



CENSUS OF INDIA 1961

VOLUME V-PART VII-A

SELECTED CRAFTS OF GUJARAT

18. PENKNIVES, NUTCRACKERS AND SCISSORS OF KUTCH AND JAMNAGAR

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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 pioneer venture, nothing like it having been undertaken since the 1880's, it was decided to move towards a build-up by stages, to let the inquiry unfold itself only as fast as my colleagues chose to ask for more.

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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

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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

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most considerable repository in the country. Elaborate and accurate maps of craft centres in taluks, tehsils and districts are either ready or under preparation. A full census of all fairs and festivals, weekly hats and markets, throughout India, has been taken and is being published for the first time. Andhra Pradesh has embarked upon a project of chronicling the social and religious antiquity and uniqueness of every fair and festival. A separate volume will be devoted to each district which promises to be of the utmost value to sociologists and orientalists. A full and

complete inventory, replete with sketches and measurements of every object, has been prepared of exhibits in museums of tribal crafts in India. There has been a fairly satisfactory survey of houses and buildings, indigenous architectural designs and use of local building material of the whole country. All this has been entirely a labour of love, patiently organised and executed under great strain and in disregard of health and comfort, for which I take this opportunity of expressing my appreciation and grateful thanks to my colleagues.

NEW DELHI,
JULY 30, 1964.

ASOK MITRA,
Registrar General, India.

P R E F A C E

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 eighteen in the series of craft monographs and embodies the results of survey conducted to study the manufacture of Penknives, Nutcrackers and Scissors of Kutch and Jamnagar. The earlier publications relate to :

- | | |
|-----------------------------------|---|
| (i) Agate Industry of Cambay, | (x) Soap Making at Kapadvanj, |
| (ii) Wood Carving of Gujarat, | (xi) Mashru Weaving of Patan, |
| (iii) Patara Making at Bhavnagar, | (xii) Glass Work at Kapadvanj, |
| (iv) Ivory Work of Mahuva, | (xiii) Jari Industry of Surat, |
| (v) Padlock Making at Sarva, | (xiv) Transparent Lacquer Work of Sankheda, |
| (vi) Scale Making of Savarkundla, | (xv) Traditional Silver Ornaments, |
| (vii) Perfumery at Palanpur, | (xvi) Brass and Copperwares at Sihor
and |
| (viii) Crochet Work of Jamnagar, | (xvii) Snuff Making at Sihor. |
| (ix) Sujani Weaving of Broach, | |

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

AHMEDABAD,
October 12, 1968.

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

1. PENKNIVES, NUTCRACKERS
AND SCISSORS OF
KUTCH AND JAMNAGAR

SECTION I

INTRODUCTION

INTRODUCTION

I.1 IRON HAS BEEN in use since about 5,000 years. Various references have been found in the ancient Indian literature relating to use of iron in ancient India. The use of razors is referred to in Rigveda and arrows made from iron in Dhanurveda. Brihat Samhita gives an interesting account of tempering of swords. Thus the ancient smiths in India had the practical knowledge of various processes of making iron and steel and knew how to temper a blade by using different varieties of liquids for 'quenching' the heated metal. They had acquired a high degree of metallurgical skill and produced best quality steel for the manufacture of swords, daggers, spears, battle-axes and other weapons of war.

I.2 Cutlery in general means edged and hand-operated cutting tools like penknives, pocket-knives, household butcher and table-knives, combination of fork and spoon with steel blade, putty-knives, hunting-knives, nut-crackers, scissors, straight razors, shears, carvers, cleavers, spatulas, and paint scrapers. The utility articles like penknives, nutcrackers and scissors are mostly found in every household. Blacksmiths in towns and various villages manufacture them.

LOCATION

I.3 In Gujarat, places famous for good quality of penknives, nutcrackers and scissors are Anjar, Bhuj, Mota Reha and Nana Reha in Kutch district, Sojitra and Pij in Kaira district, and Jamnagar city in Jamnagar district. The study was conducted at these centres during 1961. A brief description of each centre is given below.

ANJAR

I.4 Anjar is a railway station on the Bhuj-New Kandla section of the Western Railway.

It is the taluka and subdivisional headquarters with a population of 23,301 souls according to the 1961 Census. Founded in 805 A. D. by Ajepal, the brother of king Ajmer, the town rose to eminence in the reign of Khengarji (1548-1595). The walls were added to the town during the reign of Desalji (1718-1741). The town seems to be under active seismic belt as it was rocked by earthquakes in 1844, 1845, 1874, 1891, 1941 and 1956. The earthquake of 1956 caused heavy losses to the life and property of the people. It has a textile mill and cotton ginning and pressing factories and is an important trading centre.

BHUV

I.5 Formerly the capital of the State of Kutch and after Independence of the 'C' Class State of Kutch, Bhuj is now the district headquarters and a terminus station on the Bhuj-Kandla-Deesa section of the Western Railway. Being the Divisional Headquarters of the S.T., it is well-linked with all the taluka headquarters in the district. The place is also connected by regular air services with Bombay, Rajkot and Jamnagar. As per 1961 Census, the population of the town is 40,180 persons. Having a temple of Bhujjiya Nag (snake deity) on the Bhujia Hill, it was formerly called Bhujangnagar, town sacred to snake, from which its present name seems to have been derived.

I.6 Silhouetted by lakes Desalsar and Hamirsar in the background, the town has many historical places shedding light on its old architectural monuments like Jamadar Feteħ Mahmud's house and his tomb, Muhammad Panna Masjid, the Darbargadh (King's palace), the Aina Mahal and Ra Lakha's Chhatri.

MOTA REHA AND NANA REHA

I.7 The villages Mota Reha having a population of 1,142 persons and Nana Reha

with a population of 506 persons, are well-known for the small-scale industry of cutlery. Both these villages of Kutch district are adjacent to each other and connected by S.T. routes. The former is 10 miles from Bhuj and the latter 12 miles.

Pij

I.8 Three miles from Nadiad, Pij is a railway station on Nadiad-Bhadran section of Western Railway. It is also connected by S.T. bus with Nadiad and has a population of 5,771 persons.

SOJITRA

I.9 Seven miles north-west of Petlad a taluka headquarters, Sojitra is a town well-connected by S.T. buses with important centres such as Ahmedabad, Nadiad, Petlad, etc. It is also a railway station on Nadiad-Bhadran section of the Western Railway. Dating back to 2nd century B. C., it is identified by Yule with Sazantion mentioned by Ptolemy (130 A. D.). In olden times highway from Cambay to Central India passed through Sojitra which produced indigo and textiles exported from Cambay. The 1961 Census population of the town is 12,046 persons.

JAMNAGAR

I.10 Situated on the confluence of the

rivers Nagmati and Rangmati it is a district headquarters with a population of 148,572 persons according to the 1961 Census. It is a junction station on the Viramgam-Okha section of the Western Railway and is also connected by roads with Rajkot on the Rajkot-Okha State Highway. Other places in Saurashtra are also connected with Jamnagar by bus. Regular air services operate between Jamnagar, Rajkot, Bhuj and Bombay.

