhar* ornamental plaster, and run into embroideries known as *shishdhar phulkaris.*"

I.13 Shishgarwad, i.e., the locality where the *shishgars* or glass makers resided at Kapadvanj is situated on the outskirts of the town since the industry was first started. Both the existing factories stand in this area even to-day. Nearly 50 households started the glass work on a very small scale with the help of family members. Each household collected *oos* from the near-by areas and purchased a little quantity of other raw materials and fuel from the local market for glass making. The most popular product was glass bangles manufactured from *oos.* The ladies participated in making of bangles especially in painting them, and also in the ancillary work of glass making. In the beginning, they also manufactured jar, water-pots, glass tumblers, mirrors, bangles, decorative globes in vivid colours after making glass from silica. But now only rough pieces of *shishdhar* or *abhala* used in embroidery work are produced from broken and discarded glass articles, which are the main raw material for this industry. Ten years ago an attempt was made to revive these old products but it resulted in failure on account of the geographical situation of Kapadvanj, which posed many difficulties in getting raw material and in competing with electrically operated fine products manufactured by modern glass factories. Plastic products have also discouraged the artisans from making artistic articles. Kapadvanj is thus the motherland of glass work in Gujarat where its manufacture on small scale basis existed from early times.

1. GEORGE WATT, *A Dictionary of the Economic Products of India,* Vol. III, pp. 504–505, 1890

SECTION II

CRAFTS AND CRAFTSMEN

CRAFTS AND CRAFTSMEN

II.1 IN FORMER times 50 households worked on their own at glass making at Kapadvanj. Even a small family manufactured glass in a little furnace in its hutment. Unskilled members collected *oos* in the early morning from the near-by areas and helped the skilled members in ancillary work of the craft. The head of the family purchased required raw materials like soda, colours, etc., from the local market and attended to the manufacturing processes and sale of finished products. On account of the colourful variety and pleasing shapes of glass articles like jar, chimney, tumblers, mirrors, bangles and bulbs or globes for indoor decoration the products captured the market and made the popular place as an important centre of glass manufacture. While describing the objects worth seeing in Gujarat Kavi Dalpatram (1820–1898 A. D.), a famous poet for Gujarat mentions Kapadvanj as a place noted for manufacture of glass and soap in his poem "जोवा जोग जेवी गुजरात". The customers from royal families, rich class and poor class patronised the craft according to their mite. Opening of modern glass factories in the country brought a gradual set-back to this industry worked in a primitive way. Obviously the artisans could not compete with electrically operated and mechanised factories and had to switch over to other means of livelihood such as trade, service, *bidi* making, etc., either at this centre or in some other areas of State. Now only 15 Muslims are engaged in two factories run independently at Kapadvanj.

II.2 Glass making is a very laborious and most technical work. Only skilled craftsmen experienced in the traditional processes and techniques of manufacture handed down from their ancestors are employed in it. Moulding and shaping of glass by blowpipes require two skilled workers who do the work in succession. The boiled lead is then applied by another worker, when the bulb or globe is ready. One man breaks the finished products in pieces of uneven shapes. He also sorts and packs them. One worker looks after the furnace and puts fuel in it and does other subsidiary work also. An assistant, say controller, helps these two skilled craftsmen engaged in moulding and shaping the liquid glass by shutting and opening the furnace as and when required. Thus in one of the two factories, six persons work over and above one manager and the owner of the factory who supervise the working and look after the purchase of raw material, sale of finished products and other work.

II.3 All these households are traditionally connected with this industry. Only the adult male members numbering 17, including 2 owners, employ themselves in all branches of the industry, viz., purchase of raw material, manufacture of glass by different techniques, sale of goods, packing, transportation, etc. Glass making is the main occupation for all the 15 households working in this industry. While examining the economic activities for peak and slack seasons of glass making, it is noticed that 13 households have subsidiary occupations like *bidi* making, trade of some sort, miscellaneous labour, etc., whereas 2 depend on glass work only.

II.4 At present there are two glass factories working at Kapadvanj. The area where they are located, is known as Shishgarwad or Shishgar Maholla. In past the area was thickly concentrated by small units manufacturing glass. Shishgarwad, the very name of the area signifies the past glory of the craft. The factories are known as "Mohmed Sidik Glass Works" and "Mohmed Husen Glass Works". Both the establishments are registered under the Indian Factories Act, and submit half-yearly and yearly returns to the Chief Inspector of Factories, Ahmedabad. The factories run in 3 shifts. First shift

works from 6 a.m. to 10 a.m., the second from 2 p.m. to 6 p.m. and the third from 6 p.m. to 10 p.m. Firewood and coal are used as fuel. Neither electric power nor other motive power is used in the factories. Most of the skilled workers are engaged on daily wages. There is no partnership and the factory belongs entirely to the owner. The factory building and godown are constructed in the big compound attached to it.

II.5 These factories are registered under the Indian Factory Act, as the average number of workers on any working day exceeds that prescribed by Government for factories running without power. Otherwise the glass articles manufactured at this centre are made by hand operated tools and implements. All the techniques and processes involved in glass making are indigenous without any mechanisation or modernisation. The owners and the artisans consider glass making as a handicraft. However, the owners have continued to run their units under the Factory Act, as it given them the advantage of procuring necessary raw materials from the State Government.

II.6 Both the factories are constructed on Plot No. 5381 admeasuring about an acre taken on lease. The land is owned by the Malek community which received it from the Alwa State. Firewood weighing 2½ lbs. was formerly levied by way of *weth* or forced labour, i.e., service extracted without giving remuneration for it by the community from each working furnace when the area was covered by a number of glass making units.

II.7 The proprietor live in their own houses whereas the hired workers live in rented premises near the factory in Shishgarwad, so named after the craft *shisha* or glass making concentrated and worked in that locality.

Literacy

II.8 The following statement distributes the members of the artisans' families into different educational standards by age and sex.

STATEMENT I

Literacy and educational status

1	Age group 2	Total 3	Illiterate 4	Literate without educational standard 5	Primary 6	Secondary 7	S.S.C. or Matriculate 8
Persons	All Ages	93	52	2	36	3	..
	0–14	42	24	..	17	1	..
	15–34	30	15	1	14	..	..
	35–59	18	10	1	5	2	..
	60 and above	3	3	..	..	..	..
Males	All Ages	45	21	2	20	2	..
	0–14	23	15	..	8	..	..
	15–34	12	2	1	9	..	..
	35–59	9	3	1	3	2	..
	60 and above	1	1	..	..	..	..
Females	All Ages	48	31	..	16	1	..
	0–14	19	9	..	9	1	..
	15–34	18	13	..	5	..	..
	35–59	9	7	..	2	..	..
	60 and above	2	2	..	..	..	..

II.9 Out of 93 persons engaged in the craft, 41 or 44.09 per cent are literate and 52 or 55.91 per cent illiterate. The percentage of literacy comes to 58.54 in case of males, but falls down to 41.46 in case of females. Of the 24 literate males, 20 have studied up to primary while only 2 have studied up to secondary and 2 can merely read and write. From the 17 literate females, only 1 has reached up to secondary whereas 16 have received primary education. None of the craftsmen has passed matriculation. Of the illiterate, 24 are minors and 28 adults—6 males and 22 females—who havenot attended any school.

II.10 The following figures show the comparison of literacy among artisans' families with that of Kapadvanj town.

Comparative study of literacy

Item	Percentage of literacy		
	Total	Males	Females
1 Artisan families . .	44.09	58.54	41.46
2 Kapadvanj town . .	50.39	59.27	40.56

Literacy among males and females in the artisans' families compares favourably with that of town as a whole.

WORKERS

II.11 The average household of workers consists of 6 members, of whom 2 are earning members, and 4 dependents on an average. The statement given below distributes the members of all the 15 households who are Suni Muslims into workers and non-workers by sex and age groups.

STATEMENT II

Workers by age groups

Age group	Persons				Males				Females			
	Total	Workers		Non-workers	Total	Workers		Non-workers	Total	Workers		Non-workers
		In the craft under study	In other gainful activities			In the craft under study	In other gainful activities			In the craft under study	In other gainful activities	
1	2	3	4	5	6	7	8	9	10	11	12	13
Total	**93**	**17**	**8**	**68**	**45**	**17**	**1**	**27**	**48**	..	**7**	**41**
Below 15	42	—	..	42	23	..	..	23	19	..	..	19
15–34	30	8	7	15	12	8	1	3	18	—	6	12
35–59	18	9	1	8	9	9	—	..	9	..	1	8
60 and above	3	..	..	3	1	..	..	1	2	..	..	2

II.12 Of 93 persons in 15 families surveyed, 26.88 per cent are workers and 73.12 per cent are non-workers. Only 17 adult males are engaged in the craft under study, of whom 8 are aged 15–34 years and 9 aged 35–59 years. 8 adult earners work in other gainful occupations. Of the latter, one male earns by manual labour carrying articles and luggage in hand-cart, 4 females attend to their shops, 2 females sell firewood and one female is engaged in *bidi* making.

II.13 None below 15 years and 60 and above are workers. All the workers belong to working age group 15 to 59. Those returned as non-workers are not economically active on account of childhood, study, old age, disability or domestic work. Out of the 3 males in the age group of 15–34, 2 attend school and 1 attends household activities as he is unemployed. 12 females falling in the age group of 15–34 and 8 in 35–59 are engaged in household activities.

SECTION III

RAW MATERIALS

Raw Materials

III.1 The artisans at Kapadvanj used *oos*, a natural earth, directly for manufacturing glass in olden times. Carbonates and silicate of soda, the two raw materials used in the manufacture of glass, are the main properties of *oos* along with other mineral impurities. Kapadvanj, thus grew to be a place of pride in the field of this industry in the Bombay Presidency somewhere in the latter part of the 19th century. The industry in this primitive state was plied in several families working as a small unit as already noticed earlier.

III.2 Besides *oos* obtained from the near-by areas at Kapadvanj, the artisans also used refined sand of Jaipur and Allahabad. Black sand of Jaipur (Rajasthan) was used to manufacture glass of light green colour or black colour, dark colours were being obtained by mixing additional colours and chemicals during the melting process.

III.3 Factories at Kapadvanj before 25 years manufactured glass from silica available from Than in Surendranagar district and Himatnagar in Sabarkantha district of the State, and made finished products like jar, chimney, glass tumblers, mirrors, decorative glass globes of desired shapes, etc. But now the process of mixing silica, sand and soda ash, etc., for making glass articles is given up as it is found to be expensive and broken glass pieces are used instead as a basic raw material. These are obtained from Municipal Milk Dairy and soda factories in Ahmedabad, and also collected from places around the town. Lead, soda ash, arsenic powder, zinc oxide, manganese dioxide, cobalt oxide and subsidiary raw materials like colours and chemicals are procured from Bombay, Ahmedabad and other parts of Gujarat. Steam coal, firewood, specially of mango or *Mangifera indica* and *neem* or *Azadirachta indica* trees are used as fuel for melting glass. Steam coal is brought in railway wagons from Calcutta. Steam coal, zinc and lead are obtained on Government permit, through the Department of Industries. All these raw materials are purchased on credit or cash basis and are transported to Kapadvanj by rail and trucks after paying incidental taxes like sales tax, octroi, etc. It is estimated that the expenditure on raw materials comes to Rs.100,000 against the production of Rs. 130,000 in 1960–61. Prices of raw materials are given below.

STATEMENT III

Raw material

Sl. No.	Name of raw material	Unit	Price (Rs.)	Place from where procured	Rate of octroi duty at Kapadvanj
1	2	3	4	5	6
					Rs. P.
1	Glass pieces	20 kg.	1 to 3.50	Ahmedabad and near-by place	0.2 (Per Re.)
2	Soda ash	50 kg.	25	Bombay and Ahmedabad	0.75 to 1.00 (Per kg.)
3	Arsenic powder	50 kg.	80 (At Bombay)	,,	0.02 (Per Re.)
4	Zinc oxide	60 kg.	112 (At Bombay)	,,	,, ,,
5	Manganese dioxide	50 kg.	28	,,	,, ,,
6	Cobalt oxide	1 lb.	12 (At Bombay)	,,	,, ,,
7	Borax oxide	50 kg.	85 (At Bombay)	,,	,, ,,
8	Sulphur	1 lb.	1.50	,,	0.04 (Per Re.)
9	Lead	1 kg.	1.25 to 1.75	,,	0.02 (Per. Re.)
10	Steam coal	1 ton	60	Calcutta	1.00 (per Met. ton)
11	Firewood	1 standard Md.	1.60	Kapadvanj	—

SECTION IV

TOOLS AND TECHNIQUES

Tools and Implements

IV.1 The artisans engaged in glass making at Kapadvanj use traditional tools and implements though modern factories of the State produce quality goods in large quantity. The method in which these primitive tools and implements are used, is very simple compared to the modern factories working with modern and mechanised equipment. Besides small and big tools and implements, which are simple but very complicated to handle by an unskilled worker, furnace plays an important role in glass making. Below is given the brief description of the main tools and implements used in this industry.

(i) *Showel*—Made of iron, it has a long wooden handle measuring 3′ to 4′. The carrier or a vessel attached to it has the shape of a winnowing pan at the top. Its approximate cost is Rs. 7 to 8 per piece. It lasts for 5 to 6 years. It is known as *chamcho* in local parlance.

(ii) *Tub*—This is also made from iron plate and used as a carrier of glass pieces, chemicals and powders. The bottom is oblong and two handles are fixed on both the sides at the top. It costs Rs. 8 to 15 according to size. Its life is estimated to be 4 to 5 years.

(iii) *Forks and Pincers*—These are iron implements measuring 5′ to 6′ locally known as *chipiya* and *sansa* costing Rs. 5 to 6. They are used to arrange the burning firewood or coal in the furnace. They last for 2 to 3 years.

