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POTTERY INDUSTRY
IN
UTTAR PRADESH
with special reference to
KHURJA AND CHUNAR

BY

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FOREWORD

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

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

An early opportunity was therefore taken in February 1960 to suggest to State Census Superintendents, that the Census provided a unique opportunity for conducting and documenting a survey of this kind. As such a survey was quite outside the usual terms of reference of Census work it was thought prudent cautiously to feel one's way with the thin end of the wedge of what would, it was hoped, prove to be an exciting pursuit. It was therefore considered the wiser course to wait until the State Census Offices felt so interested that they would no longer take the inquiry as an imposition but rather want to do it on their own and ask for the necessary staff and equipment. This office, too, in its turn, could make use of the interval to organise and elaborate the design of inquiry in order to feed the appetite that work in progress would serve to whet. Because it was a labour of love, sought to be unobtrusively thrust on one's colleagues and because the inquiry itself was so vast that normally it would demand in any country as big a set-up, if separately established, as the Census organisation itself and that over a much longer period, and because it was almost a pioneer venture, nothing like it having been undertaken since the 1880's, it was decided to move towards a build-up by stages, to let the inquiry unfold itself only as fast as my colleagues chose to ask for more.

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

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

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

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

Thus the first part of the questionnaire, purporting to be a village schedule, sought to take account of the size and population of the village, its remoteness from or proximity to centres of trade and commerce, in short, the degree of isolation in which the artisan worked, and the relative strengths of various communities in the village which would afford clues to social interdependence and the prevalence of the *jajmani* system. The second part was devoted to artisan communities in the village : the several castes of artisans, the number of families in each, the total number of workers, males and females, the extent of co-operative activity among them, the extent of dependence upon employers and of wage or contract labour. There were questions on the raw materials used, the means of their procurement, the possible extent of dependence on others for raw materials, the extent of the material that artisans can handle within the limits of their skill. There were other questions on the exchange and flow of designs, the use of colours, the ancientness of the craft and legends associated, the colonization of the craftsman, on patrons and customers and on social and economic contact with the world inside and outside the village. There were specific questions on the workshop itself and particularly the tools and the source of supply of these tools, because it was felt that tools decide everything and are the surest index of inertness or flexibility. Separate blocks of questions were designed to bring out the ramifications of artisan castes throughout the country and the ways they sustained themselves, the type of clientele they catered for, the extent to which they operated on money or barter or service, how specialized their craft was, how wide the market, how dependent they were on their socially preordained clientele and how restricted the latter was by the seemingly unalterable laws of social custom ; the extent to which they could operate in the open market, the range of their wares and the sizes to which these were ordinarily restricted either by the limits of their own skill or the length of their customers' pursestrings. Inquiries were to be made about the operation of middlemen and of co-operative societies, the people who gave new designs and demanded new products. Finally the several stages of production of the articles themselves were to be fully described including the final and finishing stage and a list of very skilled craftsmen of each community was to be furnished. The third part was devoted specially to tribal communities and designed to find out how self-sufficient or dependent they were on the production an 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 gronp of all States and the Social Studies Division in December 1961 at Delhi, stimulated many of the States into going in for a much enlarged schedule. The revised village schedule itself, the counterpart of the first part of the February 1960 schedule, contained 19 large sections containing elaborate and probing questions. The Family Schedule for practising artisan families similarly contained 19 main questions each subdivided into many questions. The Family Schedule for non-practising artisan families contained 21 questions. There were schedules for the study of co-operative societies, of production-cum-training centres, and of consumer's preference. This enlarged schedule of investigation, in the formulation of which the States themselves actively assisted, was greatly welcomed. The surveys that will appear in this series will therefore consist of two main types: (a) those based on the original short schedule and (b) those based on the much enlarged schedule. In some cases Census Superintendents felt enthused enough to 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 consi-

derable 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.

PREFACE

At the 1961 Census a detailed study of household industries and industrial establishments was undertaken. Special questions on household industry and working establishments were introduced in the Household Schedule and the Houselist with a view to obtaining a sort of frame for all kinds of industries in the country. This information was further supplemented by the detailed survey of a few handicrafts. For Uttar Pradesh the following handicrafts were selected :—

(*i*) Cotton Textiles
(*ii*) Silk Textiles
(*iii*) Pottery
(*iv*) Woollen Carpets and Blankets
(*v*) Leather Footwear
(*vi*) Basketry
(*vii*) Brass and Copperware

2. This survey was conducted in two parts. One was a General Survey carried out in every village, and the other was a Special Survey undertaken at the following selected places noted for these handicrafts :—

(*i*) Cotton Textiles at Maunath Bhanjan, District Azamgarh
(*ii*) Silk Textiles at Mubarakpur, District Azamgarh
(*iii*) Pottery at Khurja, District Bulandshahr, and Chunar, District Mirzapur
(*iv*) Woollen Carpets at Shahjahanpur and Woollen Blankets at Muzaffarnagar
(*v*) Leather Footwear at Kanpur
(*vi*) Basketry at Allahabad
(*vii*) Brass and Copperware at Varanasi

3. The General Survey was conducted by the Planning staff, *viz.*, Block Development Officers, Assistant Development Officers (Industries), Assistant Development Officers (Panchayats), Panchayat Inspectors, Village Level Workers and Panchayat Secretaries to whom training was imparted by the regional Deputy Superintendents. A draft Village Schedule for collecting the desired information had been circulated by the Registrar General, India in February, 1960. Its printed copies in Hindi together with instructions were supplied to districts by the middle of 1961. Regional Deputy Superintendents remained in close touch with the work and undertook the scrutiny of filled-up Schedules. The information contained in the Schedules was processed and analysed in the Social Studies Unit at Lucknow for being utilised in the writing of monographs.

4. Investigators were appointed for the Special Survey. The Village Schedule was adopted with necessary modifications. It was decided to fill up one Schedule for every establishment except where it was impracticable on account of the large number of establishments. In such cases it was thought sufficient to conduct the Survey on Stratified Random Sampling basis, covering 150-250 randomly selected units. Samples were drawn from the Housclist after correcting it through an actual count in *mohallas*.

5. This volume has three Sections, *viz.*, Pottery Industry in Uttar Pradesh, Pottery Industry at Khurja, district Bulandshahr and Pottery Industry at Chunar, district Mirzapur. Shri C. L. Sharma, investigator collected the data in 1961-62 by filling up Schedules of all units engaged in the manufacture of pottery wares at Khurja in district Bulandshahr and Chunar in district Mirzapur. Shri R. C. Sharma, Deputy Census Superintendent, of the Uttar Pradesh Civil Service, personally visited both centres for acquiring first-hand knowledge of these handicrafts. He is responsible for supervising the investigation, analysing the data and drafting the report. The draft monograph was revised by him in the light of comments received from Dr B. K. Roy Burman, Officer on Special Duty (Handicrafts and Social Studies) in the office of Registrar General, India.

6. Opinions expressed and conclusions reached by the author of this monograph are based on the results of the investigation. They are his own and do not reflect the views of Government in any way.

P. P. Bhatnagar
Superintendent of Census Operations,
Uttar Pradesh.

Lucknow :
The 27th May, 1964.