I.11 Till Independence, Jamnagar was the capital of Nawanagar State ruled over by Jams, a Jadeja Rajput clan believed to be the descendants of Yadavas and originating from Samas ruling over Nagar Thatha in Sind and then migrated to Kutch. In 1540, Jam Raval founded the city on the site of Nagnath *bandar*. It has now developed into an industrial city having a woollen mill, chemical works, 22 oil-mills and four salt works. Among numerous crafts prevalent there, the most important are nutcrackers, penknives, trunks, locks, soap, beads, metalware, musical instruments, buttons, stone carving, silk weaving, embroidery, textile dyeing and printing, *kumkum*, *kajal* and *surma*. The artisans of Jamnagar are well-known for their art of weaving *palav*, *sari* ends, and *jari* brocade. Tie and dye *saris* of Jamnagar are famous and popular all over Gujarat.

SECTION II

CRAFT AND CRAFTSMEN

ORIGIN OF THE CRAFT

II.1 THE EARLY HISTORY of the art of making cutlery is shrouded in mystery. In Kutch, the craft is pursued for the last 150-200 years. The industry is mainly carried on by manual labour, except recent introduction of machinery for polishing, drilling, electroplating, grinding, etc.

II.2 According to local legend the present Muslim Luhars of Kutch pursuing this craft were formerly cultivators of land. Agriculture did not engage them for the whole year and they remained without work for 6-7 months. Their religious preceptor, therefore, advised them not to while away their time idly but to have some industry for supplementing their income. The craftsmen thus started the craft of manufacturing penknives and nutcrackers during the off agricultural season.

II.3 According to another account about the origin of the craft in Kutch, Jamadar Feteah Mahmad (1801 A. D.) who was known as Cromwell of Kutch selected Reha a place about 10 to 12 miles from Bhuj for manufacturing weapons and the ancestors of Sumar Junas the famous artisan who developed the craft settled there at his instance. With the help of crude implements then in use he tried hard to raise production and made radical changes in design and craftsmanship. In course of time manufacturing of weapons diminished and craftsmen took to making penknives and nutcrackers. Sumar Junas worked in collaboration with the concern of Shri K. N. Ajani, an inhabitant of Kothara, Taluka Abdasa, Kutch. Their products were marked with the trade name Ajani. Quality goods coupled with intensive publicity have earned this firm good reputation as producers of penknives and nutcrackers.

II.4 A very interesting account of the craftsmanship of the descendants of Junas is

narrated by the proprietors of Messrs. Sumar Junas & Co.

An uncle of Sumar Junas named Budhan was an accomplished craftsman. He won prizes for his exquisite workmanship and capacity to manufacture parts of machines exactly resembling the original. It is said by the grandsons of Budhan that Raydhanji, the grandfather of the present Maharao of Kutch had a revolver, which was manufactured in Europe. Once some part of it was broken and it became un-serviceable. On hearing about the craftsmanship of Budhan the Maharao called him and asked him whether he could replace the broken part. He humbly replied "Bava, (Sire), give me a chance to examine the piece and I shall try my level best to get the piece repaired". He then asked for a month's time and within that period he not only replaced the damaged part by a new one but also made another revolver which was the exact replica of the original, without the trade mark embossed on it. Placing the two revolvers side by side and exhibiting only the unmarked side, he requested the Maharao to identify his revolver. But the Maharao could not recognise it as the damaged part was so skilfully repaired that it looked like the original. In appreciation of the performance of Budhan, the Maharao gave him cash reward and a house in Bhuj in which his descendants still live.

II.5 At Pij the Luhar craftsmen used to manufacture razors and scissors 60 years ago when they started manufacturing penknives and knives by copying imported makes. When the village was electrified they have been using grinder and polishing machines.

CASTE AND COMMUNITY

II.6 This craft is essentially a smithy craft traditionally pursued by Luhars. As can be seen from the statement below mainly Luhars, both

Muslim and Hindu, are engaged in the craft besides seven households of Kansara and one each of Brahmin and Lohana.

STATEMENT I
Surveyed households by caste

Centre	Castes					Total
	Hindu			Muslim		
	Kansara	Brahmin	Luhar	Lohana	Luhar	
1	2	3	4	5	6	7
Jamnagar	7	1	..	..	..	8
Pij	..	..	15	..	..	15
Sojitra	..	..	2	..	..	2
Nana Reha	..	..	..	..	33	33
Mota Reha	..	..	..	..	3	3
Anjar	..	..	..	1	2	3
Bhuj	..	..	..	..	2	2
Total	7	1	17	1	40	66

In all, 66 households have been surveyed in seven centres selected for study. At Jamnagar the craft of making nutcrackers is plied mainly by Kansara community with whom the craft of manufacturing metalwares is traditional. At other centres Luhars who are traditionally engaged in smithy predominate. Those working at Nana Reha, Mota Reha, Anjar and Bhuj in Kutch are Muslim. At Anjar one Lohana household and at Jamnagar one Brahmin household are also engaged in the craft. A brief ethnographic account of Kansara and Luhar castes is given below.

KANSARA

“The word Kansara seems to have been derived from the Sanskrit word *kansyakar* meaning bell metal workers. There are two main divisions among Kansaras, viz., Maru and Gujarati. The former are said to have migrated from Marwar to Sejakpur in Saurashtra and settled at various places in Saurashtra. The Gujarati Kansaras are believed to be the former Kshatriya residents of Champaner 29 miles east of Baroda and the descendants of Sahastrarjuna. On account

of differences they had to move with their family goddess from Dhinoj in Mehsana district to Visnagar where they settled and spread over to other places in Gujarat, viz., Nadiad and Dabhoi. According to another legend Gujarat Kansaras were the offspring of five brothers worshipping *Kalika Mata* by beating bell metal cymbals. Pleased by their devotion the Goddess gave them a boon to earn their living by beating bell metal and became bell metal smiths. They have following clans:

- | | |
|------------|----------------|
| 1. Bagaya | 5. Karkasariya |
| 2. Barmeya | 6. Parmar |
| 3. Bhatti | 7. Solanki |
| 4. Gohel | |

The surnames Bhatti, Gohel, Parmar and Solanki denote strain of Rajput blood in them.

During the course of time Kansaras were further subdivided into five divisions (1) Champaneri, (2) Maru, (3) Shihora, (4) Ahmedabadi and (5) Visnagara, the last named being more numerous. While none of the five divisions eat together or intermarry, the Maru or Marwari wear a sacred thread. Their appearance, dress and speech do not distinguish them from Bania or Kanbi and are addressed respectably as *Mahajan*. All the Kansaras are either Ramanandi, Shaiva or Vallabhachari but hold their titular Goddess *Kalika Mata* in great reverence. They have Brahmin priests from Audich, Mewada, Shrigod and Shrimali subdivisions and visit temples of Goddess Ambaji, Becharaji and Kalika. Widow remarriage among Kansaras, except Visnagara are not allowed.”¹

LUHAR

“The word Luhar is derived from the Sanskrit word *lohakar* meaning a blacksmith. According to the legend prevalent among them, the Luhars are the descendants of Pithvo created from *pith* or back of the

1. MUKERJEA, SATYA. V., *The Census of India, 1931*, Vol. XIX, Baroda, Part I—Report, pp. 442-443

dust clinging to Parvati's back for manufacturing weapons for Shiva against his war with demons Andhkar and Dhundhkar.