(iv) *Pavdi*—At the top of a long iron rod (7′ to 10′) is fixed a horizontal iron plate (9″ × 6″). It is used for stirring the boiling mixture of raw materials in the glass furnace. It costs Rs. 7 to 8 and lasts for about 5 years.

(v) *Ankado*—An iron rod of 3′ to 6′, the end of which is crooked, is used to accumulate the viscous glass from inside the furnace to its opening. It lasts for 3 to 5 years and costs Rs. 4 to 5.

(vi) *Pochari*—A wooden handle measuring $1\frac{1}{2}$′ is wrapped with a cloth piece. This is used for sprinkling or applying water on the iron plate or manufactured article for cooling. It lasts for a month or two and costs 50 paise approximately.

(vii) *Iron Plate*—The average size of the plate is 4′ × 2′. It is used as a support while turning and moulding viscous glass with the help of a blowpipe. Its approximate price is Rs. 10 and its life depends upon the care with which it is used.

(viii) *Iron Spoon*—This is locally known as *kadchho*. It is a long iron rod measuring 7′ to 8′ having a bowl shaped vessel on the top, used as a container of metal pieces like lead, zinc and tin. The container is heated for melting the metal and the liquid metal is poured in the glass flask with this spoon like instrument. It nearly costs Rs. 9 to 12 and lasts for 3 to 5 years.

(ix) *Iron Stand*—The artisans call this instrument *ghodi* 2′ to 3′ high, costing Rs. 3 to 4. A round iron ring is fixed on the top of a tripod. The round flask or globe is placed on it while shaping and pouring liquid metal in it. Its life also depends upon the careful use of it.

(x) *Iron Strip*—An iron strip (1′ × 3″) is used as a striker to the finished flask or globe. The workers strike the top while pulling the blowpipe and other portion for making it into pieces. It costs 0.75 paise to Re. 1 and lasts for 3 to 4 years approximately.

Furnace

IV.2 (i) While designing the furnaces two factors, viz., kind and quantity of glass to be manufactured are considered. The system of heating by end-port or side port is also determined from the quantity whereas the type of glass is the deciding factor for the depth of the tank. Intensive heat, usually 2,800° F. or higher melts and fuses. The materials are dumped into tank or pot furnace. "If the glass is allowed to cool too much it is so viscous that gathering is difficult and accurate weight control impossible. If it is too hot, it is difficult to make a gather at all and the ware may be

full of trapped 'blisters' or 'bubbles', because of the rapid working to which it must be subjected."[1]

(ii) While peeping in the past, it can be presumed that the artisans used pot furnaces at Kapadvanj. A small household with the help of family members manufactured coloured glass articles after melting the crude raw materials in round or oval shaped clay pots made from matured fire-clay. Later on tank furnace used at present is substituted.

(iii) The exact period or the name of the person who invented tank furnace is not known. But "F. and W. Siemens developed the idea of melting glass in a furnace whose walls serve both to restrict and retain the heat and to hold the glass. They also invented the system of regenerative firing for use with these furnaces. This system had a revolutionary effect on all industries requiring high temperatures."[2]

Out of many types and sizes of the tank furnaces, smallest is known as day tank furnace. This is a very economical as well as flexible melting unit. Nearly 5 to 10 tons of glass can be melted in one day and worked out on the other day by the artisan. The largest tanks are those used in making of window glasses by big factories, measuring 136 ft. long, 28 ft. wide, 5 ft. deep having a full capacity of 1,050 tons against a little quantity handled by a pot tank. In the first case the production is slow and artistic whereas high-speed mechanical production is involved in the last case.

(iv) One of the tank furnaces is constructed with clay and bricks in oblong shape under the tin-covered roof of the workshop without walls. The furnace is broad from the front side and narrow from the rear. There is a big gate in the front, which is used to enter the moulded and shaped flask for further heating and processing. At right angle to the front portion, a small niche is devised for melting the lead and zinc in a spoon like implement. The liquid metal is used for coating the moulded flask. The side gate falling on the left side is used for dropping the raw materials and also for collecting viscous glass for primary rolling and shaping. At the end of the furnace, the semi-circular opening beneath the side walls is the dropping point for fuel, viz., firewood and coal. Beneath the surface of the furnace, the hollow place is used to remove the ashes. The ashes and unburnt fuel pass through sloping wooden planks into a cement tank filled with water. There are two iron gates, one on the front and another on the side. An assistant sitting on the left corner of the furnace opens and shuts the gates according to the requirement of both the artisans, first engaged in primary moulding and shaping and second one engaged in final shaping of the article. The bottom of the container of material is separated by a wall. One part is used as container and another part is used for fumes created by the blazing fire. Approximate expenditure for constructing such a furnace measuring 30′ x 12′ x 6′ comes to about Rs. 2,000.

BLOWPIPE

IV.3 This is the most important implement measuring 4 to 5 ft. long having a knot at one end and a mouthpiece at the other. It is available in the local market as well as at Ahmedabad and Bombay. This simple implement when put in the hands of a skilled craftsman creates endless varieties of hollow glass. The artisan dips the knob-shaped end of the blowpipe into a furnace. The artisan then blows the viscous glass sticked to the knob-end with the help of mouthpiece gently and vigourously. After collecting, swinging, rotating, cooling and reheating the primary bulb again and again, the artisan shapes the article with the help of other minor tools and implements into a variety of forms and designs. The invention of the blowpipe which can be considered one of the great discoveries of mankind caused a revolutionary effect in this art and changed glass from luxury into a necessity and also made it possible to manufacture it in quantity which was previously impossible to produce. "The glass prepared without the aid of the blowpipe has been compared to pottery made by hand

1. *Encyclopaedia Britannica*, Vol. 10, p. 419, 1939

2. *Ibid.*, pp. 418-419

before invention of the potter's wheel. Kisa assigns the invention to the period between 300 B.C. and 20 B.C. and most authorities feel that blown glass owes its origin and development to Phoenician workers of that time."[1] The transparency and freedom of colour, the desirable qualities in blown glass may have been attained after many experiments with the help of advanced techniques of blowpipe at about the beginning of the Christian era.

TECHNIQUES AND PROCESSES

IV.4 The glass making at Kapadvanj is done without the help of electric power, solely by human labour and with the application of traditional techniques. The techniques involved in glass making are described below according to various stages of the process.

(i) *Washing of broken Glass Pieces*—All the broken glass pieces of bottles, bulbs and pots used as main raw material are first sorted into two divisions, viz., (i) clean and (ii) dirty. The latter pieces are dipped in cement trough, iron tub or drum filled in with a solution of water and caustic soda for a day or two. Unskilled workers wash these oily, sticky and dirty glass pieces with the help of coarse string made from the bark of cocoanut tree or brushes with a view to avoid adverse effect or reaction during the melting process.

(ii) *Melting Process*—The clean as well as washed glass pieces are put into the tank furnace by carrying them in tins. Other materials, chemicals and colours like soda ash, arsenic powder, zinc oxide, manganese dioxide, cobalt oxide and desired colours are dropped into the furnace. The average size of the tank which is made from clay, bricks and cement, is 30′ x 12′ x 6′. The mixture of the main and subsidiary raw materials is put into one of the two apartments in the furnace, whereas the fuel is kept in another. The mixture is stirred after heating and boiling it with the help of a spade or *pavdi* inserted from the left side entrance of the furnace. Constant heat is given by steam coal and firewood for two days up to 1,200° to 1,500° F. resulting in fumes in the furnace. The solid mixture takes the viscous form on the third day which can be utilised for further processing into glass articles.

(iii) *Moulding of Viscous Glass*—An artisan seats on a gunny bag or a wooden rectangular piece near the narrow gate kept on the left side of the furnace. He collects some reddish and sparkling molten glass towards one side of the gate, and wraps it on the blowpipe for primary moulding, with an iron rod having a crooked head on one end which is known as *ankado* in local parlance. He then winds up some viscous glass about 6 *tolas* in the first instance on the top portion of the blowpipe and takes it out from the furnace. He sprinkles or applies water on a rectangular iron plate kept on his front side. The instrument used for sprinkling water is made from a wooden handle measuring $1\frac{1}{2}'$ long, the end of which is wrapped with a piece of cloth. This handle is known as *pochari*. The blowpipe is turned on the wet iron plate so as to distribute the molten glass evenly on the surface so that it can be blown easily. After allowing it to cool, the rod having some paste stuck is again dipped in the boiling liquid and desired quantity of viscous glass is taken and placed on the iron plate. This process is repeated till about 120 *tolas* of viscous glass is collected on the plate. An assistant, sitting at a right angle to the gate, opens and shuts the door of the furnace by pulling and pushing it by a chain attached to a bamboo stick or handle to enable the artisan to take viscous glass from the furnace. When sufficient quantity of liquid glass is collected on the plate, the artisan blows the pipe with strain, turns or rolls it with the paste on the wet iron plate, moves it round in the air alternately till he finally moulds the paste initially into an oblong shape.

(iv) *Shaping the Flask*—The blowpipe is passed on to another artisan for further blowing. The artisan sitting near the opening on the front side of the furnace, blows the moulded lump slowly. While blowing, the artisan places it in the furnace oft and on to preserve the plasticity of the moulded lump. The continuous blowing of the oblong lump makes it hollow, and ultimately shapes it round into a flask or globe

1. *Encyclopaedia Britannica*, Vol. 10, p. 400, 1939

as a result of frequent pressing and turning it on an iron plate. When the desired hardness and thickness is obtained, the flask is placed on the bowl-shaped clay stand and the blowpipe is pulled out, and pierced at the bottom with a view to make top side hollow and hard. The artisan then blows the pipe and gives final shape to the top. While doing so, the flask is kept in the furnace and heated evenly.

(v) *Application of Liquid Lead to the shaped Article*—Metals in the proportion of 80 per cent of lead, 10 per cent of zinc and 10 per cent of tin are mixed together and boiled through another gate on the right side of the furnace. A long iron rod shaped into a small vessel at one end is used as a container for this mixture. The artisan holds the spoon-like iron rod filled in with the liquid metal and pours it into the flask through a hole at the top after putting it on a hollow place on the ground. The flask is now rotated with the blowpipe with a view to spread the liquid metal evenly on the inner surface of the flask. After coating the flask from inside with lead, the additional metal liquid is taken out in the spoon-like iron instrument by turning flask upside down with the help of the blowpipe. The flask is then placed on an iron stand and cooled by pouring and sprinkling water on the top with *pochari*, a wooden instrument wrapped with a piece of cloth.

(vi) *Making Pieces of Lead-coated Flask, sorting and packing of Pieces*—The blowpipe is pulled out from the flask kept on an iron stand after beating the top portion with an iron strip. The lead coated flask is then broken by unskilled workers into irregular pieces after striking it from the top with the help of an iron plate or spear-headed rod measuring 1½'. Large pieces are further broken into small ones by stone. These pieces are now sorted into three varieties, viz., thin, medium and thick. Each variety is packed separately in tins and bamboo baskets with packing materials like grass and waste paper. These packings are transported for sale to traders and merchants by rail or truck.

SECTION V

FINISHED PRODUCTS AND MARKETING

FINISHED PRODUCTS

V.1 THE ARTISANS of Kapadvanj used to manufacture in the past glass tumblers, pots, mirrors, jars, *gulab dani*, lantern shade or *chimni*, ball shaped flasks for home decoration and fancy bangles in variegated and pleasing colours. But now the production is confined to only uneven glass pieces as discussed earlier. The reasons attributed for such a decline in this industry are many. It is very difficult for the industry to withstand the competition of big factories well equipped with modern machinery and technical personnel. Modern flow furnaces produce viscous glass with lesser time and fuel than the primitive tank furnaces. Refined raw materials are used now instead of crude raw materials used in the past. Even manual blowing and shaping of the glass are made easy by the use of machinery for blowing and shaping. Modern technology and financial facilities have also helped the development of this industry after Independence. The industry at Kapadvanj has not been able to march with times by taking advantage of the financial and other facilities available through Government, because of the backwardness and illiteracy of those engaged in the craft of glass making.

PRICE OF FINISHED ARTICLES

V.2 Glass pieces are sold at the rate of Rs. 52 per B. maund at Kapadvanj. Their approximate production per year comes to Rs. 130,000, including 15 per cent profit. Labour charges and raw materials account for 10 and 75 per cent respectively.

V.3 The Handicrafts Emporium, Bombay had conducted an enquiry to compile a directory of craftsmen, finished products, their centres, etc., in 1939 with a view to find out the feasibility of establishing an emporium by the Government. The data pertaining to the finished articles produced in 1938-39 and their prices obtained from the returns of the said enquiry are given below.

STATEMENT IV

Price of finished articles prepared at Kapadvanj in 1939

Sl. No.	Description of articles		Unit	Price (in Rs.)
1	2		3	4
I	Chimni or chimney			
	(1) 5 ven		Dozen	0.44
	(2) 10 „		„	0.62
	(3) 12 „		„	0.87
	(4) Ful ven		„	0.94
II	Ayno or mirror		Deshi Md.	8.00
III	Barni or jar			
	(1) 1 lb.		Dozen	1.50
	(2) 1½ lbs.		„	1.75
	(3) 2 lbs.		„	2.75
	(4) 4 lbs.		„	4.00
	(5) 6 lbs.		„	5.00
	(6) 7 lbs.		„	5.50
	(7) 8 lbs.		„	7.00
	(8) 9-10 lbs.		„	7.50
IV	Glass-tumbler		„	2.50
V	Fancy bangles	(1) made from oos	Deshi Md.	4.00
		(2) made from sand	96 pieces	0.25

FINISHED PRODUCTS AND MARKETING

V.4 The finished products are sold on wholesale basis through bank, on cash or credit basis to the merchants of Limbdi in Rajkot region, Madras, and Rajasthan. The wholesalers give these uneven pieces of glasses to those households where mostly ladies undertake the work of breaking them into tiny mirrors of uneven shape locally known as *abhalan* on piece-wage basis. These are then sold to merchants engaged in selling embroidery articles.