ACKNOWLEDGMENT

This monograph is based mainly on the material and data collected at the spot. In addition, the following publications were consulted :—

(*i*) *A Monograph on the Pottery and Glass Industries of the North-Western Provinces and Oudh*, 1895 by H. R. C. Dobbs ;

(*ii*) *A Monograph on Pottery and Glass Manufacture in the Punjab*, 1899 by C. J. Halifax;

(*iii*) *The Industrial Arts of India*, 1884 by G. C. M. Birdwood ;

(*iv*) *Notes on the Industries of the United Provinces*, 1890 by A. C. Chatterjee ;

(*v*) *District Gazetteer of Bulandshahr*, 1903 by H. R. Nevill ;

(*vi*) *Introduction to Silicate Industries*, by H. N. Bose ;

(*vii*) *Modern Pottery Manufacture* by H. N. Bose ;

(*viii*) *Making Pottery Figures*, 1961 by Marjorie Drawbell ; and

(*ix*) *A Review of Khurja Pottery Industry*, 1962 by Pottery Development Officer, Khurja.

My indebtedness to the above works is gratefully acknowledged.

I am beholden to those engaged in the pottery industry, for their spontaneous co-operation in supplying the information utilised in bringing out this monograph.

I am grateful to Shri C. L. Sharma investigator who collected the data at Khurja and Chunar and also rendered valuable assistance in drafting out the report, to Sarvashri Lal Krishan Tabulation Officer and Lakhan Singh Statistical Assistant for their valuable suggestions, to Shri Ramesh Chandra Sharma for some of the photographs, to Shri Hari Mohan Singh for typing out the monograph and to Sarvashri G. T. Keswani Statistical Assistant and Jagdish Prakash proof-reader for their good work at the printing stage.

I have to thank Mrs. Ruth Reeves, Honorary Adviser (Handicrafts and Social Studies) in the office of Registrar General, India for the photographs supplied by her and Dr. B. K. Roy Burman, Officer on Special Duty (Handicrafts and Social Studies) for his valuable suggestions in drafting the monograph.

Lastly, I express my deep gratitude to Shri P.P. Bhatnagar, Superintendent of Census Operations, for his valuable guidance and constant encouragement without which this assignment could not have been completed.

R. C. SHARMA

SECTION I

POTTERY INDUSTRY

IN

UTTAR PRADESH

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MAP

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Map of Uttar Pradesh showing number of workers engaged in pottery industry in rural areas 1

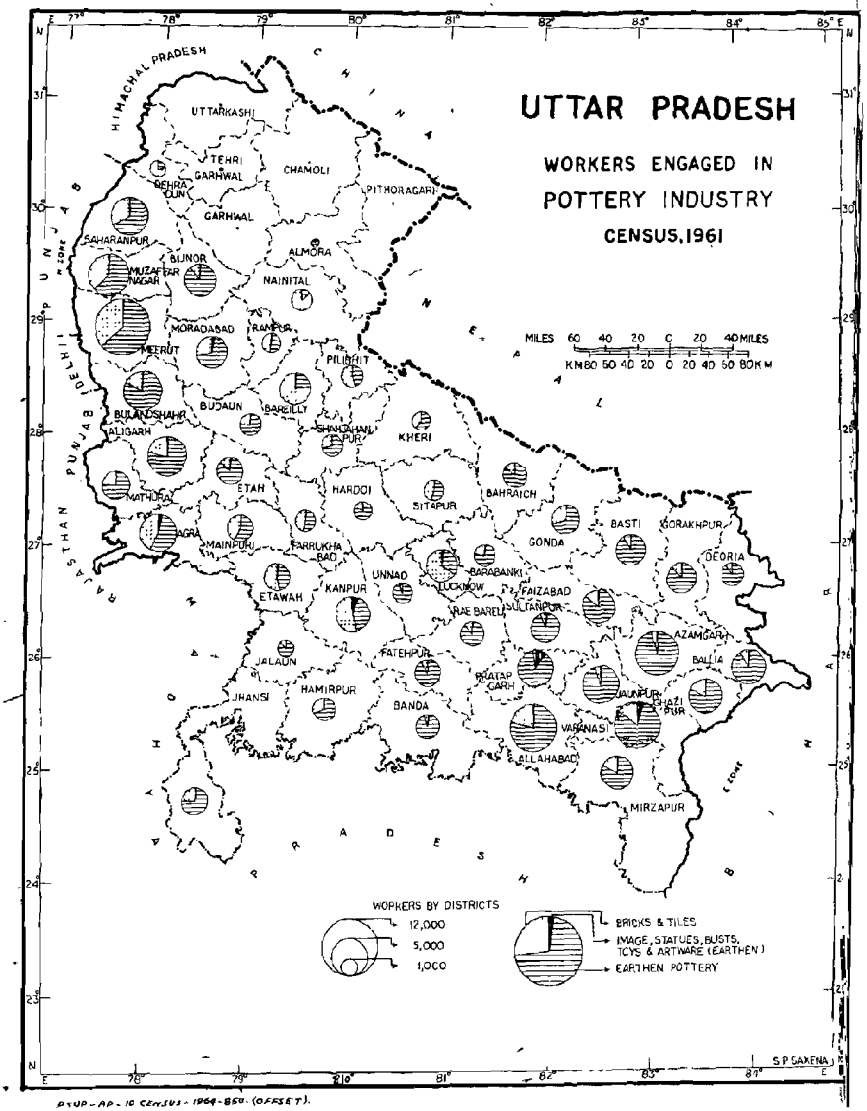
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CHAPTER I

INTRODUCTION

"Truest to nature, in the directness and simplicity of its forms, and their adaption to use, and purest in art, of all its homely and sumptuary handicrafts is the pottery of India . . ."[1]

"The want of a pot was felt almost from the very beginning of things—since there was a keeper and since there was anything to keep. The necessity for such a thing was felt in the very nebulous stage of the world, when the gods and demons combined to churn the ocean for its wealth. That fierce churning yielded many precious things, among which was the nectar to make the gods immortal for all time. Something was now needed to hold the nectar. Viswakarma, the celestial artificer, pondered and took out from each of the assembled gods a bit of the *kala* or spirit with which their bodies are made, and moulded it into a pot, perhaps the first of its kind in the world. From *kala* came the Sanskrit word *kalasa* or water-pot."[2]

Another story is that "Siva, ever thoughtful for the happiness of the world, felt the need of a pot for the requisite ceremonies on the occasion of his marriage with Sati, the manifested Primordial Energy. The moment was critical. So he took out a bead from his necklace, and out of it created a man and out of another he created a woman, and bade them forthwith to prepare a *kumbha* or water-pot. This was the origin of our Kumbhkar or potter caste, abbreviated into Kumhar."[2]

Whatever be their origin, the earthen vessels have been playing an important part in the day-to-day life of almost everyone irrespective of caste and creed. Some of the utensils are also used on various occasions connected with the traditional ceremonies and customary observances throughout the life cycle of a man.

Among the Hindus, an earthen vessel becomes defiled if touched by a *shudra* or if something has been eaten off it or it has been touched by lips in the process of drinking water from it. Also if it is touched by filth, it cannot be purified again. When a birth or death takes place within a Hindu house, all the earthen vessels have to be discarded because according to custom they become polluted beyond purification again. "The Hindus have a religious prejudice against using an earthen vessel twice, and generally it is broken after the first pollution, and hence the demand for common earthenware in all Hindu families." Earthen utensils for cooking purposes are not used except by the low caste Hindus on account of their poverty. These vessels are, however, more popular among the Mohammedans, who have a common belief that those who use earthen vessels in their houses are visited with respect by angels. Common red earthen vessels for domestic use of the poorer classes are manufactured in almost every village and town by the Kumhars.