The endogamous divisions which do not interdine or intermarry are Gujjar, Bhavnagari, Panchal, Sirohia, Surati, Chokia, Dali, Khambhati, Lodhaghada, Rupaghada, Pithva and Parajia. Panchal Luhars claim to be the descendants of Brahmin, who had degraded owing to their taking to blacksmith's profession. The surnames Chavda, Chohan, Dodia, etc., denote the presence of Kshatriya blood among them."¹

II.7 The women and family members help them in pumping bellows, and performing other lighter tasks. Luhars work as village artisans and are paid in kind. The machine age has proved a great handicap to Luhars who have given up their original occupation and taken occupations such as silversmithy, carpentry, watch repairing, etc. They are liberal in social outlook and allow widow remarriages and divorce. They follow sects like Kabirpanthi, Swaminarayan, Ramanandi, etc. Their priests called *Luhar gors* are despised by Brahmins.

MUSLIM LUHARS

II.8 The functional name among Muslims manufacturing cutlery is Luhar. Some of the artisans of Bhuj and Mota and Nana Reha are Bhatti hailing from Bikaner and Jaisalmer. They believe themselves to be Bhatti Rajputs converted to Islam. The others are Shaikhs subdivided into three branches (1) Siddiki, (2) Faruqi and (3) Abbasi. Siddikis claim descent from Abu Baker Siddik, Faruqi from Umar-Al-Faruk, and Abbasi from Abbas one of the nine uncles of the Prophet Mohamed. The word 'Shaikh' is also a honorific term corresponding to the word 'Esquire' in English. Thus all local converts were addressed as Shaikh (or Muhammad) prefixed to their names and Bibi prefixed to the names of females.

SIZE AND STRUCTURE

II.9 There are 382 persons in the 66 households surveyed giving an average of 5.79 persons per household. The following state-

ment shows the workers and non-workers by sex and broad age groups.

STATEMENT II Workers and non-workers by sex and broad age groups

Age group	Persons		Males		Females	
	Work-ers	Non-work-ers	Work-ers	Non-work-ers	Work-ers	Non-work-ers
1	2	3	4	5	6	7
0-14	1	153	1	72	..	81
15-34	49	73	49	19	..	54
35-59	50	34	48	..	2	34
60+	10	12	10	2	..	10
Total	110	272	108	93	2	179

Smithy being a strenuous job females do not participate in it. This is evident from the fact that except 2 females in the age group 35-59, all the workers are males. In the younger age group 0-14 there is only one male worker. Out of 110 workers all but 11 are aged 15-59. In the surveyed households there are 10 females and 12 males in the older ages 60 and above, of whom 10 males are workers and the rest of the males and all females are non-workers. Thus, the participation of aged males is significant in this craft.

TYPE OF UNITS

II.10 All the working units are independent establishments. Most of them sell their finished products to traders or master craftsmen. Majority of the units employ hired workers. The following statement shows number of family workers and hired workers engaged in this craft.

STATEMENT III Number of family workers and hired workers

Centre	House-holds surveyed	House-holds engaging hired workers	No. of family workers	No. of hired workers	Total
1	2	3	4	5	6
Jamnagar	8	7	15	55	70
Pij	15	10	25	10	35
Sojitra	2	..	2	..	2
Nana Reha	33	16	50	20	70
Mota Reha	3	2	4	4	8
Anjar	3	3	11	12	23
Bhuj	2	2	3	4	7
Total	66	40	110	105	215

1. MUKERJEA, SATYA. V., *The Census of India, 1931, Vol. XIX, Baroda, Part I—Report*, p. 449

Hired workers are employed by some of the units in all the centres except Sojitra. Out of 66 households surveyed 40 engage hired workers. Against 110 family members, there are 105 who are hired. The proportion of hired workers is the highest (1 : 3.6) at Jamnagar. At Nana Reha hired workers are all Muslims while those at Pij are Raval, Marvadi and Bariya.

LITERACY

II.11 Out of 382 persons living in surveyed

households, 163 or 42.67 per cent are literate, the respective percentage of males and females being 56.22 and 27.62.

The percentage of literacy among the households surveyed exceeds the State average of 24.09 per cent. Literacy is confined to taking primary education and only 8 persons, 6 males and 2 females, have received education up to the secondary level, and none above it.

STATEMENT IV

Literates by age group and educational levels

Age group	Illiterate			Literate without educational level			Primary			Secondary		
	Persons	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons	Males	Females
1	2	3	4	5	6	7	8	9	10	11	12	13
0-4	60	26	34	..	..	..	..	..	..	..	..	..
5-9	37	19	18	..	..	..	16	6	10	..	..	..
10-14	17	8	9	1	1	..	22	13	9	1	..	1
15-19	14	8	6	4	1	3	10	5	5	3	3	..
20-24	21	8	13	2	2	..	14	9	5	1	1	..
25-29	15	5	10	2	2	..	13	10	3	1	..	1
30-34	6	1	5	5	5	..	10	7	3	1	1	..
35-44	17	3	14	10	8	2	18	13	5	..	..	..
45-59	19	6	13	2	2	..	17	15	2	1	1	..
60+	13	4	9	7	6	1	2	2	..	..	..	..
Total	219	88	131	33	27	6	122	80	42	8	6	2

WORKSHOPS AND DWELLINGS

II.12 Out of 66 households surveyed, 34 or 51.51 per cent have a workshop separate from their dwellings, but situated within a

mile from their residence. The remaining 32 households have workshop within their dwellings. In most of the cases the front portion of the house is used as a workshop. The following statement shows the area used as workshop.

STATEMENT V

Number of households by area used as workshop

Centre	Area in sq. ft.									
	0-25	26-50	51-100	101-150	151-200	201-250	251 & above	Un specified	Total	
1	2	3	4	5	6	7	8	9	10	
Jamnagar	8	8	
Pij	..	1	5	3	3	..	2	1	15	
Sojitra	2	2	
Nana Reha	..	2	2	5	6	7	9	2	33	
Mota Reha	3	..	3	
Anjar	1	..	1	1	3	
Bhuj	1	..	1	..	2	
Total	..	3	7	8	11	7	16	14	66	

Out of 66 households, 10 have a meagre working space of 26 to 100 sq. ft., 8 have 101 to 150 sq. ft., 18 have 151 to 250 sq. ft. and 16 have 251 sq. ft. and above. The work is carried out with traditional tools and equipments at all the centres except Jamnagar where modern machinery is installed. The place of work is called *kodh* (workshop) which is not well kept. The floor is littered with ash, dirt and iron filings. Instruments are not arranged systematically or hung on wall but are found scattered on the floor. A stone trough filled with water is placed near the anvil for quenching heated articles. There is also a pit 2' x 2½' deep for a striker to stand at a lower level, so that he may not be required to bend himself while striking with a hammer. This is an intelligent device to reduce physical strain.