V.5 *Abhalan* are embroidered into attractive designs on colourful cotton, silk and woollen fabrics mostly by rural folk of Saurashtra, known as *shishdhar* embroidery.

V.6 The finished products are stored in a room in heaps before sending the same to the destination in baskets or tins. Most of the glass products of Kapadvanj are marketed to the wholesale merchants of Limbdi in Surendranagar district in the Saurashtra region of the State. Five merchants carry on this trade as their main occupation four of whom are Modh Bania and one is Jain Bania. They purchase glass pieces only from Kapadvanj. The products are transported from Kapadvanj to Limbdi by truck. One truck carries nearly 250 to 300 *deshi* maunds of glass. The transportation charges come to Rs. 200 per truck. It is estimated that the products weighing about 200 *deshi* maunds are bought by these merchants per annum in small and big instalments according to the demand of the products. The approximate value of the articles purchased during a year varies from Rs. 80,000 to 96,000.

V.7 The merchants give uneven pieces of glass to those women workers who shape them into round, oblong, triangular and square tiny mirrors or *abhalan* used in *shishdhar* embroidery. Only female members of Hindu and Muslim castes do this on piecework basis at home at the rate of 75 paise to a rupee per kilogram when they get time after completing their regular domestic work. Majority of them belong to Brahmin, Kansara and Muslim communities. They work throughout the year. The merchants of Limbdi pay about Rs. 30,000 per year by way of labour charges.

V.8 The tiny glass pieces are sold to those merchants who sell them to their customers engaged in *shishdhar* embroidery, packed in wooden chests and tins before transporting them by rail. Goods worth Rs. 125,000 are marketed in Gujarat, Barmer in Rajasthan, Bombay, Kalyan, Punjab and Delhi by the merchants of Limbdi.

V.9 This industry provides livelihood to many female workers who are engaged in making uneven glass pieces. Limbdi merchants believe that the sales tax on *abhalan* should be abolished, as the only use the article has, is in embroidery which is a handicraft essentially worked on household basis. In the alternative the rates should be reduced to provide encouragement to this dying cottage industry of glass making.

Other Centres

V.10 Kapadvanj is the only centre in Gujarat where this industry had come into existence on account of easy availability of raw material, viz., *oos* in this area. Formerly the artisans used to manufacture glass directly from *oos* without adding any other material like sand or chemical. But now this method of glass making has completely disappeared. There are no other centres where glass is manufactured on such a small scale. In Morvi and Baroda two modern factories manufacture glass articles of domestic use and decoration but *abhalan* are not manufactured.

SECTION VI

ECONOMIC CHARACTERISTICS

Capital Structure

VI.1 This industry requires a big workshop, and a large quantity of raw materials, besides tools and implements including a tank furnace for processing the raw materials into finished products. Quite a good amount is, therefore, to be invested for the above purposes as also for handling competitive market. Two factories manufacture glass products in Kapadvanj and the owners of these two factories are brothers. The combined investment of both these units is about Rs. 70,000, distributed as under:

Rs. 13,000	Tools, implements, workshop, warehouses and office premises
Rs. 57,000	Raw material and cash on hand, recoveries.
Rs. 70,000	**Total**

VI.2 Both the factories provide their own capital. While reviewing the working of the factories, it has been noticed that up to date offices equipped with good furniture and fixtures are run with the necessary managerial staff, who maintain various types of accounts. Modern mechanised factories produce a large variety of glass articles which small factories cannot now afford with the help of semi crude raw materials and traditional tools and implements. Their production has, therefore, to be restricted to the manufacture of tin-applied glass used in embroidery work. Such small units which worked profitably in the past have naturally disappeared as they cannot survive under the stress of keen competition of large scale manufactories.

Cost of Production

VI.3 An attempt is made to estimate the cost of production taking furnace as a unit.

STATEMENT V

Cost of production

Sl. No.	Raw Material	Consumption of raw materials — Unit	Quantity	Cost (in Rs.)
1	2	3	4	5
1	Glass pieces . .	Std.Md.	75	450.00
2	Soda ash . .	cwt.	6	180.00
3	Arsenic powder .	kg.	2	3.20
4	Borax oxide . .	kg.	9	15.30
5	Lime powder .	Tin	2	5.00
6	Sulphur . . .	lb.	5	7.50
7	Lead . . .	lb.	25	31.25
8	Zinc . . .	lb.	5	5.00
9	Manganese . .	kg.	7	3.50
10	Steam coal . .	Ton	8	480.00
11	Firewood . .	Std.Md.	200	320.00
			Total	**1,500.75**

VI.4 In the above statement, only expenses on raw material are given. Glass worth Rs. 2,080 is manufactured by incurring a total expenditure of Rs. 1,500.75 on raw material. On the basis of daily attendance of 12 hired workers, the estimated labour charges come to Rs. 250 for five days. Other charges like depreciation charges, interest, repairs of tools, the workshop, etc., which are not computed separately can be estimated to be Rs. 25 to 30. The approximate net profit per furnace would, therefore, come to Rs. 300 on an average.

VI.5 Seven to eight tonnes of glass-liquid can be produced at a time in a furnace. The process of melting takes 4 to 5 days. Out of 7 to 8 tonnes of glass-liquid produced, only 40 per cent proves useful for the manufacture of glass products and the remaining 60 per cent is considered waste.

INCOME

VI.6 The households engaged in the craft under study are distributed into various ranges of income as mentioned below.

STATEMENT VI

Households according to income range

Income range (in Rs.)	No. of household	Percentage to total
1	2	3
501- 800	4	26.27
801-1,000	..	..
1,001-2,000	9	60.00
2,001-2,500	..	..
2,501 and above . . .	2	13.33

VI.7 Two or 13.33 per cent of the households falling in the highest income bracket out of 15 households surveyed earn more than Rs. 2,501 per annum. Of the remaining households, 9 or 60 per cent fall in the income range Rs. 1,001-2,000 whereas 4 or 26.67 in Rs. 501-800. On the basis of the annual income and skill, 15 households can further be classified into three categories, viz., (i) 2 households of enterprisers earning high income, (ii) 9 of highly skilled artisans and a manager getting balanced income, and (iii) 4 other workers receiving low income.

VI.8 The annual average income of a person classified in three ranges shown above is estimated to be Rs. 9,000, Rs. 1,746 and Rs. 750 respectively.

WAGE STRUCTURE AND EMPLOYMENT PATTERN

VI.9 The techniques and processes of glass making are very laborious. Only skilled workers who have learnt the complicated working of the craft as handed down from their ancestors are employed in it. Shifting, sorting, cleaning and mixing of raw materials with other colours and chemicals, furnace heating, moulding and shaping, application of lead, breaking of finished glass, packing of articles and transportation of finished goods are the main branches of this industry where skilled and semi-skilled artisans are employed. Skilled artisans engaged in moulding and shaping get Rs. 5 per day, whereas others get Rs. 2.50 to Rs. 4 per day according to the skill required in other processes. The accountant is paid Rs. 110 per month.

VI.10 Both the registered factories work for nearly 200 days on an average in a year. On account of shortage of raw materials like lead and coal allotted by the Government on the basis of quota system, these factories do not work to full capacity for 300 days. One of the factories remained closed for two months, viz., February and March whereas in July and September it worked for nearly 15 days in a month. Generally speaking monsoon is a slack season whereas the remaining 8 months are a period of peak season for this industry.

The artisans have no idea or knowledge about any training-*cum*-production centre or other institution imparting training in improved techniques, processes, colour schemes, mechanised tools and implements in the State or the country. Nor are they aware of the Diamond Jubilee Industrial Centre run by the Department of Cooperation at Baroda which imparts training in making glass toys.

But Kapadvanj earned the pride of place, when Shri Amirbhai Fazubhai Shishgar, grandfather of Shri Momedbhai, was deputed by the Government of India in 1895 A. D. to London to show the practical working of glass products by indigenous methods where he was awarded silver medal of "Empire of India Exhibition" which was presented to him by London Exhibitions Ltd.[1]

SOCIAL AND PERSONAL CHARACTERISTICS

VI.11 Seventeen males work in glass making whereas 1 male and 7 females strengthen the economic status of 15 households engaged in glass making proper. The fluctuating period of slack and peak season adversely affects the livelihood of the persons employed in the industry. During the slack season, the hired workers earn their livelihood from the sale of fruits, vegetables, firewood, other household articles, making of *bidi* and other miscellaneous work. Most of the hired workers live in rented premises located less than a mile from the work place.

1. DR. POPATLAL VAIDYA, *History of Kapadvanj* (*Unpublished*) and local inquiry

VI.12 Even the owner of one of the two factories has two other subsidiary occupations, viz., agriculture and plying of public carrier. From the first he draws an annual income of Rs. 500 only, whereas the latter occupation has been started only recently. Some of the adult male members of another factory have recently started the wholesale business of cutlery in Ahmedabad where they have now established themselves. Both the factory owners have their own residential buildings and worksheds in Kapadvanj and enjoy a good social status in their caste and town also.

ORGANISATIONAL CHARACTERISTICS

VI.13 Both are registered under the Factories Act as the average number of persons working in three shifts per day comes to 19 and exceeds the number required for a cottage or small scale industry working without help of motive power. These factories do not use electric power but coal and firewood for making glass products.

VI.14 There is no trade guild, *panch*, union or association either of the owners or workers. There has been no instance of legal dispute in this industry. On the other hand the relation between the manufacturers and workers are most cordial. The industry has no cooperative society at this centre.

VI.15 The work of glass making is one which requires physical stamina over and above specialised skill and training in various techniques and processes. The artisans are traditionally trained by their family members working in the industry. A young male apprentice between the age of 16 to 20 can become a skilled artisan within a period of 12 months, varying according to the capacity, understanding and aptitude of the trainee.

VI.16 The artisan has to work near the burning furnace and blow constantly hot glass-paste after rolling it on an iron anvil and waving the same in the air for further shaping. This type of activity and sedantary nature of work cause pain in arms and waist in the long run. There are great possibilities of stomach and liver diseases, eye burning, headache, throat and ear troubles on account of blowing and gazing towards the burning furnace.

VI.17 The artisans smoke *bidi* and take tea. They occasionally visit cinema or drama. They attend *namaz* on sacred days, and observe festivals and religious occasions like Id, Moharrum and other Muslim festivals and participate in *urs* held at Kapadvanj. When they get time, they gather in the *chowk* to gossip and discuss problems of the town and country.

SECTION VII

CONCLUSION

Conclusion

VII.1 In the past there were nearly 50 units producing various glass articles as described in the foregoing pages but now only 2 establishments are engaged only in the making of uneven glass pieces coated with lead. As seen earlier, both the existing concerns were manufacturing in 1939 various utility articles of glass like chimney, jars, tumblers, bangles, etc., which are not produced now as it is very difficult for them to stand in competition with the large scale modern factories. They have, therefore, restricted themselves to the manufacture of *abhalan* only, which is an item not manufactured by large concerns. The industry is obviously in a state of decline. The owners of these two factories have, therefore, started switching over to some other gainful occupations like agriculture, trade in cutlery and hiring of trucks. The skilled craftsmen likewise attempt to improve their economic status by employing themselves in *bidi* making, sale of vegetables, fruits, firewood and miscellaneous labour on daily wages. This shifting of activities towards other occupations proves that the traditional glass industry will gradually vanish if some precautionary measures are not taken to keep it alive by earnest efforts of the State authority or statutory and non-statutory board.

VII.2 The old and indigenous process of manufacturing glass from *oos* has already vanished and the artisans now use discarded glass pieces to which they add some colour and chemicals to manufacture the one and only item of uneven glass pieces for *abhalas* used in embroidery. The artisans use traditional tools and implements. The future of the craft is not bright rather bleak as the technique of manual operation is laborious and the remuneration much less than in other jobs. It is quite possible that new entrants to the craft may not be found, unless some means to better prospects are devised.

VII.3 The industry is further handicapped by shortage of railway wagons required for the transportation of fuel and other raw materials. The units have to purchase coal and lead from the open market at higher prices as the quota allotted to them is insufficient and the procedure of obtaining permit from Government is long and dilatory. To ensure smooth working of the industry, necessary facilities in procuring raw material and financial help to purchase raw materials in sufficient quantity should be made available in ample measure.

VII.4 The owners of the factories and the artisans are very eager for visual study and training in respect of modern techniques of manufacturing varied types of fancy glass articles. They are also ready to operate electrically worked furnace and adopt mechanical devices of blowing and moulding, if such opportunities are made available to them. The craft also requires to be encouraged to revive the production of traditional articles along with prevalent shape, design and motifs. All these measures coupled with active publicity and propaganda by the All-India Handicrafts Board will open a new chapter in the history of the dying glass industry at Kapadvanj.