Dobbs[3] had divided pottery trade into five branches, namely, the manufacture of rude red pottery, of rude glazed pottery, of painted and unglazed coloured wares, of ornamental pottery painted and glazed, and of clay models. According to the Standard Industrial Classification adopted by the Government of India, the pottery industry is covered by the following Code numbers of Minor Groups :—

Code Number	Minor Group of Industry
340	Manufacture of structural clay products such as bricks, tiles
350	Manufacture of earthenware and earthen pottery
355	Manufacture of earthen images, busts and statues
356	Manufacture of earthen toys and art-wares except those covered by Code No. 355

A general survey of the pottery industry in the State was carried out by collecting information through the agency of the Planning Department. A Hindi version of the questionnaire received from the office of the Registrar General of India was sent to the districts. These questionnaires were filled by the Village Level Workers or Panchayat Secretaries in the villages where pottery industry was found. Potters working in the urban areas were not covered by this Survey. The information contained in these schedules was utilised. In addition the information contained in Table B-IV Part C, showing Industrial Classification by Sex and Divisions, Major Groups and Minor Groups of persons at work other than cultivation, which was prepared in connection with the 1961 Census was also drawn upon.

Special study of the pottery industry at Khurja and Ghunar was taken up separately in a more elaborate manner.

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1. George C. M. Birdwood: *The Industrial Arts of India Part II*, 1881, Page 386.

2. T N. Mukherji: *Monograph on the Pottery and Glassware of Bengal*, 1895.

3 H. R. C. Dobbs: *A Monograph on the Pottery and Glass Industries of the North-Western Provinces and Oudh*, 1895.

CHAPTER II

WORKERS ENGAGED IN THE CRAFT

Filled-in Schedules in respect of the pottery and earthenware handicraft were received from all the 54 districts. The following table shows districtwise the number of villages surveyed, the number of households and workers engaged in the craft :—

District	Number of villages surveyed	Number of households	Number of workers			Number of households work ng		
			Persons	Males	Females	Co-operation	Own houses	Employers' workshops
1. Uttarkashi	4	9	13	10	3	..	9	..
2. Chamoli	1	1	4	2	2	..	1	..
3. Pithoragarh	2	5	9	9	..	..	5	..
4. Tehri Garhwal	4	11	42	23	19	..	11	..
5. Garhwal	1	1	2	1	1	..	1	..
6. Almora	8	85	227	118	109	..	85	..
7. Naini Tal	6	16	55	34	21	..	16	..
8. Bijnor	85	437	1,269	713	556	..	437	..
9. Moradabad	287	1,224	3,156	2,022	1,134	..	1,224	..
10. Budaun	67	285	892	632	260	..	285	..
11. Rampur	64	260	622	375	247	..	260	..
12. Bareilly	120	435	1,241	801	440	..	435	..
13. Pilibhit	60	438	1,548	932	616	..	438	..
14. Shahjahanpur	33	185	305	195	110	.	185	..
15 Dehra Dun	16	64	137	83	54	..	64	..
16. Saharanpur	119	451	1,140	690	450	..	451	..
17. Muzaffarnagar	353	1,663	4,639	2,097	1,942		1,657	6
18. Meerut	437	2,468	6,662	3,961	2,701	..	2,468	..
19. Bulandshahr	264	1,187	3,204	1,856	1,348	..	1,180	17
20. Aligarh	347	1,360	3,626	2,080	1,546	..	1,360	..
21. Mathura	43	232	658	382	276	..	232	..
22 Agra	86	381	1,151	664	487	..	381	..
23. Etah	33	169	497	303	194	.	169	.
24. Mainpuri	74	298	767	467	300	..	298	..
25. Farrukhabad	72	359	910	551	308	.	359	..
26. Etawah	104	581	1,273	771	502	..	581	..
27 Kanpur	115	536	1,117	682	435	.	536	..
28. Fatehpur	270	927	2,617	1,616	1,201	..	927	..
29. Allahabad	145	690	2,208	1,197	1,011	..	690	..
30. Jhansi	119	451	1,140	690	450	..	451	..
31. Jalaun	130	485	1,116	629	487	..	485	..
32. Hamirpur	38	401	1,039	583	456	..	401	..
33. Banda	373	1,640	4,402	2,501	1,901	..	1,640	..

	District	Number of villages surveyed	Number of households	Number of workers			Number of households working in		
				Persons	Males	Females	Co-operation	Own houses	Employers' workshops
34	Kheri	147	500	1,490	864	626	..	500	..
35.	Sitapur	126	456	1,243	774	469	..	456	..
36.	Hardoi	35	197	509	297	212	..	197	..
37.	Unnao	168	631	1,940	1,291	649	..	631	..
38	Lucknow	190	516	1,628	958	670	..	516	..
39.	Rae Bareli	384	1,356	3,435	2,032	1,403	..	1,356	..
40	Bahraich	146	631	1,165	729	436	..	631	..
41.	Gonda	318	1,128	2,967	1,697	1,280	..	1,128	..
42.	Bara Banki	77	257	739	430	309	..	257	..
43.	Faizabad	465	1,916	5,451	3,007	2,444	..	1,916	..
44.	Sultanpur	696	2,165	6,101	3,655	2,446	..	2,165	..
45.	Pratapgarh	356	1,038	3,152	1,987	1,165	..	1,038	..
46.	Basti	334	1,251	3,126	1,756	1,370	..	1,251	..
47.	Gorakhpur	212	1,258	3,849	2,111	1,738	..	1,258	..
48.	Deoria	154	829	2,404	1,343	1,061	..	829	..
49.	Azamgarh	299	1,409	4,999	2,732	2,267	..	1,409	..
50.	Jaunpur	584	2,337	6,996	3,952	3,044	21	2,316	..
51.	Ballia	196	1,154	3,504	1,957	1,547	..	1,154	..
52.	Ghazipur	188	715	2,668	1,457	1,209	..	715	..
53.	Varanasi	14	86	265	144	121	..	86	..
54.	Mirzapur	12	82	247	142	105	..	82	..
	Total	8,966	37,557	105,773	61,575	44,198	21	37,513	23

As is seen, the total number of adult workers engaged in this craft has been recorded as 105,773 out of whom 61,575 (58·214 per cent) are males and the remaining 44,198 (41·786 per cent) are females. The child workers have not been counted though they assist their parents and render allied services at various stages in the craft. The data were collected for adult workers only.

The districts where the craft is concentrated are Sultanpur (696 villages with 6,101 workers), Jaunpur (584 villages with 6,996 workers), Faizabad (465 villages with 5,451 workers) and Meerut (437 villages with 6,662 workers). In the hill districts, the number of villages where pottery is practised is very small, because of the non-availability of the required clay. The districts having the smallest number of villages and potters are Garhwal (1 village and 2 workers), Chamoli (1 village and 4 workers), Pithoragarh (2 villages and 9 workers), Uttarkashi (4 villages and 13 workers), Tehri Garhwal (4 villages and 42 workers), Naini Tal (6 villages and 55 workers), Almora (8 villages and 227 workers) and Dehra Dun (16 villages and 137 workers).