II.13 Sixty-five per cent of households live in single room tenements. 74 per cent of the households reside in their own houses, whereas

26 per cent in rented dwellings. As to the condition of houses in regard to light and ventilation, 62 households enjoy good ventilation, only one has moderate ventilation and no information is available for the rest.

HEALTH

II.14 The craft is mainly pursued by adult males. All the operations involved in making these articles call for hard physical labour. Though the processes are strenuous requiring sturdy body there are no instances of professional disability or disease contracted as a result of working in the craft.

II.15 The artisans are addicted to tea and *bidi*. In rural areas like Nana Reha, Mota Reha and Pij they have no modern recreation facilities like cinema, whereas in other centres the artisans occasionally visit cinema houses. They do not work on festive days.

SECTION III

RAW MATERIALS

III.1 THE PRINCIPAL raw materials required in the craft are iron containing one per cent carbon, and steel. In Kutch, used and discarded files which could be easily tempered for obtaining a sharp cutting edge are mainly used. Other raw materials are copper, brass scrap, buffalo horns for handles, celluloid, plastic, brass wire, stainless steel, silver and mineral coal for fuel. The following statement shows main and subsidiary raw materials used at various centres.

STATEMENT VI

Raw material			
Sl. No.	Centre	Main raw material	Subsidiary raw material and fuel
1	2	3	4
1	Jamnagar	Steel, iron	Brass, zinc, lead, copper, silver, nickel salt, copper salt, nickel plate
2	Pij	Iron	Steel wire, iron sheet, blackwood, coal
3	Sojitra	Iron, iron strip	Coal
4	Nana Reha	Steel, iron	Coal, horns
5	Mota Reha	Steel, iron	Copper, brass, horns, borax
6	Anjar	Steel	Brass scrap, horns, plating material, scrap, coke
7	Bhuj	Steel	Brass

III.2 The knife as well as the nutcracker consists primarily of a sharp edge or blade of steel. Old files are the best raw material for the industry, as it compares favourably with the steel available in the market. In the past, artisans were using "Johnson and Nicolson" files. But now, they use Hindustan or other Indian files as import of steel goods has been banned. Main markets for waste steel files and mild steel are Bombay, Ahmedabad and Rajkot. The artisans can obtain them easily from the local market also. Brass *dhalias* are made to order by the local bell metal smiths, whereas horns used in handles of penknives are purchased either from Ahmedabad, Bombay or Rajasthan. The cost per lb., of old files is about 45 to 50 paise while that of brass scrap is about Rs. 4.50 to 5. The cost of horns is about Rs. 3 to 3.25 per lb. It is estimated that annually raw material worth Rs. 2,000 to 3,000 is consumed per unit. Coal is used as fuel for heating and annealing processes and electricity for operating machines.

III.3 For acquiring the subsidiary raw materials like brass, nickel salts, nickel plates, copper salts, copper plates, polishing material, etc., an import licence is necessary. The regular units can get sufficient quota, but a beginner experiences great hardship in procuring these materials.

SECTION IV

TOOLS AND TECHNIQUE

A—Tools and Implements

IV.1 THE TOOLS GENERALLY used are ordinary smithy tools like hammers of different denominations and sizes, anvil, chisel, punch, drill, file, adze, etc., besides electrically operated machinery installed by some of the establishments for drilling, polishing, cutting, etc. The following statement gives the list of electrically and manually operated tools and implements.

STATEMENT VII

Tools and implements

Tools and implements	Value in Rs.	Place from where imported
1	2	3
(i) <i>Electrically Operated</i>		
Electric motors		
$\frac{1}{2}$ H.P.—10 H.P.	300-1,000	Ahmedabad
Buff polish machine	1,000	Rajkot, Nadiad
Drilling machine	200	Calcutta
Emery stone	35-125	Bhuj
Nickel plating appliance	300-500	Ahmedabad
Polishing appliance	500	Ahmedabad
Grinding machine	3,000	Ahmedabad
Electroplating machine	2,000	Ahmedabad
(ii) <i>Manually Operated</i>		
Hammers of different sizes	10-20 each	Local
Chisel	5-20	Local
Pincers	10	Local
Drill	6	Local
Files	5-20 each	Local
Anvil	24-75	Local
Hacksaw machine	450	Local
Bellows	40-70	Local
Vice	15-25	Local
Buff stand	100	Local

HAMMER (*Hathoda*)

IV.2 Hammers of various shapes and sizes are used for raising, levelling and planishing

operations. Hammers are generally made of superior quality of iron and have a smooth rounded wooden shaft fitted into a circular hole of the stroker. They cost from Rs. 3 to 12 according to size and quality.

CHISEL (*Chhini*)

IV.3 Craftsmen also need sharp edged chisels for cutting and shaping, where iron snippers cannot be used. They are normally made by the craftsmen themselves out of iron bars (*taklas*) of superior quality bought from the local market at the rate of Rs. 2 to 2.50 per kg. They have a straight edge, varying from $\frac{1}{2}$ " to $\frac{2}{3}$ " in width and 3" to 4" in length.

Chisels of various shapes and sizes are used for carrying out chasing and perforation work on the surface of the metal, their cost varying according to their size, shape and quality of steel.

PINCERS (*Sansi*)

IV.4 A pair of iron pincers is one of the most serviceable tools, commonly used for handling semi-manufactured articles, while heating them in furnace during annealing and soldering operations. Pincers are of two kinds, one with straight flat jaws and the other with curved jaws turned at right angles. These are made of iron procured from the local market.

DRILL (*Shardi*)

IV.5 An electrically operated drill is used by some of the units for boring holes in iron and brass pieces. It consists of an electric motor and a mechanical device which rotates a pointed iron rod meant for boring. The piece to be bored is held firmly below the rotating rod. When the machine is operated, the pointed end of the rod rotates on the brass piece which is drilled by the appropriate pressure applied

to it. The bores made in the pieces are needed for fixing handles, rivets, etc.

Ordinary hand-operated drill is used for boring holes in wooden or horn handles which are finally fitted to the brass hafts. This drill is a simple traditional tool used by ordinary carpenters.

FILE (*Kanas*)

IV.6 File is a scraping appliance locally known as *kanas* used to smoothen irregular edges. They are flat, square, round, half-round and triangular in shape. Available in the local market their prices vary from Rs. 5 to 20 according to their size and quality.

ANVIL (*Eran*)

IV.7 Anvil is a basic tool required in smithy workshops. It is like an iron log meant for putting an article while hammering. Anvils last for many years. They are made by the smiths themselves. They are also sold in the market and the price depends on the quality varying from Rs. 24 to 75 per piece.

FURNACE (*Bhatthi*)

IV.8 Furnaces are of two types. One for tempering the blades and the other for melting the metal. For tempering purposes, ordinary smithy furnaces are used. They are semi-circular in shape and made of stone and clay or mud. The front portion called mouthpiece is open for feeding charcoal and for heating the metal repeatedly, as and when required. The fire is urged in the furnace through leather bellows furnished with a bamboo nozzle. A basketful of charcoal is placed in the furnace as and when required and the air blown through the bellows produces the extent of heat desired.

For melting brass and copper underground furnaces are used. The metal to be melted is put in the crucible kept in the furnace. Such furnaces are mainly used at Jamnagar where nutcrackers are manufactured by moulding process.