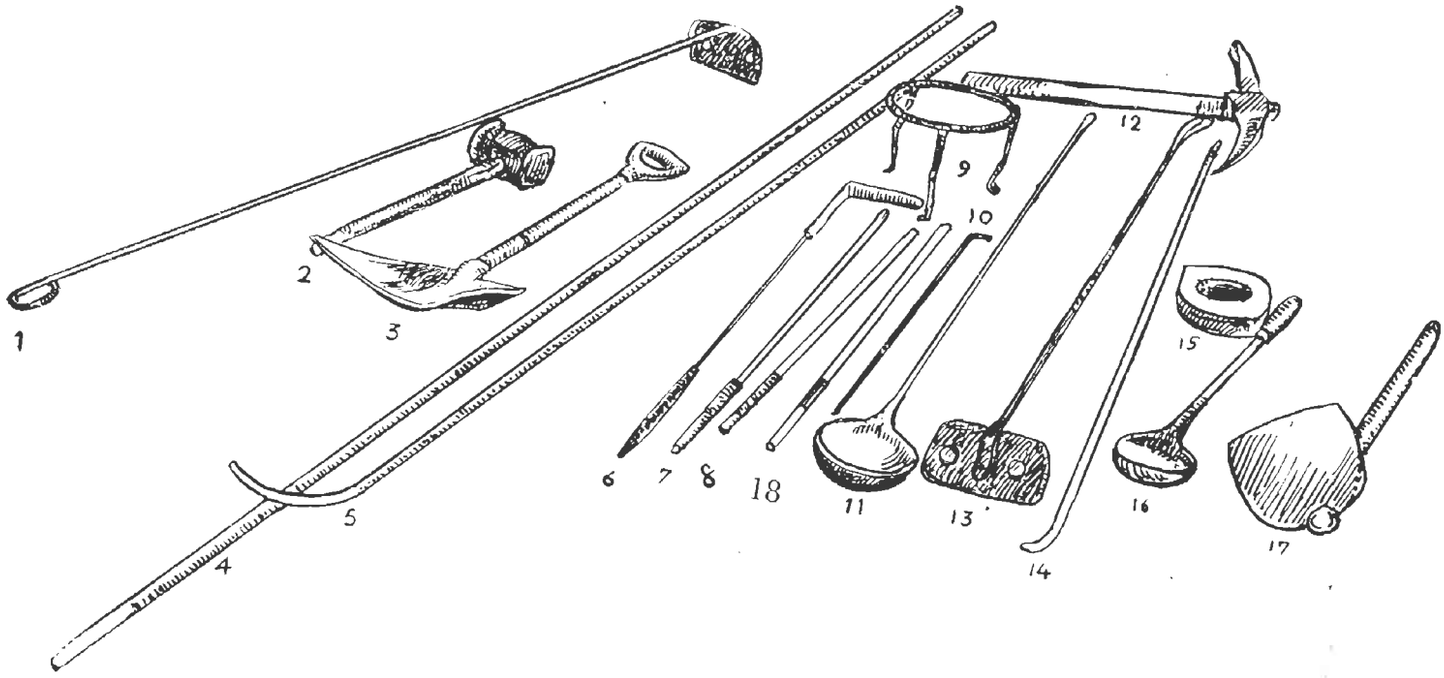
PLATES



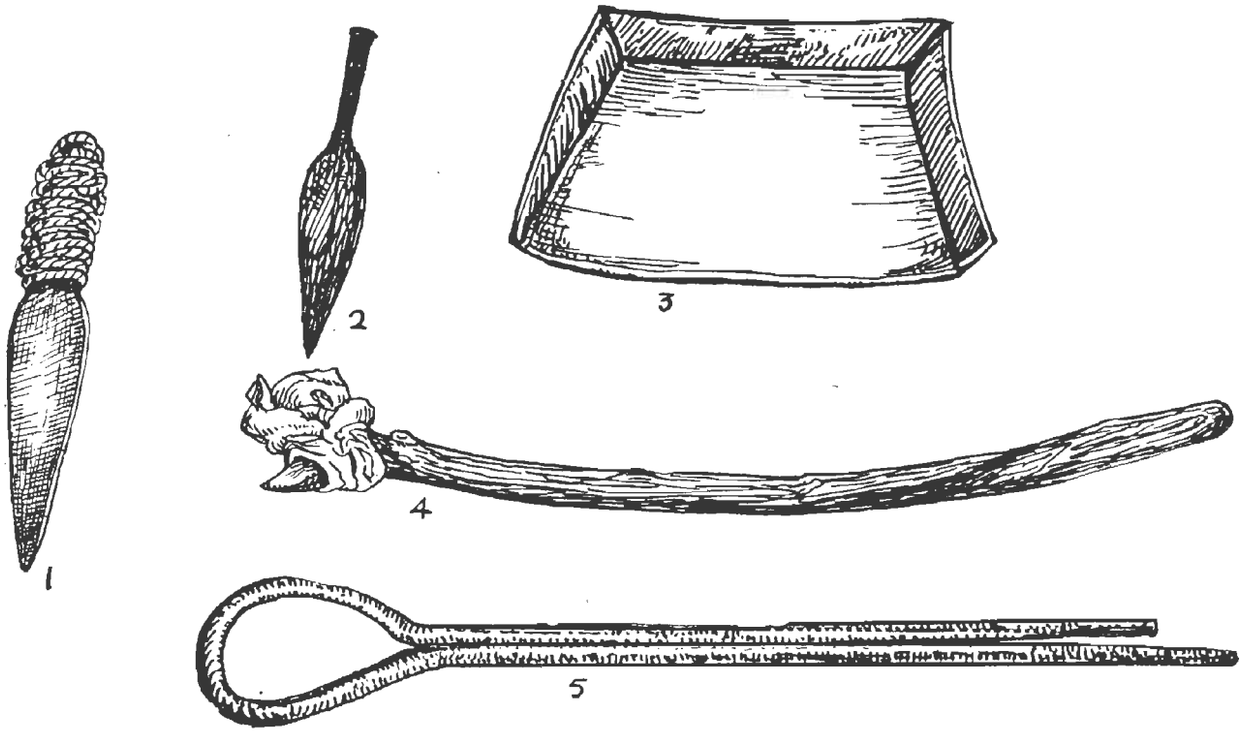
Broken glass pieces—the main raw material



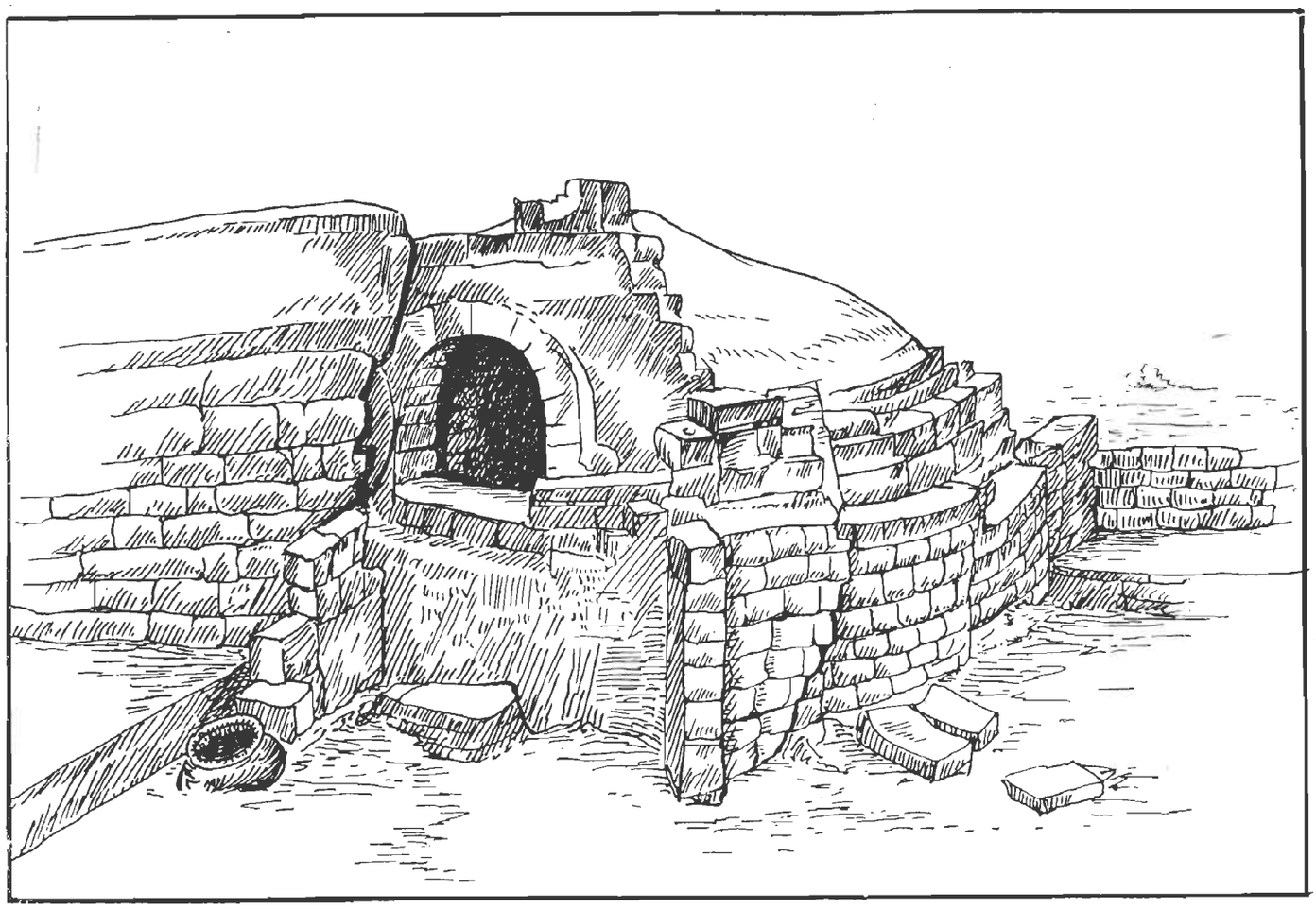
Chemicals—subsidiary raw material



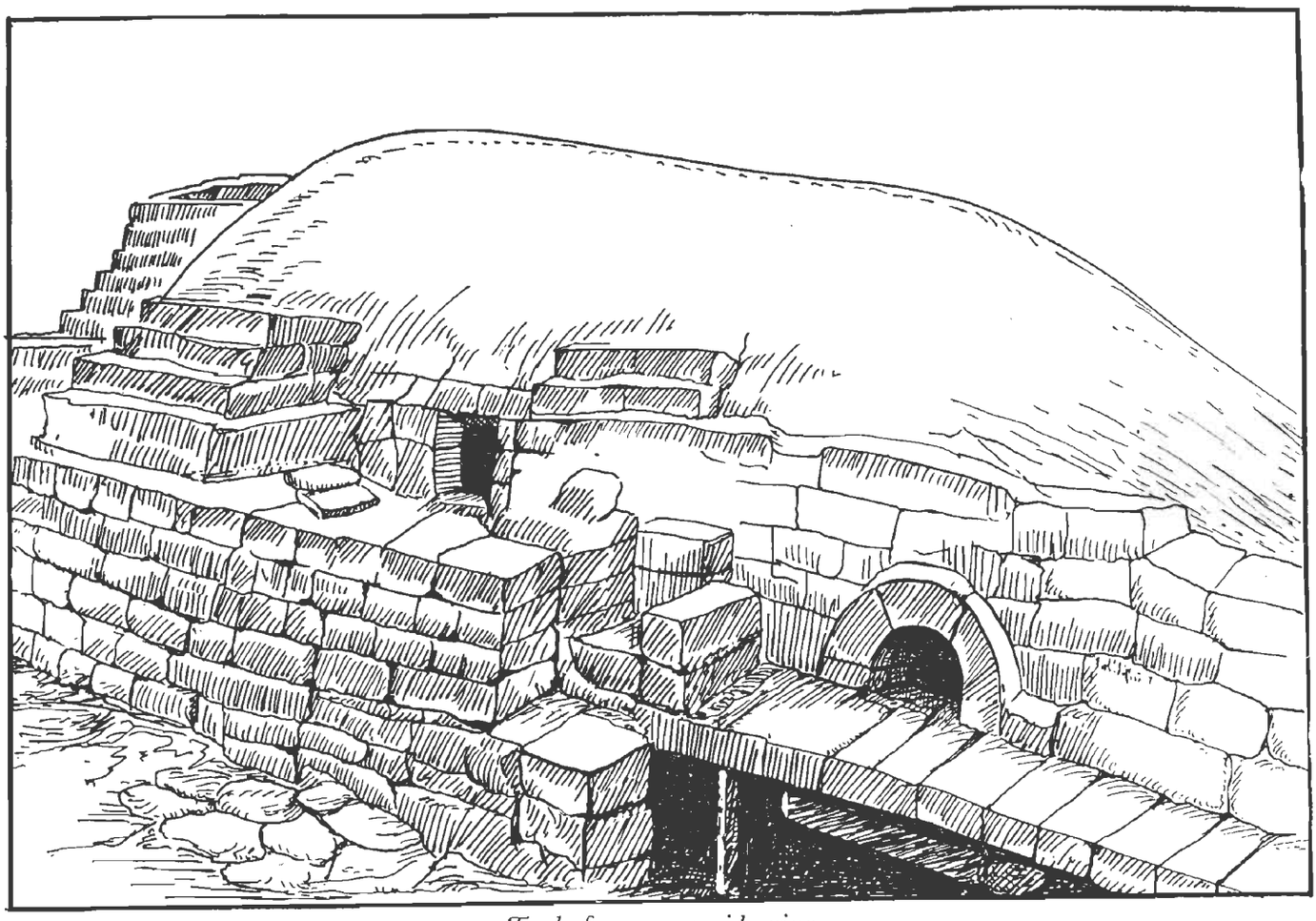
1, 3, 13, 17. Spades; 2. Hammer; 4, 5, 7, 8, 14, 18. Hooked and straight iron rods; 6, 10. Blowpipes; 9. Iron stand; 12. Pickaxe; 15. Stone ring; 11, 16. Spoons used for boiling lead and zinc



1, 2, & 4. Pochari for cooling flask; 3. Winnowing fan; 5. Pincer shaped flask stand