Out of 37,557 families engaged in pottery, 21 families work in co-operation, 37,513 families work in their own houses and only 23 families are employed in the workshops of others. Generally, the number of potter families in a village is very small. Every family works independently of the other family. As a rule, only members of the same household work together for production of earthenware on a cottage scale. It is only rarely that a potter works in the workshop of another potter. Similarly, there is little scope for co-operative societies in the village pottery industry.

The following statement based on Table B-IV Part C of 1961 Census indicates the number of workers engaged in various branches of pottery in the State on March 1, 1961 :—

Name of District	Workers engaged in Manufacture of				Total
	Bricks and Tiles (Code No. 340)	Earthenware and Earthen Pottery (Code No. 350)	Earthen Images, Dusts and Statues (Code No 355)	Earthen Toys and Artware, except those covered by Code No. 355 (Code No. 366)	
1. Uttarkashi	..	13	..	.	13
2. Chamoli	.	8	..	..	8
3. Pithoragarh	.	9	..	..	9
4 Tehri Garhwal	..	81	..	..	81
5. Garhwal	..	11	..	..	11
6. Almora	1	221	2	..	224
7. Naini Tal	1,523	205	4	..	1,732
8. Bijnor	463	3,584	8	2	4,057
9. Moradabad	1,073	2,614	57	22	3,766
10. Budaun	408	1,342	..	1	1,751
11 Rampur	661	702	..	17	1,380
12. Bareilly	2,545	1,230	2	14	3,791
13 Pilibhit	1,043	301	..	1	1,345
14. Shahjahanpur	501	1,251	.	..	1,752
15. Dehra Dun	799	208	..	..	1,007
16 Saharanpur	1,797	3,720	..	12	5,529
17. Muzaffarnagar	2,562	4,252	..	8	6,822
18. Meerut	4,384	7,647	5	26	12 062
19. Bulandshahr	1,046	4,750	..	..	5,796
20. Aligarh	1,257	4,486	4	6	5,753
21. Mathura	754	2,486	3	27	3,270
22. Agra	2,324	2,908	145	54	5,509
23. Etah	383	2,278	44	1	2,706
24. Mainpuri	1,159	1,615	3	..	2,777
25. Farrukhabad	784	900	..	1	1,685
26 Etawah	1,397	1,171	..	27	2,595
27. Kanpur	2,509	1,940	249	26	4,724
28. Fatehpur	244	2,416	..	..	2,660
29. Allahabad	1,765	6,472	..	27	8,264
30. Jhansi	674	2,146	..	9	2,829
31. Jalaun	112	930	..	12	1,054
32. Hamirpur	601	1,336	..	1	1,938
33. Banda	118	2,261	1	7	2,387
34. Kheri	505	798	..	..	1,303

Name of District	Workers engaged in Manufacture of: Bricks and Tiles (Code No. 310)	Earthenware and Earthen Pottery (Code No. 350)	Earthen Images, Busts and Statues (Code No. 355)	Earthen Toys and Artwares except those covered by Code No. 355 (Code No. 356)	Total
35. Sitapur	692	837	..	9	1,538
36. Hardoi	274	1,058	..	..	1,332
37. Unnao	82	1,386	..	2	1,470
38. Lucknow	2,463	1,165	21	56	3,745
39. Rae Bareli	261	1,937	..	4	2,202
40. Bahraich	318	1,869	1	4	2,192
41. Gonda	963	2,164	..	..	3,147
42. Bara Banki	305	1,394	..	2	1,761
43. Faizabad	605	3,668	15	12	4,290
44. Sultanpur	159	2,977	..	4	3,170
45. Pratapgarh	122	4,670	172	..	4,967
46. Basti	304	3,218	..	7	3,529
47. Gorakhpur	425	3,244	..	3	3,672
48. Deoria	209	1,744	..	..	1,953
49. Azamgarh	316	7,492	10	35	7,853
50. Jaunpur	267	5,083	..	5	5,355
51. Ballia	423	4,153	1	..	4,577
52. Ghazipur	795	3,581	..	2	4,378
53. Varanasi	1,245	6,775	414	36	8,470
54. Mirzapur	718	3,312	7	5	4,042
Total	44,448	128,290	1,467	527	174,733

Out of the 174,733 workers, about 25.44 per cent are engaged mainly in the manufacture of bricks and tiles, 73.42 per cent in that of earthenware and earthen pottery, 0.84 per cent in that of earthen images, busts and statues and the remaining 0.30 per cent in that of earthen toys and artwares.

The following statement shows the rural and urban distribution of workers under the four Industrial Groups in the State :—

Manufacture of	Rural: Workers at Household Industry M	Rural: Workers at Household Industry F	Rural: Workers at Non-household Industry M	Rural: Workers at Non-household Industry F	Urban: Workers at Household Industry M	Urban: Workers at Household Industry F	Urban: Workers at Non-household Industry M	Urban: Workers at Non-household Industry F	Total
1. Bricks and Tiles	3,355	590	23,227	4,290	483	94	10,674	1,735	44,448
2. Earthenware and Earthen Pottery	82,428	29,115	2,625	412	9,537	2,713	1,467	133	128,290
3. Earthen Images, Busts and Statues	241	523	407	..	43	129	121	1	1,468
4. Earthen Toys and Artwares	40	70	21	1	177	93	106	19	527
Total	86,067	30,298	26,280	4,733	10,040	3,059	12,368	1,888	174,733

Out of the total 174,733 workers, 147,378 (84.345 per cent) are in the rural area and the remaining 27,355 workers (15.655 per cent) are in the urban area. About 77.121 per cent of the workers are males and 22.879 per cent are females. In the rural area, 76.231 per cent of the workers are males and 23.769 per cent are females but in the urban area 81.916 per cent of the workers are males and the remaining 18.084 per cent are females. In the rural area, 78.957 per cent of the workers are engaged in household industry but in the urban area, only 47.885 per cent of workers are in the household industry. In the urban area, the percentage of workers in non-household industry (52.115) is much higher than that in the rural area (21.043). A big percentage of workers (74.1) is naturally engaged in the pottery work as a household industry.