B—Techniques

IV.9 Making of blade is an important part of the technique involved in the manufacture of cutlery articles. The value of the

article, therefore, depends upon the quality of the steel used and finishing attained.

PENKNIVES

IV.10 A knife consists primarily of a steel piece with a sharp edge or blade. The other component part is a handle. A handle consists of two equal pieces of brass known as *tadia*. Both the sides of the handle are rivetted at three different points. A steel spring is provided within the handle for maintaining the blade in position and keeping it fully opened or closed. The outer surface of the handle is decorated by a strip of horn, wood or plastic fixed on both the sides. All metal handles are however, kept plain or sometimes decorated with engraving. There are four stages in the production of penknives, viz., (a) forging, (b) grinding, (c) polishing and (d) finishing, which are described below.

(a) *Forging*—Bars of steel, discarded files and blades of *atedanu lokhand* having more than 1 per cent carbon are used for manufacturing the blade of a penknife. Scrap iron and steel having less than 1 per cent carbon are not suitable. Forging is a process in which hot iron piece is repeatedly hammered for its conversion into the required shape. While it is still hot, the hammer is struck on the section placed on an anvil and held with tongs by an assistant. Forging is done by a worker in standing position. At times the artisan stands in a pit and hammers the article kept on the ground near-by, so as to reduce the physical strain of hammering while standing on the ground. The article is converted into a flat sheet by constant hammering. In doing so, the article is required to be heated repeatedly and hammered. This operation imparts hardness to the blade, and makes the molecules of the article more compact. It also removes impurities that might have remained in the steel and gives it resistance against the wear and tear besides retaining a sharp cutting edge. The defects and unevenness are removed by means of an abrasive paper. A bolster called *budh* is devised at a little distance from the end of the blade which is to be affixed to the handle. The end of the blade is forged further to form a prolongation called tang, which is to be inserted in the

handle. The craftsmen of all these seven centres produce penknives by manual method.

The blade is then sheared and filed for giving the desired shape. It is then annealed by repeated heating and quickly cooling in water to bring in proper hardness and elasticity. The glowing and subsequent changing of the colour of steel are watched carefully to find out whether the required temperature is attained. The hardened steel appearing pale grey is brittle and cannot hold the cutting edge longer. The blacksmiths by their professional skill of perception of colour stop heating as soon as the requisite hardness is attained. Thus heating of the brittle steel progresses till it changes colour from brown to purple, then to dark blue and finally to dull blue black.

The designs on the blade are scraped by means of a fine chisel and inlaid with brass.

(b) *Grinding*—A sharp cutting edge is obtained by grinding the blade after forging. Grinding of the edge meant for cutting is done on an emery wheel or on a coarse sandstone about 6'-8' in diameter and 7"-8" thick. Before grinding, a little water is poured on the stone.

The stone is made to rotate with a leather strap wrapped on the axle of the wheel. An assistant sitting opposite the grinder holds two ends of the strap in his hands and draws them to and fro. The operation of grinding is unhealthy and proves detrimental to eyes of the worker. The moist sandstone and iron dust from the blade thrown off during grinding affect the eyes of the grinder as well as the helper. Besides the laborious process of drawing the leather strap for rotating the wheel, continuous bending over the wheel during grinding with clothes wet and soggy with perspiration and stone particles flowing in the air affect the lungs of the worker in the long run and causes consumption and other diseases of the lungs.

The rough grinding of blade on emery wheel is not enough. A smooth sharp cutting edge with fine texture is required to be brought out after removing rough grind marks. The edge of the penknife tapers from handle to point till it receives a smooth surface and sharpness. The grinding requires professional skill which is acquired and developed through generations. The grinder touches and feels with

fingers the fineness of the edge from time to time.

(c) *Electroplating and Polishing, etc.*—The blade is then passed on for final polish or glaze, which is done by hand with the powder of bricks or rough stone. All the grind marks are removed in this process. Chromium plating is finally done by electroplating process.

(d) *Joining and Fitting the Handle (Finishing)*—The blade is now ready for the last process of fitting it with a handle. The tang or the prolonged portion of the blade is inserted in a handle and held tight by means of rivets which are fixed by drilling the requisite portion of the tang and the handle. The handle is prepared out of wood for which *sisam* wood (*Dalbergia sisoo*) is preferred, or sometimes plastic, iron or brass strips are used. Brass strips are purchased from local Kansaras or brass smiths. The folding blade of the pocket-knife is made to slide into the slit or groove kept within the handle, and when opened the blade is held in position against the spring called *thesi*. The tang of a fixed blade knife is hafted by fixing slabs of required material rivetted through its entire length. The half tang of the fixed blade is inserted in the handle and held in place by means of rivets. A flat or push tang of a folding blade is inserted in a hole drilled at the end of a handle.

The assembling operation of all parts of a knife, viz., two outer slabs, two linings in a slot between which a blade folds in a handle, one spring, and a handle demands great skill and precision. After assembling, the spring should be so adjusted as to give the required tension for holding the blade while open and should be smooth to operate. The fitting of spring to a blade demands utmost skill as improper fixing of the spring or its joints will affect its position while shut or open. When opened it should open smoothly in a straight line of the handle. After assembly folding of a blade inside its handle should ensure that the edge of the blade is covered under the haft and the nail marks on the blade are left uncovered to facilitate opening.

NUTCRACKERS

IV.11 The sharp edge or blade of a nutcracker is a piece of steel. The other component

part is the butt, which is forged into two pieces, one forming the edge and the other flat holding the object to be cut. The pivot is a rivet joining the ends of two pieces. The nutcracker is an item of fancy for many houses in Gujarat where use of betel-leaf and betel-nut is common. The nutcracker is available in a wide variety of shapes and sizes. The material used in the manufacture of nutcrackers is steel, and non-ferrous metals like German silver, brass and stainless steel. When non-ferrous metals are used the edges are to be steel laid and laminated on the frame of mild steel, brass, German silver or other base metal. For preparing a nutcracker an 'L' shaped metal piece is cut and processed with heavy forging and filed for giving desired shape to the head. The second light forging is done to get the shape of a particular part. The first process is done by a pair of workers one controlling the forge and holding the article, and the other striking with a 14 lb. sledge hammer. In the next process of light forging a worker independently works with a 2 lb. hammer. The other processes of grinding the edge, polishing and assembling are the same as those employed in the manufacture of penknives or scissors. Though other processes involve manual operations, the grinding and polishing at Jamnagar are done on grinder and polishing machines run on 10 H. P. electric motors. Similarly final polish or glaze is carried out on a buff stand run by electricity. At centres like Anjar, Nana Reha, Pij and Sojitra all operations are still carried out manually. Artisans at Bhuj employ grinders and polishing buff stands run on $\frac{1}{2}$ H. P. electric motor.

ENGRAVING AND EMBOSsing OF DESIGNS

IV.12 The design to be chased on blade is first drawn on paper by hand. It is then transferred to the blade. Drawing the design on paper gives scope for addition or alteration which is not possible on a blade without spoiling it. It is then incised by making depressions with a chisel on a blade so that the design may not get lost in subsequent operations. Hot tar is then filled in the depression to serve as a hard core. The designs comprise figures, floral patterns and conventional decorative motifs.