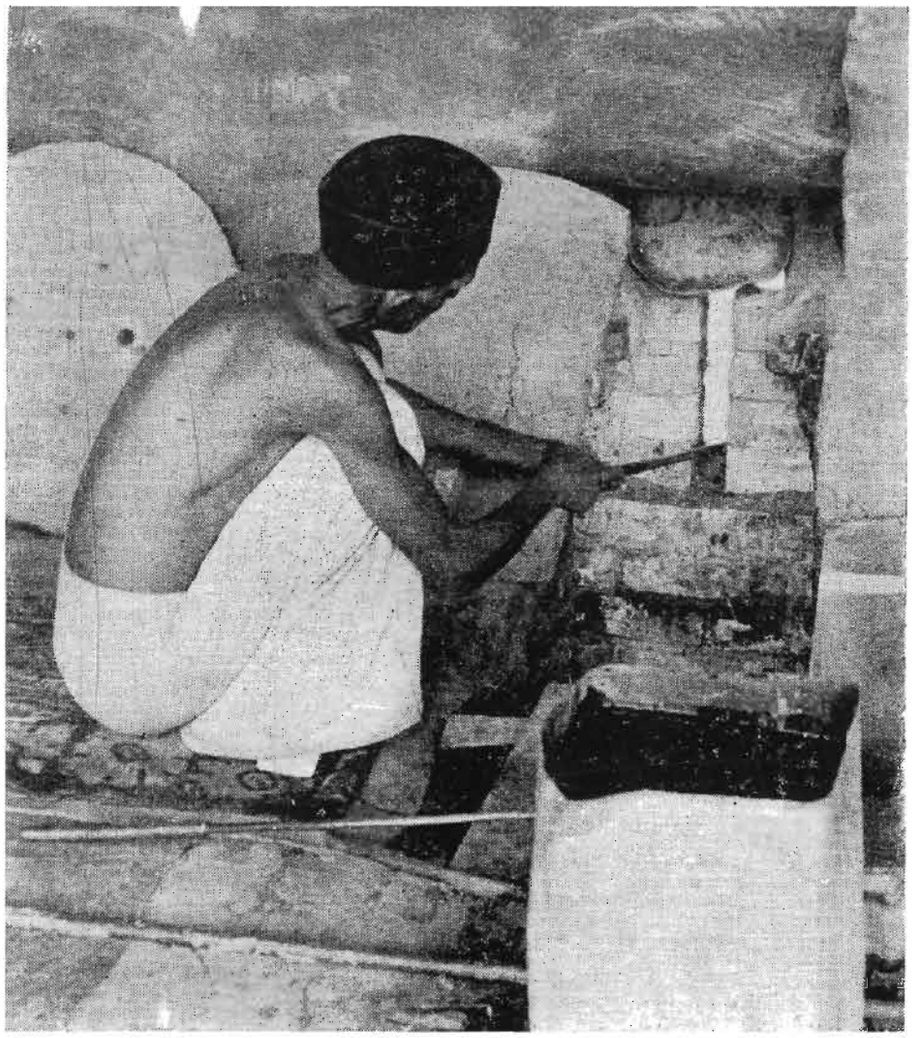
Tank furnace—a front view



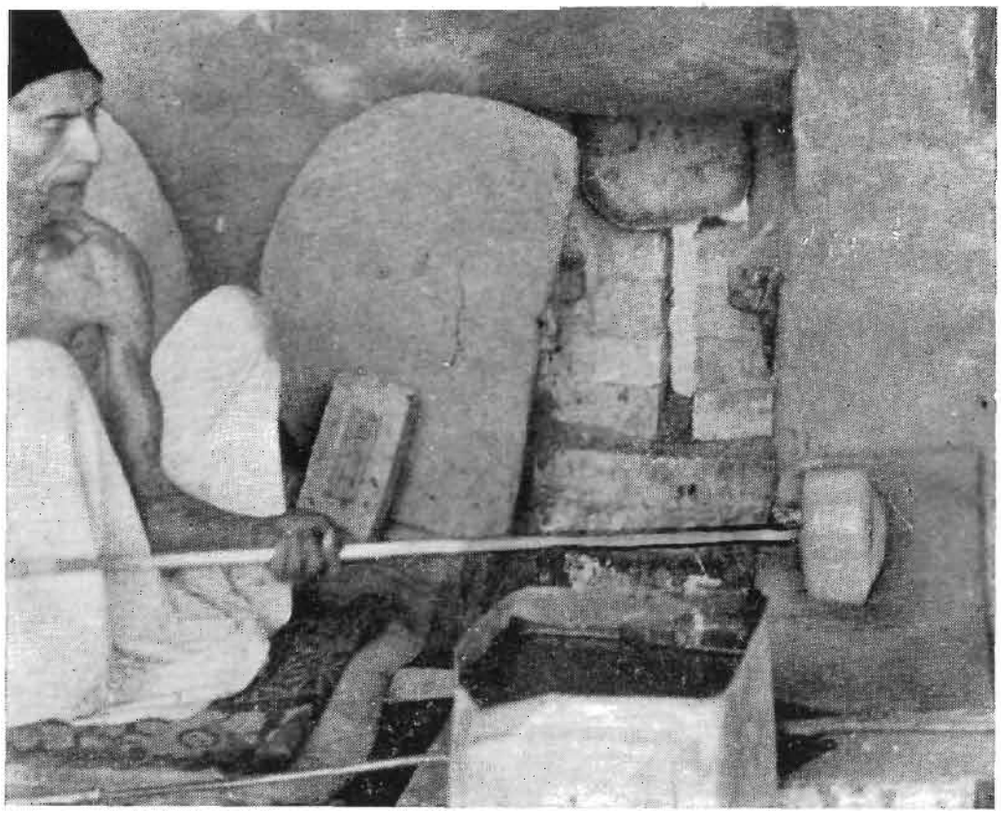
Tank furnace—a side view



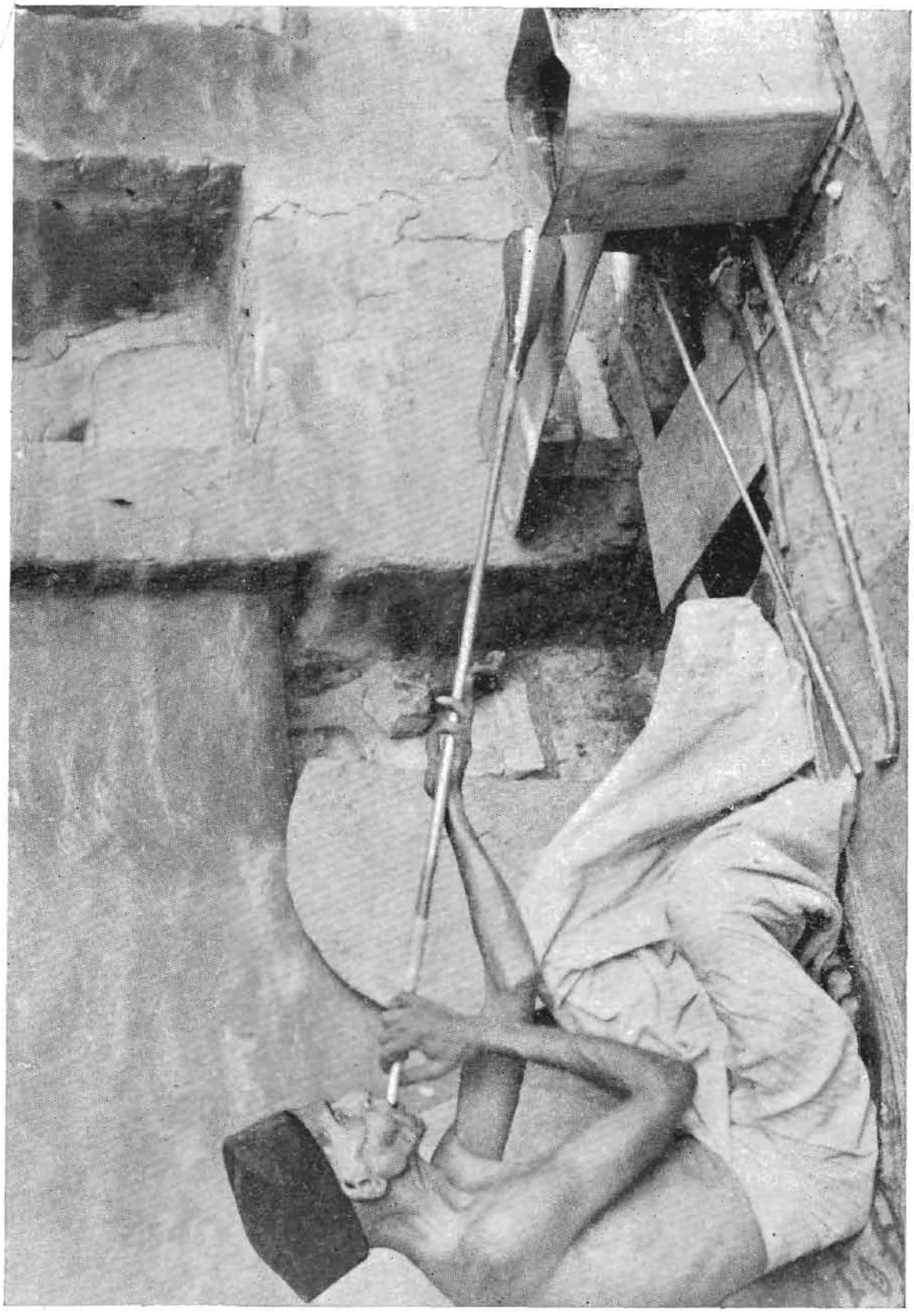
Putting chemical mixture in the furnace



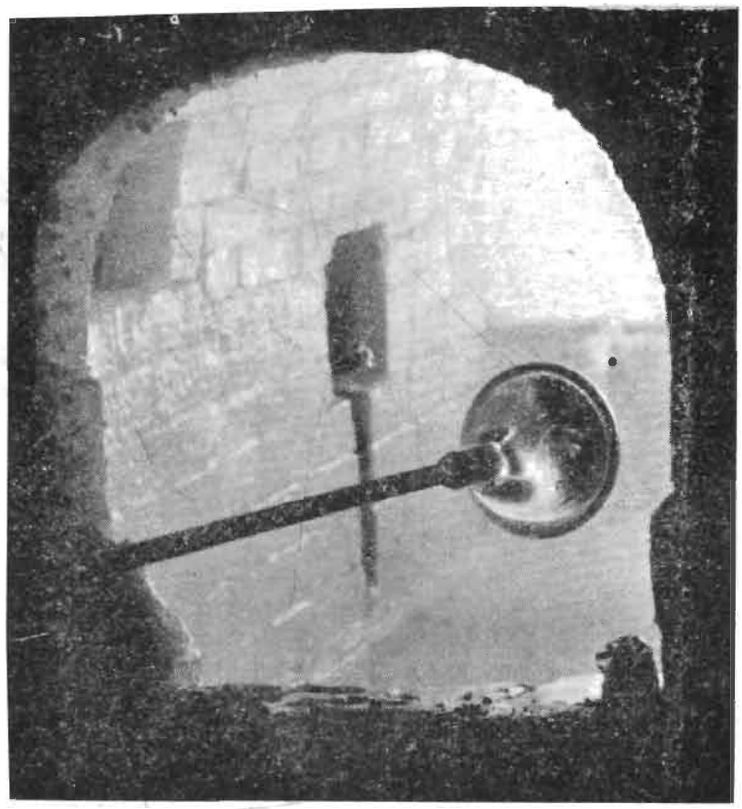
Receiving molten glass from the furnace



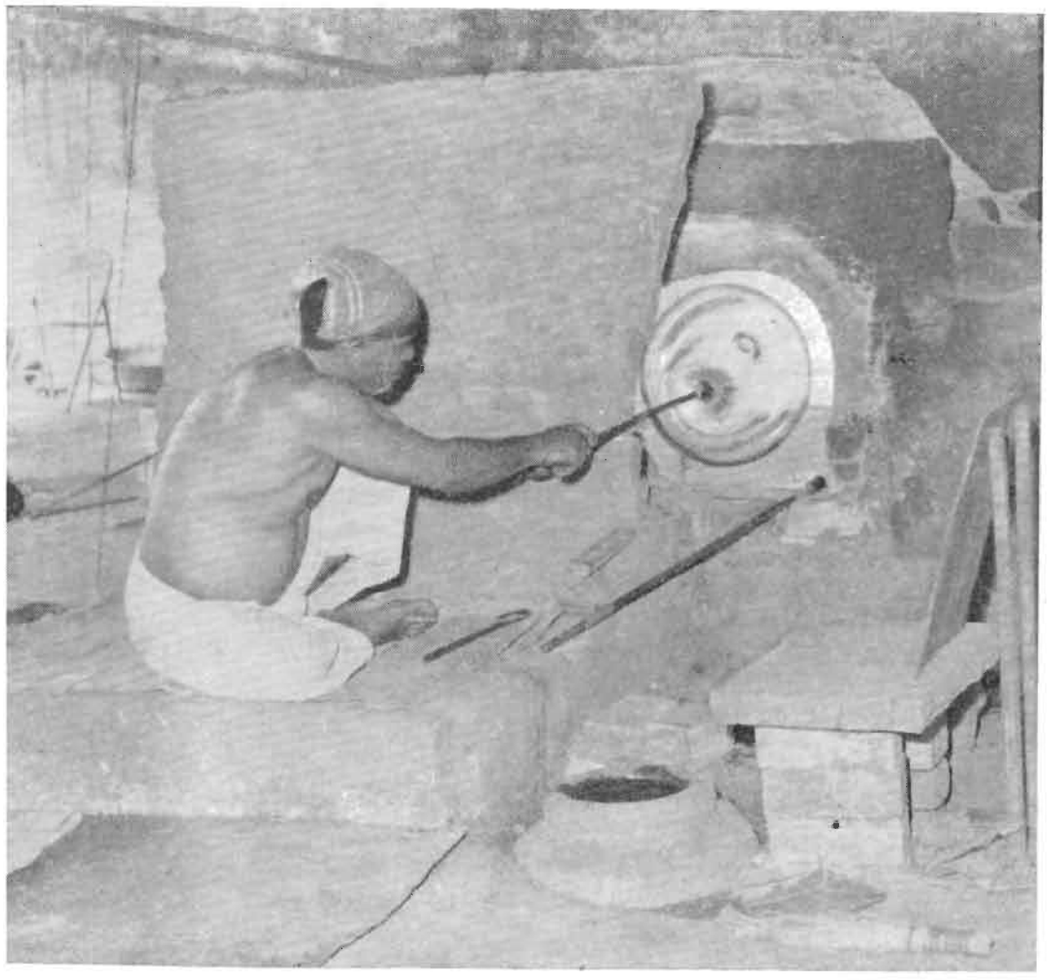
Molten glass fixed on a blowpipe before moulding