Distribution of Workers by Caste

The following statement based on the information collected from the filled-in Schedules shows the distribution of various communities engaged in making potteryware :—

Name of Caste	Number of Villages	Number of Families	Total Number of Adult Workers		
			Persons	Males	Females
1. Kumhar	8,939	37,362	105,371	61,351	44,020
2. Kasgar	15	119	226	125	101
3. Bachat	1	1	1	1	.
4. Dom	1	1	1	1	.
5. Kolta	1	2	6	3	3
6. Pangru	1	1	5	3	2
7. Pasi	1	1	1	1	.
8. Sethi	1	5	24	9	15
9. Shilpkar	3	59	127	71	56
10. Mehravisht	1	1	2	1	1
11. Hankia	2	5	9	9	.
Total	8,966	37,557	105,773	61,575	44,198

Kumhar or Kohar (Sanskrit *Kumbhakara*, a maker of jars) is the main community engaged in this craft. About 99.48 per cent of the families having about 99.5 per cent of the workers engaged in the craft belong to this community. They are also called *Prajapati* at some places probably because the functions of Brahma, the creator of human beings, and the Kumhar, the maker of the clay toys, are similar—the only difference being that Brahma creates beings of flesh and blood whereas the Kumhar makes articles of clay. They have perhaps adopted this high sounding caste name to elevate their social status. According to Dobbs[1] the Kumhars were found to be divided into 773 endogamous sub-castes. The most important of these were the Chikbais or the 'bais of the wheel'; the Bardiya (from Hindi *bard*, an ox) who carry their clay on oxen; the Gadhaiya or Gadher (from Hindi *gadha*, a donkey) who carry their clay on donkeys; the Gola (from Hindi *gol*, round) who make round-shaped vessels; the Kanaujiyas, who trace their origin to Kannauj; the Mathuriya, who trace their origin to Mathura; the Purbia who have originated from the eastern parts of the State; the Kanpuria, the Jaunpuria, the Delhiwala, the Lucknawwa who trace their ancestors as original residents of Kanpur, Jaunpur, Delhi and Lucknow respectively. Inter-marriages take place within these castes, of course, subject to certain limitations and reservations.

"There are various traditions of the origin of Hindu Kumhars. According to one, they are born of a Vaisya woman by a Brahmin father. According to another, the father was a Malakara gardener, and the mother a Chamar; while a third states that the ancestor of the caste was begotten of a Teli (oilman) woman by a Patukara or weaver of silk cloth; one sub-caste, the Chaudhaniya Misra, claims to have descended from a Kshatriya mother and a Brahmin father."

Other communities engaged in the craft are the Kasgar in districts Gonda, Bara Banki, Fatehpur, Rae Bareli and Lucknow, Hankiya in district Pithoragarh, Mehravisht in district Garhwal, Sethi and Shilpkar (Scheduled Caste) in district Almora, Pasi (Scheduled Caste) in Lucknow, Pangru in district Fatehpur and Barhai, Dom, and Kolta in district Dehra Dun. In Tehri Garhwal, the Kumhars are known as Bith-Kumhars. They are not Doms. The word *Kasgar* denotes a goblet-maker and is applied to a Mohammedan Kumhar. The word *Hankia* is derived from Hindi *handi*, an earthen pot. The Pasi, Shilpkars, Doms and

1. Dobbs: *A Monograph on the Pottery and Glass Industries of the North—Western Provinces and Oudh*, 1895.

Koltas are Scheduled Castes The Shilpkars are also known as Doms. How the name Dom became associated with this race is unknown. All these castes manufacture almost the same type of earthenware, which are used by all alike.

Thus various castes work as potters, the dominant community being the Hindu Kumhar. Out of the 8,966 villages surveyed, 8,939 villages are of Kumhars, the number of their families being 37,362 with 105,371 adult workers—61,351 males and 44,020 females—engaged in the craft. The social status of a Kumhar is low. He is treated like any other artisan in the village. He does not belong to the Scheduled Caste but the caste is backward because of poverty and illiteracy. The higher castes accept water touched by a Kumhar even though they would not accept food. A Brahmin can cook pukka food in the Kumhar's kitchen after getting it washed, cleaned and purified and then eat it there. The Kumhar can sit on the *charpoy* of the higher castes without any objection. He would not accept water or food touched by a member of the Scheduled Castes.

While describing the Kumhar, Birdwood has observed, "He is, in truth, one of the most useful and respected members of the community, and in the happy religious organisation of Hindu village life there is no man happier than the hereditary potter, or *kumhar*.

"We cannot overlook this serenity and dignity of his life if we would rightly understand the Indian handicrafts man's work. He knows nothing of the desperate struggle for existence which oppresses the life and crushes the very soul out of the English working man. He has his assured place, inherited from father to son for a hundred generations, in the national change and state organisation, while nature provides him with everything to his hand, but the little food and less clothing the needs, and the simple tools of the trade. The English working man must provide for house rent, coals, furniture, warm clothing, annual food, and spirits, and for the education of his children before he can give a mind free from family anxieties to his work. But the sun is the Indian workman's co-operative landlord, coal merchant, upholsterer, tailor, publican and butcher; the head partner, from whom he gets almost everything he wants, and free of all cost but his labour contribution towards the trades union village corporation of which he is an indispensable and essential member. This atonce relieves him from an incalculable dead weight of cares, and enables him to give to his work, which is also a religious function, that contentment of mind and leisure, and pride and pleasure in it for its own sake, which are essential to all artistic skill."[1]

The usual dress of a Kumhar is a loin cloth extending up to the knees, a *saluka* (a sort of jacket) and a loosely tied turban on the head. The womenfolk wear a small coloured shirt, a coloured *lehanga* (a sort of voluminous pleated skirt extending up to the knees) and an *orhani* (a sort of coloured scarf about 2½ yards in length) for covering the head. Some of them have started wearing the *dhoti* in place of the *lehanga* and the *orhani*. The Kumhar is notable for the peaceableness of his disposition. He would never pick up a quarrel with any one. It is only rarely that he would come to courts for getting his grievance redressed. All the disputes of the caste are settled in the *biradari* (caste) *panchayat* the decisions of which are binding, usually on pain of excommunication from the caste.

Dobbs had observed: "Musalman potters, roughly and inaccurately called Kasgars, numbered 10,189 at the last Census (1891) and are divided into 52 sub-castes. They are confined chiefly to the Meerut and Rohilkhand Divisions, the largest number 2,550 being found in the district of Bijnor. In Oudh, the only districts containing a considerable number are Lucknow and Bara Banki. Their circumstances present no feature of interest."[2]

As a result of the Survey, only 226 adult Kasgars (125 males and 101 females) were found engaged in the craft. The small number may be due to several reasons. First, Dobbs has referred to the total population of Kasgars whereas in the Survey only the adult workers engaged in pottery have been accounted for. Secondly, the possibility of change of occupation cannot be ruled out, especially when pottery as practised in the villages is not a profitable occupation. Thirdly, it seems that the Kasgars are concentrated in the urban areas, which were not covered by the Survey.

As observed earlier, about 58 per cent of the workers in pottery are males, the remaining 42 per cent being females. It is notable that in the 5 families of Sethis working in a village of district Almora 9 workers were males and 15 workers were females. In other communities the number of males is greater than that of the females. Among the Hankia, the Pasi, the Dom and the Barhai, no female works as a potter.

The town potter is an independent worker, having his own or rented house, paying for the clay which he brings from the nearby ponds, and asking for a cash price for his vessels which he might sell to a wholesale merchant or to an itinerant dealer or himself in retail. Usually he has no ancillary occupation and has to depend entirely on pot-making and sale of the finished products. During the rainy season he is forced to have his kiln under a roof. If the weather continues to be inclement over long spells, pot-making comes to a standstill. Some of the Kumhars get engaged in transporting manure or other articles on the back of their donkeys or oxen.