MANUFACTURE OF BRASS NUTCRACKERS AT JAMNAGAR

IV.13 At Jamnagar the nutcrackers are made of brass with an iron blade. The process of manufacturing nutcrackers of brass with an iron blade differs from that in which only iron is used. Instead of forging and hammering, the brass is melted and cast in the moulds. The process can be divided into following stages (i) mould-making, (ii) casting, (iii) fixing the steel blade, (iv) grinding, (v) polishing and electroplating.

(i) *Mould-making*—Nutcrackers are manufactured in various shapes and sizes. Moulds of required size and shape are first made from clay mixed with molasses. Separate moulds are prepared for two component parts of a nutcracker. The alluvial soil of the river is used as clay. The clay is refined by removing coarser components and only fine clay is used, otherwise it affects the shape of the article. Clay is mixed with molasses to make the mould compact and hard. The mixture is then filled in the circular frame. The frame is placed on the ground and clay is pressed over it by feet. A model of the component part is placed upon the layer of the clay. The negative mould is thus obtained by using the original article. When the impressions are clear, the original article is removed.

(ii) *Casting*—Brass and copper scraps are generally used for casting. The scrap is purchased from the market at the ruling price. Scrap brass or scrap copper and zinc is melted in a crucible in the underground furnace. The proportion of copper scrap and zinc is determined by the master craftsman according to the quality of brass to be obtained, generally in the proportion of 2 : 1 (2 parts copper and 1 part zinc). Hard coke is used as fuel. The required quantity of materials is kept in the crucible, placed on the furnace, and heated to a very high degree of temperature. Melting takes about 2 to 3 hours. When the metal boils, a little quantity of aluminium powder is added to it so that impurities in the metal come to the surface. The impurities are removed by a perforated ladle. When all the impurities are removed,

pure liquid is poured in the moulds by lifting the crucible with long tongs. The liquid then settles down in the cavity of the mould. After 10 to 15 minutes the liquid cools down and the frame is disintegrated and the article which is in a crude form is taken out with the help of one blade iron fork. The defects or malformation, if any in the casting process is then corrected by use of borax, etc. The uneven surface is then smoothed with files.

(iii) *Fixing the Steel Blade*—Both the components of a nutcracker are moulded separately. A steel blade is fixed in the cavity of the upper portion. The upper and lower parts are then joined with a rivet to make a nutcracker.

(iv) *Grinding*—After fixing the iron blade, the edge is sharpened by grinding on electrically operated grinding machine.

(v) *Polishing and Electroplating*—Polishing and electroplating is carried out in the same manner as discussed earlier.

SCISSORS

IV.14 Scissors are manufactured at Anjar. Scissors, complete with bows meant for grip by thumb and fingers while operating are manufactured from hard cast iron. The required

shape is made in moulds. Other processes like forging, heating, annealing, grinding, polishing, etc., are similar to those adopted in the manufacture of a penknife. Sufficient care, however, is required to be taken in grinding and assembling of both the blades. The upper and lower edges of the blades are so adjusted that they remain in close contact with each other. While applying pressure both the blades should engage each other and allow free snip-snapping. Each blade is slightly bent towards the other. The joints are also precisely adjusted so that the two parts remain in contact with each other at the cutting edge.

IMPROVEMENT IN TECHNIQUE

IV.15 Some of the units have adopted improved technique of production by installing modern machinery and tools. The forging which was done formerly with hand bellows or swing bellows is now done by power blower. The grinding which was done by reversible hand pooled wheel is now carried out by power or electric driven wheels in some of the units. The bow type drill is now replaced by power drill. Simple hand polished has given way to electroplating which produce a very fine glaze and finish.

SECTION V

FINISHED PRODUCTS AND MARKETING

FINISHED PRODUCTS

V.1 PENKNIVES, NUTCRACKERS and scissors are manufactured in variegated shapes and sizes. People of all communities purchase them as they are articles of common utility. Penknives are used for cutting fruits, vegetables, mending pencil, etc., and scissors for cutting cloth, trimming hair, paring nails, etc. Nutcrackers will be found in most of the houses of Gujarat and used for cutting *sopari* or betel-nut. Thus people of all walks of life use these articles.

V.2 The length of penknives varies from 1½" to 4" while that of nutcrackers from 4½" to 6½". They are termed as *savaya* (one and quarter), *akha* (full), *poniya* (three quarters), *adadhiya* (half), *pavla* (quarter), *judana* (one

eighth), etc., according to their size. The quality of the article is mainly determined by the grade of steel used, shape and finish. Variegated floral designs, trade mark of the owner, etc., are embossed or engraved on the blade. Three grades of steel, viz., file steel, spring steel and mild steel are used in the manufacture of penknives in following varieties and shapes.

- (1) Penknives of short blades up to 4" length
- (2) Knives with uniform flat and thin blade
- (3) Long pointed blade

V.3 It is very difficult to assess the value of finished products as small units do not maintain any account. It is, however, estimated that articles worth Rs. 10,000 to 12,000 are produced annually at Bhuj. The articles produced in Kutch are shown below along with their prices.

STATEMENT VIII

Price of finished products, 1962-63

Sl. No.	Varieties	Size in inch	Price in Rs. (per dozen)	Sl. No.	Varieties	Size in inch	Price in Rs. (per dozen)
1	2	3	4	1	2	3	4
PENKNIVES				NUTCRACKERS-contd.			
1	Model S., Black handle, blue colour and golden letters	1½" to 4"	9 to 30	6	Model GOR., Nickel blue colour golden letters	4½" to 6½"	21 to 36
2	Model N., Nastri narrow blade	2½" to 4"	12 to 30	7	Model A., File blue colour golden letters	4½" to 6½"	12 to 24
3	Model NS., Celluloid broad blade	1½" to 3½"	12 to 33		Model B., File blue colour golden letters	4½" to 6½"	12 to 24
4	Model NSN., Celluloid Nastri blade	1½" to 3½"	12 to 30		Model C., File blue colour golden letters	4½" to 6½"	13.50 to 25
5	Model E., Whole broad steel plate	1½" to 3½"	10 to 27		Model D., File blue colour golden letters	4½" to 6½"	15 to 30
6	Model EN., Nastri whole plain steel	2½" to 3½"	15 to 30	8	Model ANK., Nickel	4½" to 6½"	15 to 27
7	Model SNK., Black handle plain blade	1½" to 4"	10 to 36		Model BNK., Nickel	4½" to 6½"	15 to 27
8	Model NNK., Nastri narrow plain blade	1½" to 4"	10 to 33		Model CNK., Nickel	4½" to 6½"	18 to 30
9	Model M., Fountain pen shape	3" to 4"	21 to 24		Model DNK., Nickel	4½" to 6½"	18 to 30
10	Model FI., Fish shape	1½" to 3½"	15 to 27	9	Model LNS., Peacock shape engraved spring	4½" to 6½"	72 to 120
11	Model F., Table-knife	7" to 8"	18 to 36	10	Model LNV., Peacock shape without engraved spring	4½" to 6½"	48 to 84
12	Model JL., Daggers	3" to 12"	30 to 144	11	Model L., Peacock shape with enamelled spring	4½" to 6½"	84 to 180
13	Model SF., First quality	1½" to 4"	7.50 to 27	12	Model LV., Peacock shape without enamelled spring	4½" to 6½"	66 to 120
14	Model SK., Second quality, single polish	1½" to 4"	6.50 to 24	13	Model AF., First quality	4½" to 6½"	10 to 21
15	Model EFN., Steel first whole plain	1½" to 3½"	9 to 24	14	Model AC., Second quality	4½" to 6½"	7.50 to 11.50
16	Model ST., Third quality	2½" to 3½"	8 to 30	15	Model AFN., First nickel	4½" to 6½"	10.50 to 21
NUTCRACKERS				16	Model TC., Third grade	4½" to 6½"	8.75
1	Model NB., Nickel bore	4½" to 6½"	19 to 30	SCISSORS			
2	Model NS., Celluloid, dandi	4½" to 6½"	24 to 42	1	Model K., Fabric cutting	5½" to 6½"	30 to 42
3	Model GO., Round dandi nickel plating	4½" to 6½"	18 to 30	2	Model G., Hair-cutting	6"	36
4	Model CH., Square dandi	4½" to 6½"	21 to 36	3	Model Z., Small scissors	4"	15
5	Model RNB., Nickel blue colour golden letters	4½" to 6½"	21 to 36				