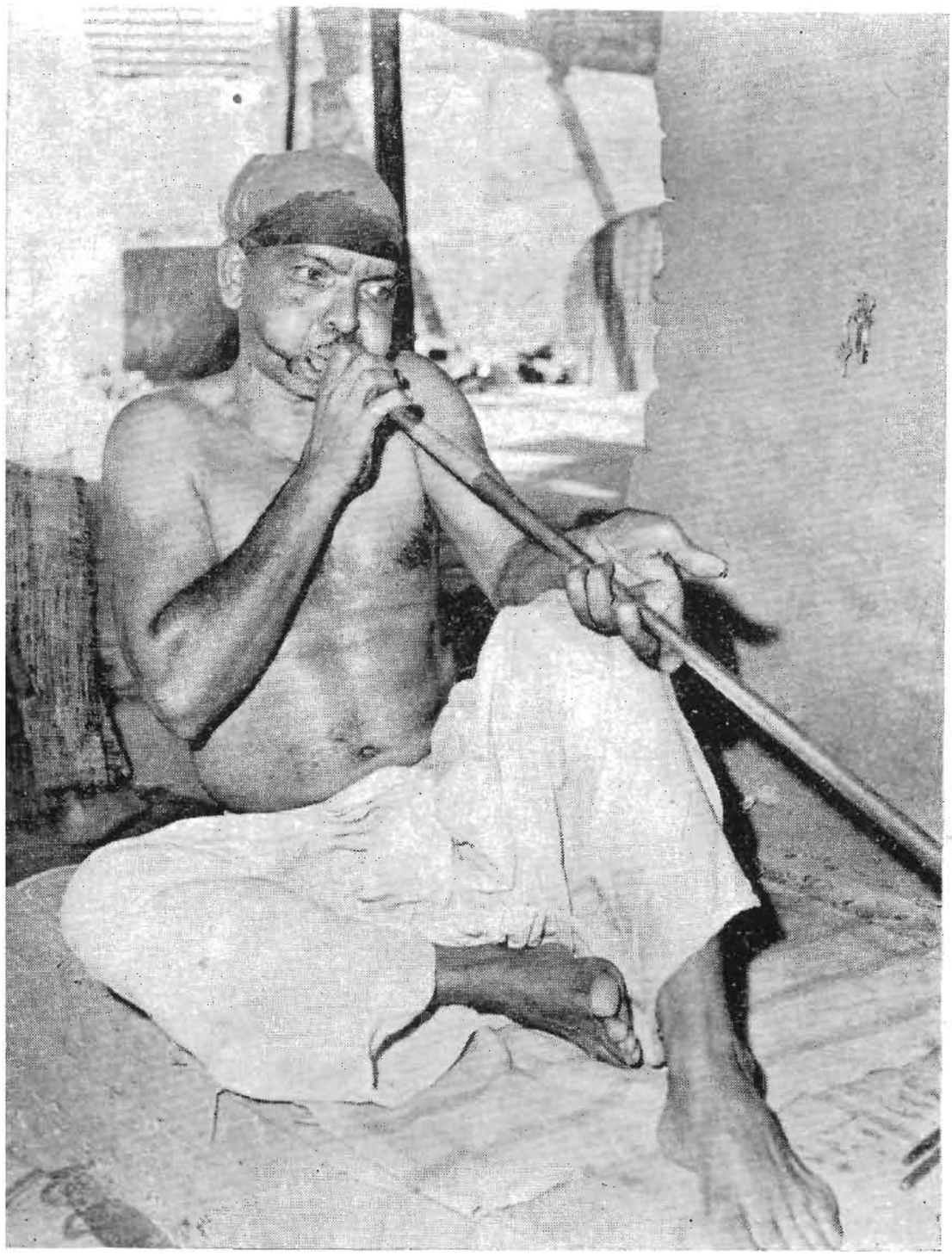
Working the blowpipe for making a flask



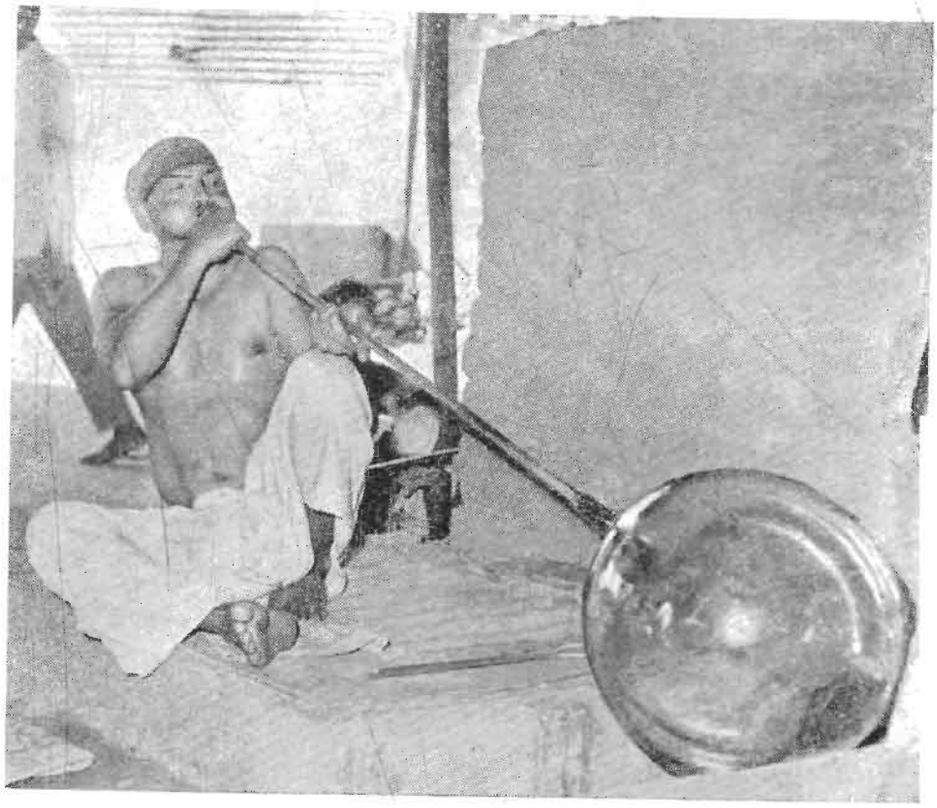
The inside view of the furnace



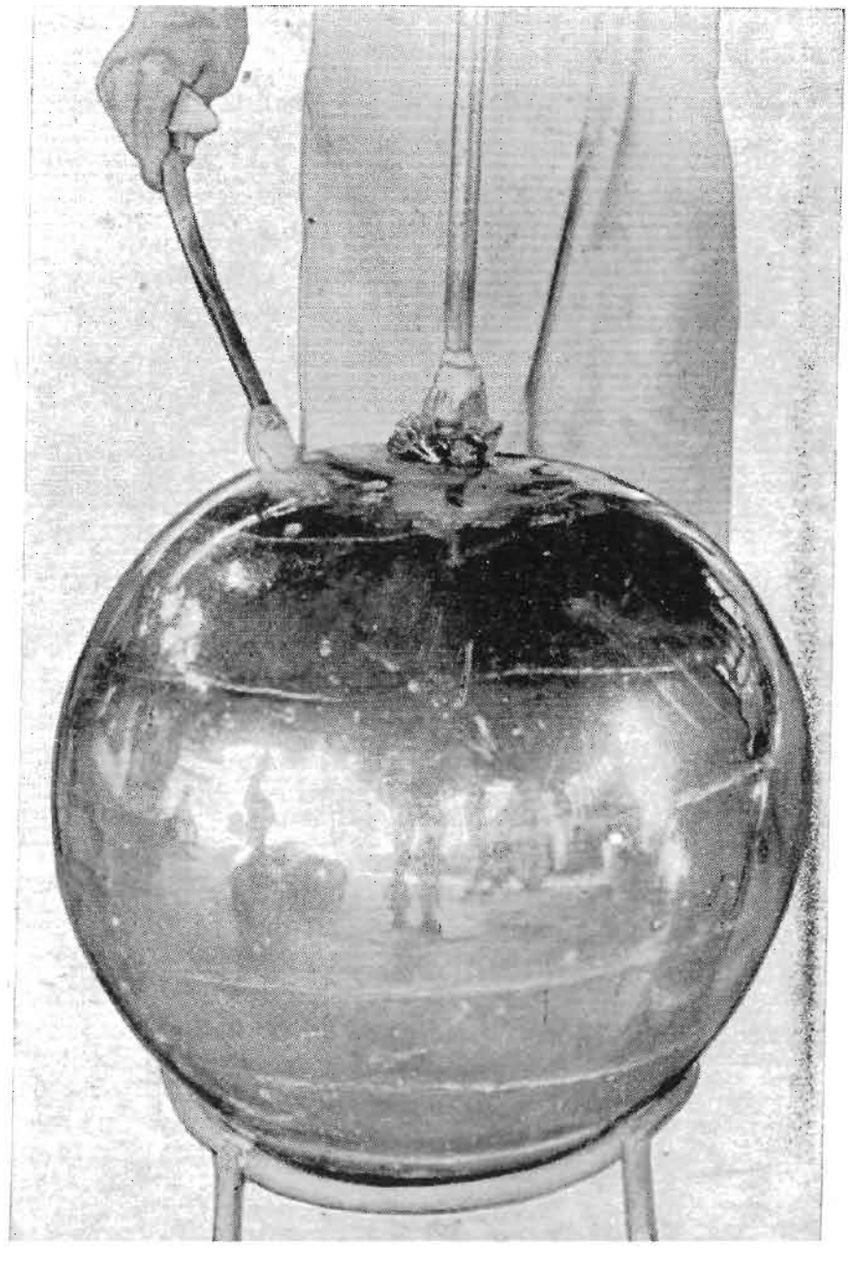
Heating the flask in the furnace



A strenuous operation that blowing is

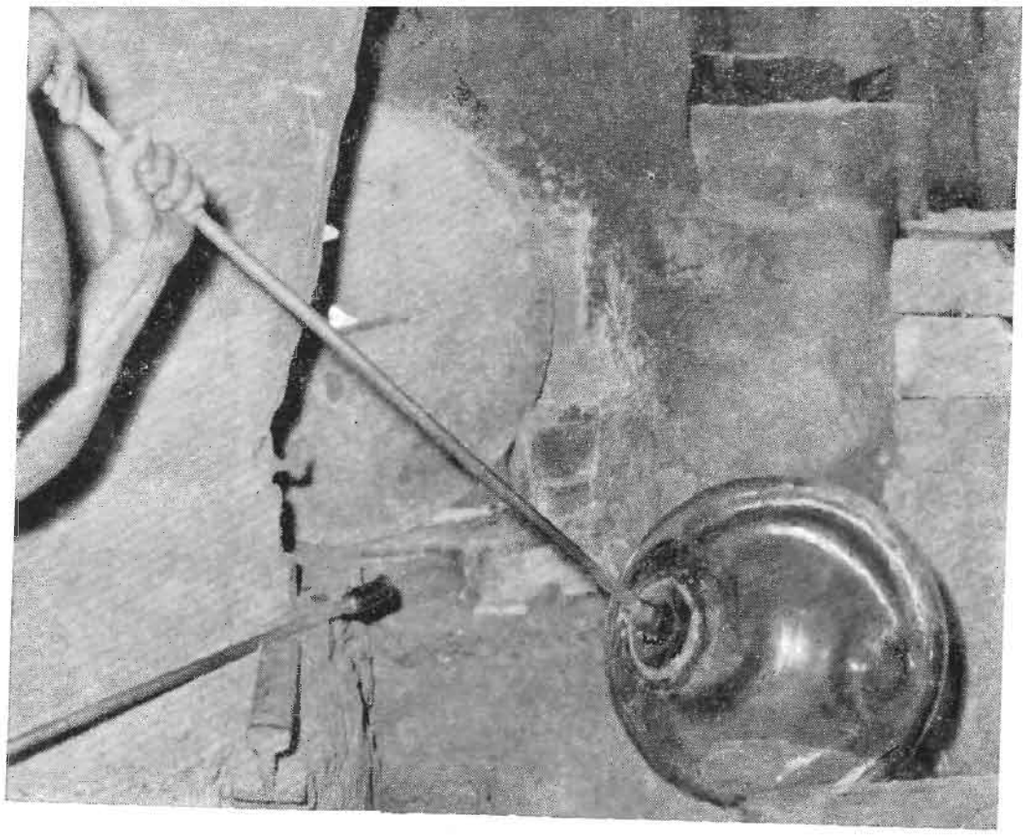


Moulding the transparent glass into a flask