The village potter generally combines agriculture with his main occupation of making potteryware He has the position of a village craftsman. He sells his products to some people on payment in cash but mostly supplies the potterywares in lieu of customary dues and presents on various occasions. The sale is generally local in character. Before the abolition of the Zamindari system in the State, some of the potters used to

1. G. C. M. Birdwood. *The Industrial Arts of India*, 1884.

2. H. R. C. Dobbs: *A Monograph on the Pottery and Glass Industries of North-Western Provinces and Oudh*, 1895

hold a piece of land rent-free from the landlord to whom they used to supply *gratis* all the vessels needed for household use and all sorts of vessels on all ceremonial occasions such as marriage, birth or death. In other cases, after each harvest he used to get a fixed amount of grain from his *jajmans* (clients) to whom he used to supply earthenware from time to time according to a stipulated scale. He had the customary right of digging free of charge the clay needed by him. In the opinion of Birdwood, "the cause of all his (potter's) comfort, of his hereditary skill and of the constitution under which his marvellous craftsmanship has been perfected is the system of landed tenure which has prevailed in India, and stereotyped the social condition and civilisation of the country from the time of the Code of Manu." After the abolition of the Zamindari system, generally the cultivators give him fixed customary dues in kind (grain weighing 10-20 seers at the end of every *fasal*) and take from him *koonds* (earthen mangers) for feeding the cattle in, *gharas* (earthen pitchers), *matkas* (big earthen vessels for storing grains or *rab*), *handias* (smaller earthen vessels for storing grain, pulses or milk and ghee), *karva*, an earthen vessel with a spout for drinking water or in connection with puja on the occasion of *Karva Chauth*, *chilams* for the hookah, earthen lamps especially on the occasion of Diwali festival and so on. Customary perquisites are also given to the Kumhar on the occasion of festivals or ceremonies especially when he is required to supply the vessels. Villagers who are not the *jajmans* of the potters on the above basis have to make payment in cash or in kind. The Kumhar would not charge anything from the other village artisans who in turn do not charge anything from him for the services rendered by them to him. For example, the village carpenter or blacksmith would not charge anything from him for supplying to him articles of ordinary daily use and the washerman would not charge anything for washing his clothes. Whatever products remain unsold are carried by the potter to the periodical markets, *hats* and bazars for being sold either for cash or for grains. The articles prepared by him are also sometimes sold in the towns for cash payment either in retail or to the wholesale purchasers.

Hired labour is not ordinarily needed by the village potters, except sometimes in the case of manufacture of tiles or bricks. The average family consists of the father, two sons and one or two women. The men go to the pond, dig the clay, transport it to the house and knead it thoroughly for bringing the requisite amount of plasticity to it. They fashion the vessels either by throwing at the potter's wheel or by beating the clay with a mallet, as in the case of pitchers and *matkas*. The women and children ornament the vessels with lines and tracery, colour them when required and also sometimes take the finished products for sale. At various stages of manufacture they keep these articles in the sun and then remove them. The raw products are arranged in the kiln invariably by the men because the process requires much skill After the utensils have been baked and the kiln has cooled, the women help the menfolk in taking out the utensils. The potter's wheel is invariably rotated by the potter or his grown-up sons, but never by a woman. The process of rotating it with the help of the stick needs labour and exertion; besides, shaping the wares requires an expert hand. The womenfolk do not, therefore, operate the wheel and shape the wares. By custom also it is considered inauspicious for the females to operate the potter's wheel. It would, they say, bring disaster to the family.

No formal training is imparted to the workers in the various processes of pottery. The skill is hereditary. Ever since his childhood, the potter boy goes on working in the various processes of pot-making. Thus, it is by prolonged training inside the house that he picks up the work slowly but certainly.

The Khadi and Village Industries Commission, Kanpur has taken up the work of organising the village potters into co-operative societies, introducing modern techniques in common pottery so that articles of better quality could be produced at cheaper cost, and ultimately raising the standard of living of the workers engaged in the craft. In the Third Five Year Plan the Commission has plans for organising 35 Potters' Co-operative Societies as follows :—

Year	Number of Societies
1961-62	15
1962-63	10
1963-64	5
1964-65	3
1965-66	2

MAIN CENTRES OF POTTERY-MANUFACTURE

The centres known for pottery in the State are Khurja in district Bulandshahr, Chunar in district Mirzapur, Nizamabad in district Azamgarh, Chinhat in district Bara Banki, Amroha in district Moradabad and Rampur. Khurja was known in the past for its traditional blue pottery but now it is the most important centre of white pottery production. Similarly Chunar has been known for its traditional red clay pottery with a dark brown glaze but here too production of white pottery has been introduced with the initiative of the Industries Department. The pottery of Nizamabad is a brown or black ware picked out with designs in white. "The black or brown colour is imparted by a smoking process and the ornamentation in white lines is effected with silver foil or more commonly with an amalgam of mercury and tin let into the vessels before they are placed in the kiln. The effect is rather pretty. The articles turned out are *huqqas* and *chilams*, tea sets and vases, plates and *surahis* or goblets. . . . The Nizamabad art is neither high not pure, but the ware is good enough both for use and for decoration in middle class homes."[1] Thirty families were reported to be engaged in pro-

1. A. C. Chatterjee : *Notes on the Industries of the United Provinces*, 1908.

duction of potteryware at Nizamabad. Toys, images and goglets are mainly manufactured at Amroha. Lucknow is known for the production of clay toys. White potteryware are produced at Rampur on a small scale. Tuitional classes for imparting training in the art of pottery have also been organised by the Industries Department at Rampur.

The Planning Research and Action Institute, Lucknow has established a small unit at Chinhat for experimentation in and production of white potteryware. The Institute has also set up a Pilot Project Centre in village Gaura, district Lucknow.

In 1961-62, the Industries Department started a Pottery Centre in the Industrial Estate at Bhimtal, district Naini Tal. Training in the making of pottery wares commenced from July, 1962. Training is being imparted in the manufacture of unglazed red clay wares of the type used at present for collecting resin and glazed red clay wares like toys and statues. These will be made from the clay found in abundance at Bhimtal and other nearby localities. It is also proposed to impart training in making white clay pottery wares such as tea-sets and porcelain toys. After completion of their training, the trainees can set up their own workshop with assistance and guidance from the Industries Department. A stipend of Rs. 25 p.m. is given to encourage the trainees. In course of time a Common Facility Centre would also be established there for supplying processed raw materials to the workers and providing facilities for firing the products in the furnaces of the Centre.

CHAPTER III

Raw Materials

The main raw material used in making common pottery is mud or clay. There are many varieties of clays, such as, primary clays, secondary clays and fusible clays. Primary and secondary clays are used in making fine earthenware, stoneware and porcelain while fusible clays are used for making common pottery. These clays generally fuse at a low temperature because they contain a large proportion of silica and fluxes, such as, lime, iron, soda and potash. These substances combine at a lower temperature and form fusible silicates which melt down at a high temperature.

Two types of clay are commonly used—the light red or dark yellow and the so-called *kali mitti* (dark grey clay). The first is available in every district either on the surface of the ground or a few feet below it. It absorbs little water, and is light, silicious, easy to manipulate, and capable of being made very smooth. It burns to a light red colour. It is used for manufacturing small articles such as cups, saucers and earthen lamps. In some districts it is also known as *pili mitti* or yellow earth. According to Dobbs, in district Pratapgarh it is known as *piara*, in Bareilly as *dhandora*, in Hamirpur as *padua*, in Sultanpur as *gaiwan*, in Allahabad as *parir*, in Kheri as *gohna* and in Lucknow city as *chhuki*.