V.4 Prices of all these cutlery articles vary according to their size and workmanship. They are usually within the reach of an average man. The price of nutcracker varies from 60 paise to Rs. 80. Similarly the cheapest penknife is available at 50 paise to Rs. 12. The costliest articles are made of silver and inlaid with enamel. They are not manufactured in advance but made only to order. The late Pandit Jawaharlal Nehru was presented with an Anjar-made penknife, and nutcracker as a souvenir representing this important handicraft of Kutch. Gulab Sudi, Mahavir Sudi and Jagjivan Sudi are very popular brands of nutcrackers at Jamnagar. Similarly penknives called Reha ghat, Kothara ghat and Bhojay ghat are popular Kutch products.

V.5 Very little attempt is made to standardise the products of this industry. One of the units at Anjar, namely, "A. Sumar Junas and Co., Rehawala" has tried to standardise some fifty different varieties produced by it. However, the specifications are not rigid and uniformity is not strictly maintained. About 225 varieties of penknives, nutcrackers, and scissors are manufactured by Messrs. Sumar Junas and Co. The variation is generally found in the quality of steel used in the blade, shape of the article and the material of which handles are made. Some of the varieties which are artistic in shape and have beautiful handles are meant for giving presents. A few of the popular varieties are listed below.

Penknife

1. Celluloid or coloured plastic handle with nickel plated plain blade in different sizes;
2. Nickel plated in single piece, steel handle and blade;
3. Black horn handle with nickel plated plain blade in different sizes;
4. Fish shaped handle of metal;
5. Fountain pen shape (full size and half size);
6. Key shaped penknife having ordinary polish;
7. Fancy and dagger shaped;
8. Pistol shaped knife;
9. Double spring design;
10. Boot shaped;

11. Bottle shaped;
12. Knife with double clips;
13. Long tailed;
14. *Leriya* design on handle;
15. Blade shaped like an operation knife.

Nutcracker

1. Nickel plated, double polish nutcracker with sharp edge and handle decorated with plastic strips;
2. Of high quality steel with round and square handles;
3. Nickel plated in blue colour with golden lettering;
4. Peacock shaped with inlay work;
5. Dagger shaped;
6. Peacock shaped and enamelled.

V.6 Storage is a major problem. The goods are stocked at intermediate stage before final finishing to avoid the duplicate labour of finishing and polishing. But some finished goods are always kept in ready stock to meet with the public demand after giving them a light cover of vaseline wrapped in moist proof paper.

MARKETING

V.7 Articles of cutlery are required in every house. Ahmedabad and Bombay are the chief marketing centres besides Anjar, Bhuj and Jamnagar which produce them. They are sold locally either at artisans' shops or through Khadi Bhandars in Kutch or to traders outside Kutch according to the orders placed by them. Small independent workers sell their goods directly to the traders or master craftsmen who sell them in the markets at Bhuj, Anjar and Mandvi. The traders at Bhuj and Anjar work as collecting or purchasing agents for merchants at Ahmedabad and Bombay for the goods produced at Nana Reha and Mota Reha. One of the chief whole-salers is Ajani & Co., who sell under the trade mark 'Ajani & Co.'. Their sales exceed Rs. 1 lakh per year. The biggest unit of A. Sumar Junas & Co., has a factory at Anjar, a workshop at Reha and a sales branch at Bhuj. But his major sales take place through his representatives and salesmen and extend up to Bihar and Karnatak.

V.8 Finished products are sold both retail and wholesale either on cash or credit basis. Merchants at distant places usually buy them on credit, and make payments according to the business convention within 15 days to a month. Winter and summer are the peak seasons. Production also is less in monsoon and heavier in winter. The time-lag between production and sale is normally two to three months. Finished products are transported by road or rail. The craft enjoys a special concession at Bhuj where it is exempted from the levy of octroi duty by the Municipality.

V.9 Jamnagar is another wellknown centre for the manufacture of nutcrackers which are marketed in all the towns and cities of Gujarat and important centres of trade throughout India.

Various shapes are given to make them attractive and their sizes vary from numbers 0 to 6. All the processes involved in the manufacture of nutcrackers at Jamnagar except grinding and polishing which are mechanised are manually operated. Most of the artisans except those at Jamnagar, work on traditional tools and by age-old methods. The benefits of large-scale manufacture, standardization and economy in production are not available to them, as they are not yet acquainted with the use of modern tools and equipments needed for the purpose.

TRAINING

V.10 No regular training is imparted to apprentices or new entrants, who learn the craft while doing lighter jobs at a young age.

SECTION VI

ECONOMIC CHARACTERISTICS

CAPITAL

VI.1 A NUMBER OF factors like an investment, market, type of raw materials used, labour, etc., determines the economics of the industry. But capital is one of the important factors without which no industry can be organised. The craft of penknives and nutcrackers is labour intensive. On an average an amount of Rs. 1,000 to 1,500 is required for tools and equipments, Rs. 1,500 to 2,500 for raw materials and working capital bringing the total investment to Rs. 3,000 to 4,000 per unit. Large units like A. Sumar Junas & Co., have invested Rs. 50 to 60 thousand excluding buildings, and the investment in working capital vary from Rs. 30,000 to 100,000 depending on the season.

VI.2 Majority of the craftsmen invest their own capital, but at Jamnagar and Bhuj loans were taken from businessmen. Some have availed of loans from Government which varied from Rs. 500 to 5,000. Out of 66 households surveyed 38 from Jamnagar, Nana Reha and Anjar have obtained loans of Rs. 500 each and 2 households of Bhuj Rs. 2,000 each from Government. At Jamnagar loans were taken for promoting the business as a whole, at other places it was taken for the purchase of improved implements. Nana Reha artisans found loans to be helpful in raising their production.