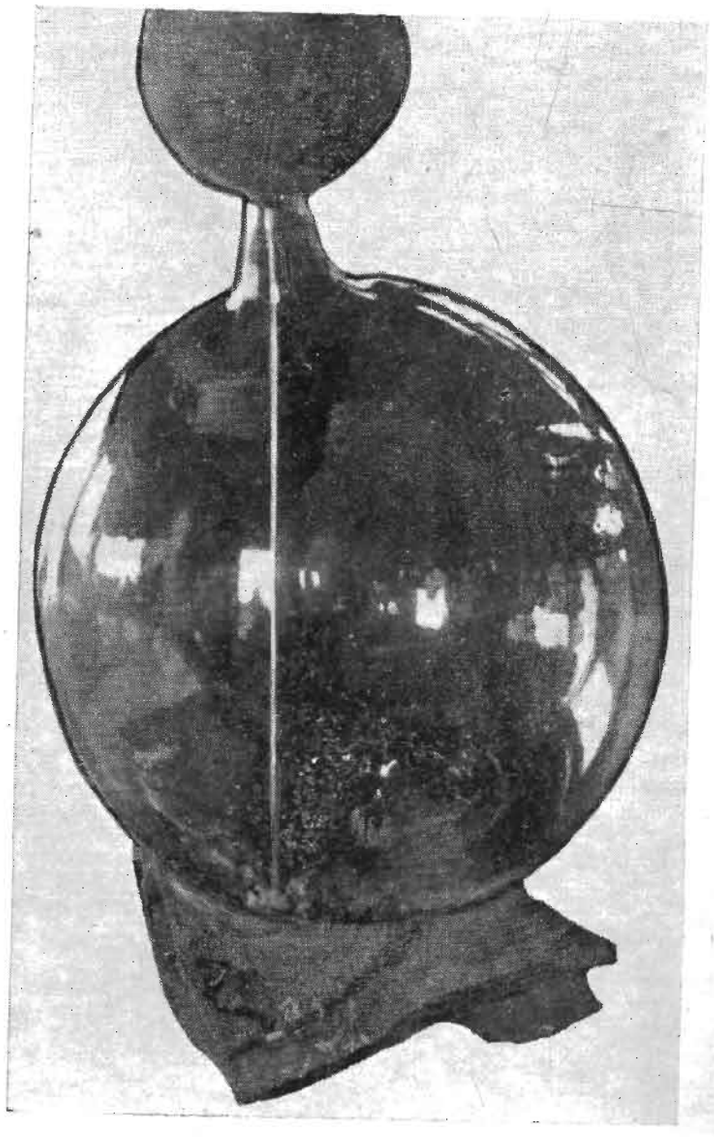


Cooling the heated flask

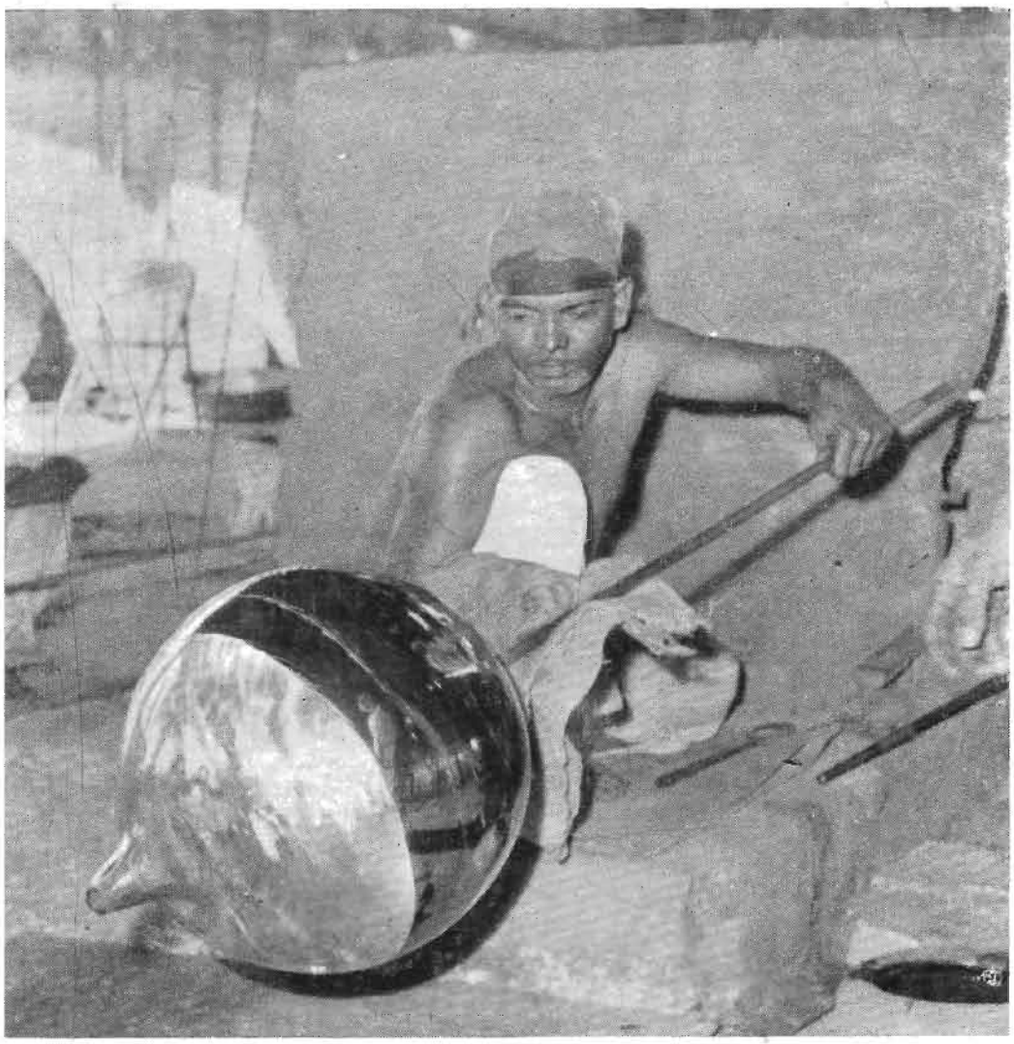
PLATE X



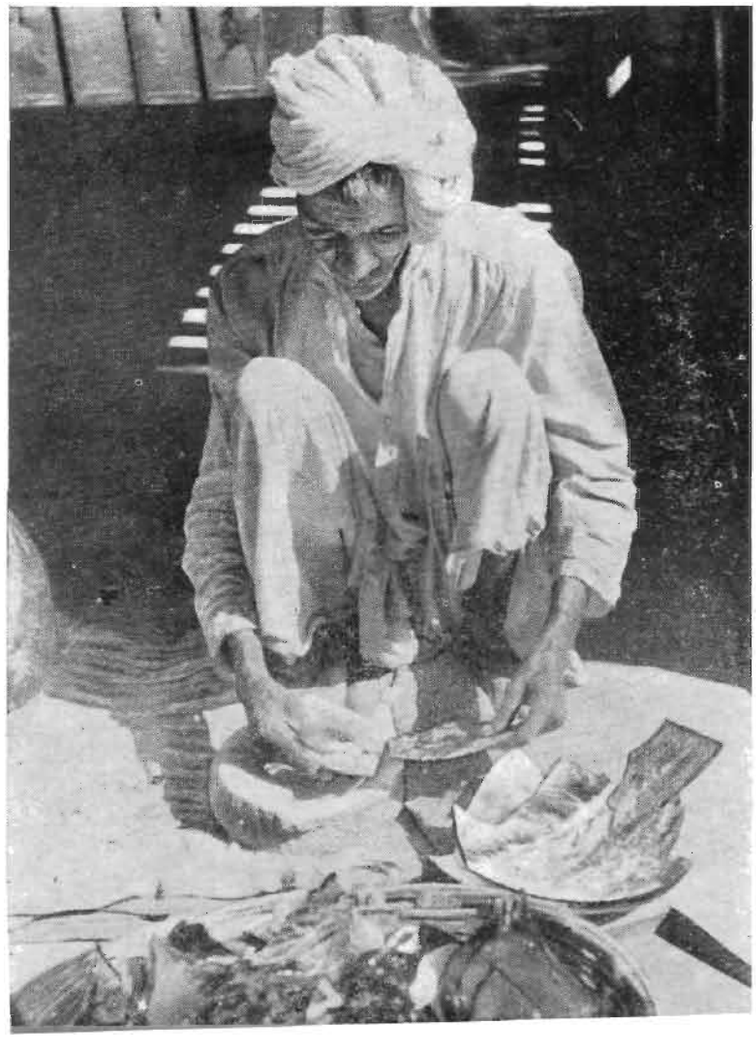
Removing blowpipe from the globe



Pouring lead and zinc mixture in the globe



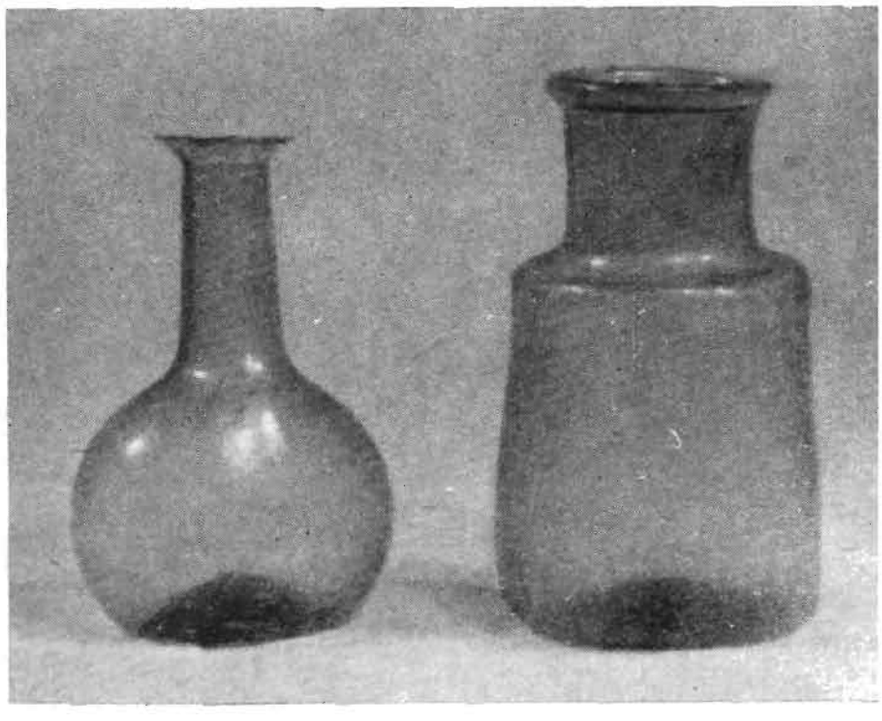
Application of lead mixture to the inner surface