The second type of clay has a dark grey colour; black clay is rarely to be found. It is found at the bottom of every village pond. It is ductile and tenacious and burns to a dark brick red, producing very strong earthenware. It is commonly used for making large vessels which have to be worked up after leaving the wheel, and also for vessels such as cooking pots, which are subjected to heat and hard wear. *Nand*, *ghara* and *handia* are prepared from this clay. According to Dobbs, in districts Budaun and Aligarh it is called *chikka milti*, in Hardoi, Bulandshahr, Rampur, Moradabad and Agra *chikna mitti*, in Basti *Lasar*, in Almora *chapeo kalo mato*, in Hamirpur *kabar mar*, in Banda *mar* and in Kheri *sehna*.

Other types of clay are found in some other districts. "Thus in Bareilly, a whitish clay used for glazed ware is called *pateri mitti*. In Benares (now Varanasi), *kandai* a light grey clay, is made into tiles. For the ornamental ware of Nizamabad, Azamgarh, a whitish flaky clay found at the bottom of one small pond and called from the place *Bhairopur ki mitti* is used. The Chunar ware is made from two special clays, called *nakti* and, *khasi*; in Garhwal *chopari mati* is the name of a pink adhesive clay, and in Rae Bareli *pindrohi* is a whitish earth. The light brittle vessels of Amroha are made from a tenacious black clay called *gwalchana* and the porous goglets of Agra from a grey friable clay called *chila*."*

In almost every district, coloured earth dissolved in water is applied to the earthen wares, before these are baked, for giving them brighter colour. In the submontane tracts of the Himalayas it is called *banni* or *lal mitti*. It turns somewhat pinkish white when baked. Sometimes *geru* (red ochre) or *surkhi*, obtained from powdered pieces of broken earthenware, is used as colouring material.

The clay used to be dug out by the village potter from the village ponds or waste lands free of charge. After the abolition of Zamindari system in the State, however, in most of the cases the potters have to make the stipulated payment for the clay either to the Gaon Samaj or to the owner of the pond, under whomsoever's control the source of clay might have been. In some cases they still do not make any payment but in lieu thereof supply to the owner of the source of clay his requirements of earthenware without any charges, as they used to do before the abolition of Zamindari system.

The black clay and the yellow clay are stored in separate heaps outside or inside the house of the potter. When it has dried after an exposure of 2-3 days, it is pounded with a heavy wooden pounder called *moongri* and then sifted through a big sieve known as *chhalna* or *hanga*. In some districts the clay is ground in a handmill, called *chakki*. Sifting is also sometimes done through the strings of a *charpoy* held up slanting, instead of the sieve. The pieces of coarse clay are dissolved in water. The powdered clay is added and the whole clay is worked up into a stiff paste by kneading it again and again with hands. The clay paste is wedged with a common sickle called *hansya* or with a two-handled bow-shaped slicing instrument called, *lasur*, *pashi*, *pansu*, *pansura* or *matcheni*. Some potters do not use the slicing instruments. Instead, they knead the clay only with their feet and hands. Similarly some potters do not pay adequate attention to pounding and sifting of clay; the sieve is seldom used, the powdered clay being sifted through fingers only.

During the process of kneading, substances necessary for altering the consistency of the clay, or strengthening it or making it crack-proof on drying or firing are added and thoroughly mixed. Sand is added to stiff clays so that the clay might become more plastic and the risk of breakage in baking might be minimised. Sometimes a light clay is mixed with a stiff clay for making the latter easy to work with. The proper admixture is sometimes determined by making test vessels and finding out if they crack on exposure to the sun. Wood or cow-dung ashes, sifted in a sieve, are sometimes added to the clay during the process of kneading. Sifted sand or ashes are also used during the process of shaping of wares so that the clay does not stick to the hands or the implements used in the process.

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*Dobbs: *A Monograph on the Pottery and Glass Industries of the North-Western Provinces and Oudh*, 1895.



A potter preparing clay for manufacturing earthenwares

—*Photo by Ramesh*



A village potter busy in manufacturing *kulhars*

—Photo by Ramesh

Some potters also mix some other substances with the clay for making it tougher. Horse or mule dung are sometimes added; some potters add a paste of gum acacia, *belgiri*, brown paper and cotton-wood. A bigger proportion of sand is mixed in the clay used for making *gharas* (pitchers) and *surahis* (goglets), so that the water stored therein might stay cool. Salt and saltpetre are also mixed, though rarely, with the clay for increasing the cooling potential of water-storing vessels.

After the clay has been properly kneaded it is turned into round balls about 10-12 seers in weight called the *pind*, or *lounda* and stored for a day or two in a cool, shady place so that its superfluous moisture might disappear and it might become ready for the wheel. Usually, at one time clay is prepared which is enough for preparing vessels which are to be fired together in one batch. The clay is plastic when wet and is capable of retaining the shape when dried.

The subsidiary raw materials used in common pottery are colouring materials like *geru*, *kabiz* clay, lac and borax for painting the earthenwares and toys. *Ramras khariya* clay when mixed with gum gives a *badami* (almond) colour and simple *khariya* mixed with gum gives a white colour after baking or firing. Gum and *khariya* are mixed in the ratio of 1:16. For ordinary colourings or paintings on pitchers and other vessels, *kabiz* clay or geru or other colours mixed in water are used.

Dung cakes or wood are used as fuel for baking or firing the utensils in the potter's kiln called *awa*. Wood, as a fuel, is costlier and hence dung cakes are ordinarily used; they are easily available in the village. In fact all the raw materials are easily available locally in the villages where pottery is practised. Sometimes, when the village shopkeeper does not store *geru*, ordinary colours, lac, borax and saltpetre, these are obtained from the nearest town. The cost involved is small.

CHAPTER IV

TOOLS AND IMPLEMENTS

The primitive type of potter's wheel made of stone, cement or clay to shape the wares, a wooden stick to rotate the wheel, a cotton string to detach the wares from the wheel, a baked clay pot to keep water in it, clay moulds (if the potter makes toys), wooden moulds for making tiles (*khaprails*), the wooden pestle and mallet, a wooden slab, a brush and scrapers are all the tools and implements used by a potter to work with.

Most of the earthenware, with the exception of large vessels, toys, a few ornamental wares, water goglets are prepared on the potter's wheel by the throwing method. A lump of prepared clay is put at the centre of the wheel which is rotated with a *lathi* or *danda* and the Kumhar begins shaping the wares with his delicate but trained fingers