VI.3 The Cottage Industries Board advances loans up to Rs. 2,000 for working capital payable over a period of 5 years at 3 per cent interest. Government has also provided a subsidy for using power in industry but so far this benefit has not been availed of by those engaged in this craft due to ignorance. The industry deserves increased Government aid in the form of loans, machinery on hire-purchase, sufficient quota of controlled raw material and marketing.

COST OF PRODUCTION

VI.4 The cost of production varies from article to article depending on the grade of steel and quality of other raw materials used, shape of article given and type of finish. It also depends on size and workmanship of the article. The exact figures of cost of production of each article are not available but the cost structure can broadly be divided as under : (i) 25 per cent worth steel, (ii) 15 per cent worth copper, (iii) 10 per cent horn and other raw materials, (iv) 30 per cent labour and (v) 20 per cent profit. The cost of penknives varies from Rs. 7 to 36 per dozen and nutcrackers from Rs. 9 to 42 and more. The craftsmen are hard workers but they are not well conversant with the use of modern tools and equipment which help reduce the cost of manufactured articles.

WAGE STRUCTURE

VI.5 Adult males generally practice the craft as all the operations involved in the manufacture of penknives and nutcrackers require strenuous labour. Family members as well as hired workers are engaged in the craft. The average earning of a craftsman varies from Rs. 3 to 6. Hired labourers are paid daily wages in cash. Skilled labourers are employed for the whole year. The workers engaged in fitting of handles of knives and polishing work are paid on piecework basis at the rate of Rs. 2.50 and Rs. 1.50 per dozen articles respectively.

VI.6 Artisans are employed throughout the year. During peak season they work for 8 to 12 hours a day whereas during slack season they work for three to four hours only. The following statement shows the periods of busy and slack seasons at different centres,

STATEMENT IX

Busy and slack seasons

Centre	Busy season	No. of days worked	Average working hours	Slack season	Average working hour
1	2	3	4	5	6
Jamnagar	November-July	270	8	August, September, October	6
Pij	November-June	240	12	July-October	4
Sojitra	November-June	240	5	July-October	3
Nana Reha	October-July	300	8	July-September	4
Mota Reha	November-June	240	8	July-October	3
Bhuj	November-June	240	6	August-September	3
Anjar	November-June	240	8	August-October	4

The busy season differ a little at different centres, as at Jamnagar the peak season is from November to July and at Nana Reha from October to July. But at the rest of the centres it extends from November to June. Similarly the average working hours in peak season which in no case are less than 5, varied at different centres. During slack season, they work from 3 to 4 hours, only at Jamnagar they work for 6 hours on an average. Sunday is observed as a weekly holiday. Workers also enjoy off days on other festive or religious days.

VI.7 Those engaged in this craft are

workers by heredity. Skilled workers are not indented from other centres nor is there any mobility among craftsmen working at different centres. There is no centre for training artisans in this craft. Government is thinking of establishing a centre under the scheme of Rural Industries Project to impart training to those who desire to have it in the use of improved tools and implements and in electroplating.

INCOME

VI.8 Income earned from the craft by the surveyed households is presented in the following statement.

STATEMENT X

Distribution of households by annual income

Income group (in Rs.)	Jamnagar	Pij	Sojitra	Nana Reha	Mota Reha	Anjar	Bhuj	Total
1	2	3	4	5	6	7	8	9
Less than 500	..	..	..	..	..	..	..	..
501 to 800	..	1	2	2	1	..	..	6
801 to 1,000	..	2	..	4	1	..	..	7
1,001 to 1,500	..	6	..	7	1	1	..	15
1,501 to 2,000	1	5	..	7	..	..	..	13
2,001 to 2,500	..	..	..	4	..	1	1	6
2,501 and above	7	1	..	9	..	1	1	19
Total	8	15	2	33	3	3	2	66

It can be seen from the above statement that 34 or 51.5 per cent of the households are concentrated in the middle income groups Rs. 1,001 to 2,500. The lower ranges of Rs. 501 to 1,000 account for 13 or 21.6 per cent of

the households distributed in such centres as Nana Reha, Mota Reha, Sojitra and Pij. Sixteen out of 19 households earning more than Rs. 2,500 are at Jamnagar (7) and Nana Reha (9).

SECTION VII

CONCLUSION

VII.1 IN THE MANUFACTURE of penknives, nutcrackers and scissors, all the processes, viz., forging, annealing, grinding, polishing, finishing and assembling of parts were formerly manually operated and the same artisan worked on all of them. The use of machine and electricity during the last decade has changed the structure of the craft, as some of the manual operations are now performed mechanically, and division of labour introduced to some extent. Polishing and hammering are mostly done by unskilled labourers who are employed full-time or on piece-wages. Similarly, grinding work is done by skilled grinders. Owing to the hereditary nature of the craft, the skill is handed down from father to son since generations. Not infrequently it is confined to a particular community as in Kutch, where Muslim Luhars are for the most part engaged in this craft.

VII.2 Ferrous and non-ferrous metals required in the craft are controlled commodities. Import restrictions on foreign brands of files like Johnson and Nicolson and other makes have caused difficulty in working as the artisans trained in tempering foreign files could not appropriately temper Indian files. The artisans do not get them regularly as and when required, with the result that paucity of raw materials causes a bottleneck in production. Many a time pending orders are cancelled as they cannot be complied with for want of raw materials. The output also suffers. The new entrants in particular experience great difficulties till they get an import licence. Insufficiency of funds also operates as a handicap to the adoption of machinery in production.

VII.3 The Government has framed schemes for the development of small-scale and cottage industries and rural crafts of the country. Provision was made in various Five Year Plans for granting them liberal subsidies, loans and concessions. The non-utilization of these facilities calls for close study of their difficulties and removal of handicaps in their way.

VII.4 It is gratifying to learn that the Rural Industries Project at Bhuj proposes to train craftsmen in electroplating and other processes. Bhuj Municipality has also taken a praiseworthy action by exempting the craft from the payment of octroi duty. Khadi Bhandars also serve as a very useful marketing agency for the display and sale of the products of this craft at their emporia and stores.

VII.5 In the past, nutcrackers were beautifully and artistically designed. Even now they are finely chased and enamelled, if special orders for such quality work are received. But the general trend nowadays is to cater to the needs of the common man who has been making increasing use of nutcrackers and other cutlery articles. Variation in designs, utilisation of improved techniques and exploration of foreign markets coupled with standardisation of products are essential for stepping up demand.

VII.6 The future of the craft is bright as the use of cutlery articles is likely to increase with the rise in the standard of living of the people at large. The progressive outlook of some of the establishments is evident from the adoption of machinery and modern tools in the various processes which were hitherto carried out manually. Modern methods of publicity and salesmanship have also been introduced by some units for expansion of the orbits of marketing.

VII.7 But small units are not likely to withstand the competition of large-scale manufacturers, unless their output is significantly raised. All efforts should, therefore, be made to raise the output and reduce cost. There is a great scope of increasing production, if small units are encouraged to use modern tools and implements. Establishment of common service centre for polishing and electroplating as well as training in the modern technique would also give this craft the much needed impetus it requires for its modernisation.