Breaking glass into pieces

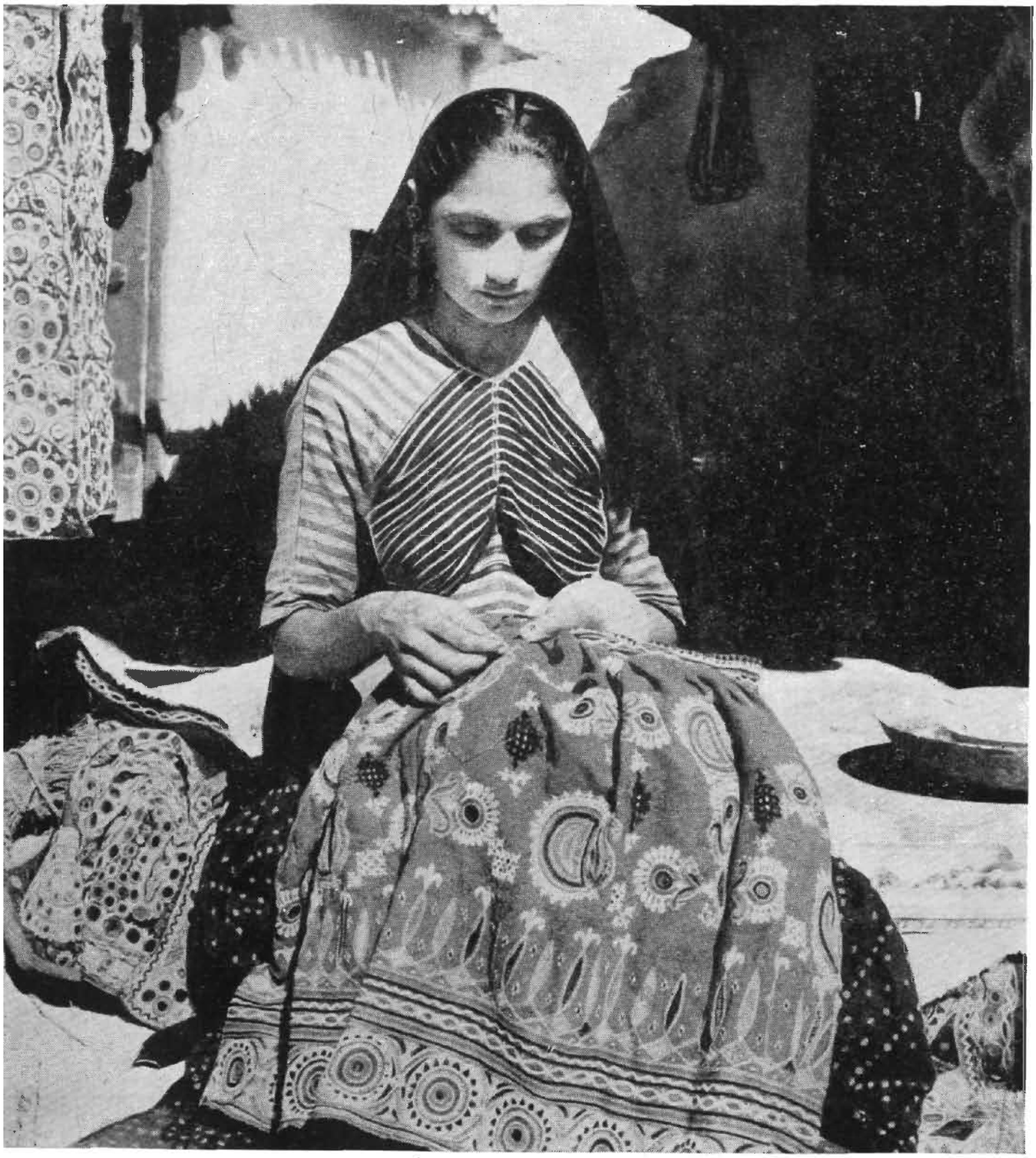


Packing the finished products

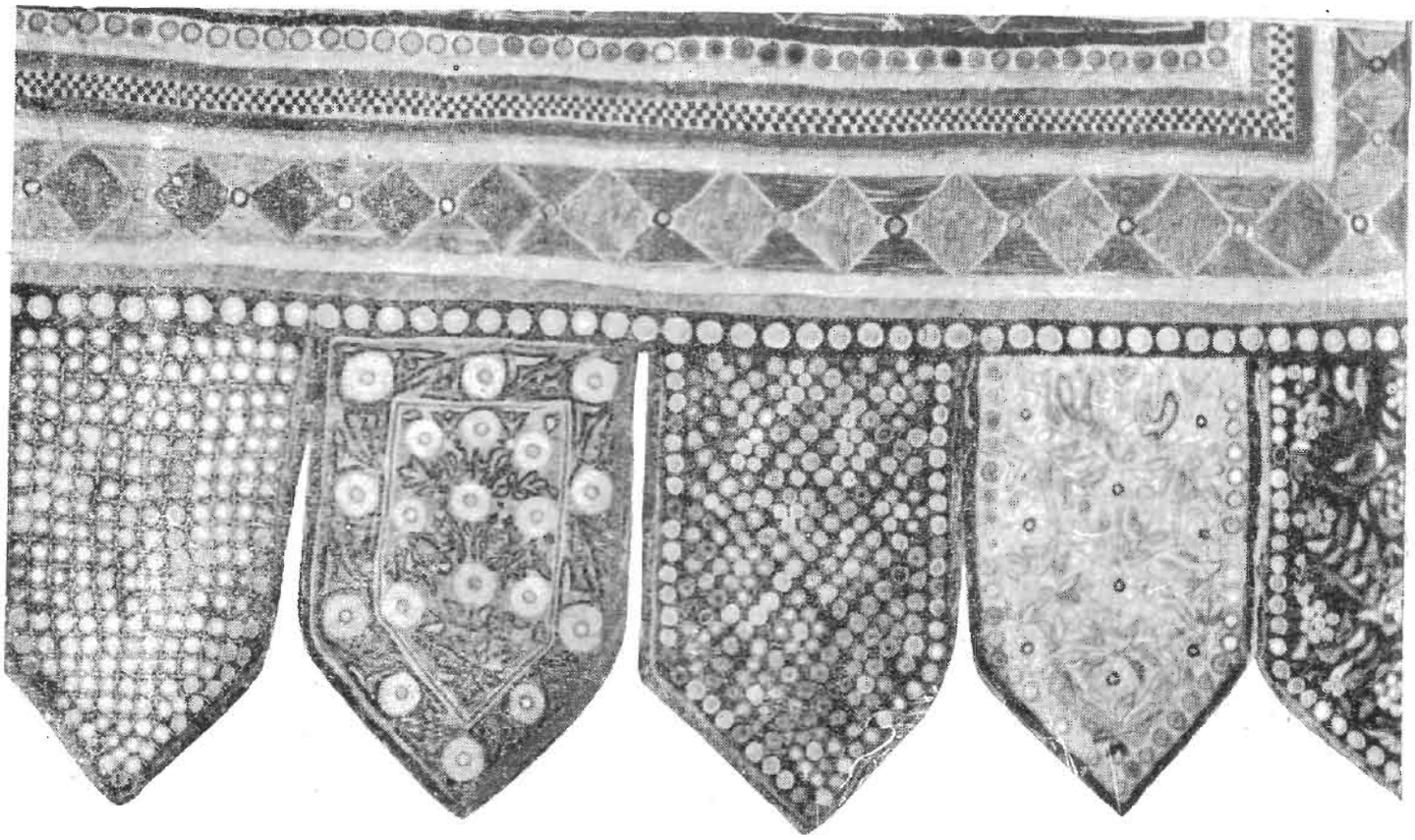


Finished products—Made in the past at Kapadvanj

(By Courtesy : *Baroda Museum*)



Engrossed in traditional shishdhar embroidery





Embroidered pieces showing artistic use of Abhalan (tiny mirrors)



The factory owner with staff members



General view of the factory

APPENDIX

APPENDIX

TABLE I

Number of persons employed in production

Name of craft	Name of town surveyed	No. of persons employed in production		
		Persons	Males	Females
1	2	3	4	5
Glass work	Kapadvanj Town	17	17	..

TABLE II

Distribution of artisan communities

Name of craft	Name of caste or community	Name of villages/towns surveyed	No. of families engaged in the craft	Total number of adult workers			No. of families working under cooperation	No. of families working in own houses or in the workshops set up by their employers
				Persons	Males	Females		
1	2	3	4	5	6	7	8	9
Glass work .	Muslim (Sunni)	Kapadvanj	15 Families	17	17	...	Nil	In own workshops 2 Families Master's workshops 13 Families

TABLE III

Composition of workers

Name of craft	Name of towns surveyed	Total No. of households engaged in the craft	No. of households engaging other hired workers	Total No. of persons employed in production			
				Total No. of family members	Total No. of hired workers	Total	Main caste/tribe of hired workers as shown in column No. 6
1	2	3	4	5	6	7	8
Glass work . . .	Kapadvanj Town	15	2	2	15	17	Muslim

TABLE IV

List of very skilled craftsmen of each community

Name of town	Name of craft	Name of community	Name of skilled craftsmen
1	2	3	4
Kapadvanj Town	Glass work	Sunni Muslim	Akbarali Amadbhai Abde Raheman Amadbhai Amirbhai Umarbhai Gulam Mahmed Abdul Karim Mahmedbhai Chandbhai Abdul Rahim Abdul Rasul Noor Mahmed Abdul Rasul Abdulkadar Chandbhai Mahmedbhai Amadbhai Ahmed Husen Abdul Karim Usmanbhai Chandbhai

GLOSSARY

A

Abhalan . . Tiny pieces of mirrors
Abhala or *Shishdhar Bharat* . Embroidery in which tiny mirror pieces are used
Ahinsa . . Non-violence
Akhado . . Wooden stand for making heddles
Amavasya . . The new moon day
Amla . . *Emblica officinalis*
Ankado . . An iron rod having a hooked head
Aritha . . *Sapindus Trifoliatus*

B

Bandh . . Tie
Batrish Kotha Vav A step-well with 32 apartments
Bhajan . . A devotional song
Bhatthi . . Oven
Bhuki . . Chips
Biba . . Die
Bidi . . Indigenous cigarettes
Butti . . Small floral design

C

Chadars . . Bed-sheets
Chamcho . . Showel
Chakardi . . Pulley
Chandi-Sabu . Silver like white colour soap
Chania . . A petticoat
Charkha . . Spinning wheel
Chipiya . . Forks
Chokdi . . A rectangular receptacle constructed on the ground
Choras . . Square
Chorsa . . Square design
Chowk . . Open square or courtyard
Chudis . . Ivory bangles
Chundadi . . Tied and dyed *sari*

D

Deshi . . Local
Dhoka . . Club
Doliyu . . Mahuda (*Madhuka indica*), oil

F

Falko . . A wooden frame for warping
Fani . . . Reed
Fatka Shal . Throw-shuttle pit loom
Firka . . Cylindrical reel
Firki . . Reel

G

Galli . . Pulley
Ghee . . . Clarified butter

G-*contd.*

Ghodi . . Iron stand
Gola . . . Round pieces of soap
Goti . . . Square and rectangular pieces of soap
Gotra . . Sept
Gulab . . Rose; *Rosa alba*

H

Hathela . . Wooden peg
Hatho . . Packing stick; handle
Hathshal . . Handloom
Himroo . . *Mashru* like mixed silk and cotton textiles
Hukka . . A hubble-bubble; a long steamed pipe

J

Jari . . . Brocade
Jhara . . A perforated ladle
Jog . . . Lease
Jotra . . . Ropes

K

Kadchho . . Big iron spoon
Kamri . . Laths
Kandis . . Pirns
Kangad . . The solution prepared mostly by boiling *jowar* flour with water—applied for sizing the warp
Kanthalo . . Fly shuttle
Kapad . . Cloth
Kapda . . A blouse
Katar . . Scissors
Katha . . A mythological legend; a religious discourse
Khanjari . . Mixed silk and cotton fabrics with a wavy line
Khila . . Nails
Kirmaj . . A dark red vegetable dye
Kirtan . . . Reading of religious books and singing of devotional songs in praise of God
Kul . . . A Family
Kumbia . . Medicinal herbs
Kund . . . Tank
Kundi . . Calendering of *mashru* cloth
Kutcha . . Not durable

L

Lakdi . . Stick
Lakda-ni-machi . A frame of wooden strips
Lal . . . Red
Lata . . . Soap-bars
Lili . . . Green
Lungi . . . Waist cloth used by Muslims

M

Mahuda . . *Madhuka indica*
Mashru . . Mixed silk and cotton textiles
Malakhu or *Choki* Frame
Munj . . . A type of grass
Musalla . . The prayer carpet

N

Nagarmotha . . *Cyperus pertenuis*
Namaz . . Prayers offered by Muslims
Nari . . . Pirn
Neem . . . *Melia azadirachta*

O

Oos . . . Saline earth

P

Pan . . . Betel-leaf
Panch . . . Executive body of the village panchayat or caste
Pavat . . . Sizing the yarn
Pavdi . . . Tradle
Pinjaras . . Cotton carders
Pip . . . Drum
Pithi . . . Turmeric powder
Pochari . . A wooden instrument wrapped with a piece of cloth, used for sprinkling or applying water on the manufactured articles for cooling
Pucca . . Durable

R

Rach or *Rachh* . Heddle
Rajai . . . A cotton quilt
Rajan . . . Rosin (*Pinus longifolia*)
Rash . . . Rope
Reh . . . An impure carbonate of soda

S

Saghatara-nu-ghas . A type of grass
Sajjada . . . A prayer carpet
Sajjimatti . . Alkaline earth
Sansa . . . Pincers

S-*contd.*

Sari . . . Hindu woman's chief garment draped round the body
Shal . . . Throw-shuttle pit-loom
Shatal . . . Shuttle
Shemal . . . *Eriodendron anfractuosum*
Shikakai . . . *Acacia concinna*
Shishdhar phulkaris . Embroidery in which tiny mirror pieces are used
Shishgars . . Glass makers
Sigree . . . A portable iron grate
Soma . . . The moon
Sujan . . . A needle
Sujani . . . A padded quilt
Sujavu . . . To strike or to conceive
Surahi . . . A bowl for liquor
Surya . . . The sun

T

Tani . . . Warp
Tanka . . . Small tanks of bricks plastered with lime
Tarino-Sabu . . Floating soap
Tavda . . . Pan
Tavetha . . . A ladle
Tolas . . . A measure of weight, a fortieth part of a seer
Toran . . . A festoon
Tur or *Lapetan* . Weaver's beam

U

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

V

Vahi . . . Book to record birth, death, marriage, etc.
Vanaj or *Wanijya* . Trade

W

Weth . . . Forced labour

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Superintendent, Printing & Stationery, M.B.
Loyal Book Depot, Patankar Bazar, Lashkar
M. C. Daftari, Prop. M. B. Jain & Bros., Booksellers, Sarafa, Lashkar (R)

HUBLI—

Pervaje's Book House, Koppikar Road

HYDERABAD—

Director, Government Press
The Swaraj Book Depot, Lakdikapul
Book Lovers Private Ltd ,(R)
Labour Law Publications, 873, Sultan Bazar (R)

IMPHAL—

Tikendra & Sons, Booksellers (R)

INDORE—

Wadhwa & Co., 56, M. G. Road
Swarup Brother's, Khajuri Bazar (R)
Madhya Pradesh Book Centre, 41, Ahilya Pura (R)
Modern Book House, Shiv Vilas Palace (R)
Navyug Sahitya Sadan, Publishers & Booksellers, 10, Khajuri Bazar (R)

JABALPUR—

Modern Book House, 286, Jawaharganj
National Book House, 135 Jai Prakash Narain Marg (R)

JAIPUR—

Government Printing and Stationery Department, Rajasthan
Bharat Law House, Booksellers & Publishers, Opp., Prem Prakash Cinema
Garg Book Co., Tripolia Bazar
Vani Mandir, Sawai Mansingh Highway
Kalyan Mal & Sons, Tripolia Bazar (R)
Popular Book Depot, Chaura Rasta
Krishna Book Depot, Chaura Rasta (R)
Dominion Law Depot, Shah Building, P.B. No. 23 (R)

JAMNAGAR—

Swadeshi Vastu Bhandar

JAMSHEDPUR—

Amar Kitab Ghar, Diagonal Road, P. B. 78
Gupta Stores, Dhatkidih
Sanyal Bros., Booksellers & News Agents, Bistapur Market (R)

JAWALAPUR—

Sahyog Book Depot (R)

JHUNJHUNU—

Shashi Kumar Sarat Chand (R)
Kapram Prakashan Prasaran, 1/90 Namdha Niwas, Azad Marg (R)

JODHPUR—

Dwarka Das Rathi, Wholesale Books and News Agents
Kitab-Ghar, Sojati Gate
Choppra Brothers, Tripolia Bazar

JULLUNDUR—

Hazooria Bros., Mai Hiran Gate (R)
Jain General House, Bazar Bansanwala
University Publishers, Railway Road (R)

KANPUR—

Advani & Co., P. Box 100, The Mall
Sahitya Niketan, Shradhanand Park
The Universal Book Stall, The Mall
Raj Corporation, Raj House, P. B. 200, Chowk (R)

KARUR—

Shri V. Nagaraja Rao, 26, Srinivasapuram (R)

KODARMA—

The Bhagwati Press, P.O. Jhumri Tilaiya, Dt.Hazaribagh

KOLHAPUR—

Maharashtra Granth Bhandar, Mahadwar Road (R)

KOTA—

Kota Book Depot (R)

KUMTA—

S. V. Kamat, Booksellers & Stationers (N. Kanara)

LUCKNOW—

Soochna Sahitya Depot (State Book Depot)
Balkrishna Book Co., Ltd., Hazratganj
British Book Depot, 84, Hazratganj

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, Pycroft Road, Triplicane
- P. Vardhachary & Co., 6, 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—
- The Krishna Book Depot, Main Bazar (R)

List of Agents-*contd.*

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) Bangalore