The potter's wheel, or *chak* as it is commonly called, is made either of clay or stone or cement or wood. In the villages, however, the one made of clay is commonly used. The wheels are of three types. The commonest variety is the single wheel made of clay mixed with other substances such as the hair of goats, cotton, flax, or donkey's dung, so that it might become too strong to get broken easily. Sometimes, it is reinforced with cross pieces of wood under its surface. The diameter of the wheel varies between $2\frac{1}{2}$ and 3 feet and its thickness between 3 to 4 inches. The weight is from $1\frac{1}{2}$ to 2 maunds. In the centre of the wheel a square slab of stone is let in a small $\frac{1}{4}''$ deep groove on the under surface. An axle or *kili* or *killa* or *dhuri*, usually made of tamarind wood, is fitted in a square hole in the centre of a big wooden block or thick stone slab known as *chaupat* as also *patharı*, *pawai*, *pirhai*, *chopar*, or *chameta*. On the upper surface of the wheel are one or two notches near the circumference of the *chak*, inclined towards the centre at an angle of 45° to the surface The centre of the wheel is placed on the tamarind *kili* (which is fixed in the stone slab), with the *kili* fitting in the groove in the lower surface of the *chak*. The turning stick, which is about 3 feet long, is fitted in one of the notches on the surface of the wheel which is then rotated by the potter. The stick is usually made of bamboo and is called by various names such as *danda*, *chareti*, *chulakar chakait*, *chaketi*, lathli, *jhagannai* and so on. Initially, the wheel is spun round by hand and then the *danda* is fitted in one of the notches, the potter holding the end of the stick with the left hand and the upper end thereof with the right hand, over the centre of the *chak*, which is thus spun round in a well-balanced manner. The impetus given at a time is sufficient for keeping it spinning for 5 to 10 minutes, during which time the clay is "thrown" on the wheel and wares are shaped. The *chak* remains raised about 6 inches above the ground on its tamarind wood pivot. When the wheel begins to slow down, the potter stops the 'shaping' work and sets it going again with the help of the *danda*. Lot of working time is lost when the shaping work is stopped due to slowing down of the potter's wheel.

A clay wheel takes about 4 days in preparation by the potter himself. It lasts for about 6 years. A stone wheel, prepared at Mirzapur, Agra and other towns, lasts for generations and costs about Rs. 25 or so. It varies in diameter from 2 ft. to 4 ft. The smaller *chak* is lighter in weight and can be used by the younger generation or for preparing smaller articles such as *hundas*. The big size *chak* can be used only by the grown-up potters; articles of bigger size are generally prepared on it. The stone wheels are becoming more popular because of their durability.

The *kunda* is reported to be used by some of the Hundairia potters of district Hamirpur. It is a clay disc with a slight hollow in the centre of its lower surface to which a small hemisphere of lac is attached. The hemisphere is a substitute for the axle. The disc rotates on a slab of stone or wood resting on the ground.

Moulds are ordinarily of three kinds—first, the mould on the exterior of which big water troughs and flower pots are roughly shaped; secondly, a hollow mould in which some wares are prepared in two separate parts, to be joined together afterwards; and lastly, the mould inside which raised patterns and shapes are made.

The first type of mould is an egg-shaped or dome-shaped earthen vessel and is called the *sancha*. While using it, sifted sand or fire wood ashes are sprinkled over its surface; then clay is spread over it by the workman who then beats it well with the *thapi*. The mould with the structure of clay over it is exposed to sun for about 3 hours after which the mould is pulled out of the clay case. The opening in the clay through which the mould is extricated is greatly widened, leaving behind an irregular oval vessel with an enlarged mouth. This is beaten into shape with the help of the pestle and the mallet, and is then exposed to sun, taking care to ensure that the round shape of the opening does not become irregular.

The basin-shaped moulds are used for shaping the *badhna* or spouted vessel used by the Mohammedans for ablutions and the *surahi* (water goglet). Some prepared clay is turned into a flat piece which is then manually pressed into the shape of the mould, thus giving the lower half of the vessel. Similarly, the upper half is made by pressing some clay round the inside of another mould with the potter's fingers. The two halves are joined together with moist clay. In the case of *badhna*, the spout which is prepared separately is similarly joined to the main body. In the case of *surahi*, the bottom-stand and the portion are prepared separately on the *chak* and then joined to the ware. Thus the *surahi* is prepared in 4 parts which are joined together. For *surahi* having a handle, the latter portion has to be prepared separately. While being joined with moist clay, the portions to be joined should have the same moisture content.

The third type of mould is used for preparing toys or flat pieces of ornamentation such as a leaf or a flower which is to be attached to the surface of a vessel. A little sand or fire ashes are sprinkled in the interior of the mould and then the clay is pressed into the mould with the workman's fingers. The two portions of a toy, thus prepared in the mould, are joined together. After they have dried, the toy is smoothed and finished. For preparing flat pieces of flowers and leaves required for ornamentation, only a single half mould is required.

All the moulds are prepared by the potters themselves.

Other tools and implements used by the potter are as follows :—

The cutting string, called *chhewan, dora* or *taga*, is generally wound on a piece of reed. It is used for separating the "thrown" ware from the clay lump on the rotating wheel. The string is gently drawn through the clay at the point where it is to be cut. For separating large vessels from the lumps, sometimes a thick knife is also used.

The pestle and mallet are used for rounding, enlarging and giving proper shape to larger vessels, such as a pitcher or a *handi* which can only be roughly shaped on the wheel. The pestle is an earthen convex disc with a round handle and the mallet has the shape of a thick flat ladle with a slightly concave side The pestle is held by the left hand against the inside portion of the vessel to be shaped. The potter holds the mallet in the right hand and deftly taps, with its concave side, the ware at the portion below which the pestle is held. The clay is beaten to the desired shape. The pestle is known as *pindi, beniar* or *kundari* and the mallet as *thapa, thapi, thapni, thapara* or *pitan*.

During the process of shaping by the pestle and the mallet, the ware is held up in a concave rest, called *anthra, athri*, or *chin*, which is made of clay or else is only the lower half of an old pitcher.

Water in a *handi* (jar) is kept just near the wheel so that the potter may wet his hands in it as he works. The piece of reed, with the cutting thread wound round it, remains soaked in the water in the *handia*.

Patri is a wooden plank or stone slab on which clay is kneaded immediately before use. A wooden *patri* is also used by the workman to sit on when he works at the wheel.

Bowls, goglets and some other earthenware are scraped and smoothened before being baked but after they have dried for a few hours. They are fixed on the wheel once again and are scraped with a hollow hemisphere of iron with a circle cut out of its bottom The edges of this circle and the rim of the hemisphere are applied to the outer surface of the ware which is being polished. This scraping instrument is called *khurta*. In addition to it, an iron blade called *chelni* or *chilai* is also sometimes used for scarping after which the final polish is given by pressing against the rotating ware either an earthen cup or a shell (*sippi*), or a stone or a piece of cloth.

At some places incised ornamentation is done on the goglets for imparting them a fancy look. This is done with the help of a thin pointed chisel called the *niharni* (made of steel), before the vessel is baked.

The red-coloured earth *Kabiz* is applied to the earthenware with a brush or a piece of cloth.

CHAPTER V

Design and Technique of Production

Country potters have been producing pitcher, *handua, gagra, kunda,* flower pots, *kulhar, nand,* (manger), cups, *chilam, surahi* (goglet), *deepak, khaprail* (tile), jugs, plates, toys etc. since long. These articles have traditional designs. The shape of toys is the self-indication of designs. As a general rule, all the articles made on the potter's wheel are oval or round in shape.

Except *khaprail* (tile) and toys, all the utilitarian articles are prepared by almost all the potters. Districts Unnao, Aligarh, Etah, Etawah, Bareilly, Farrukhabad, Jalaun, Hardoi, Bahraich, Kheri, Meerut, Jaunpur, Gonda, Lucknow and Rae Bareli are noted for making clay toys while Jalaun, Jhansi, Hardoi, Sitapur, Bahraich, Meerut, Saharanpur, Jaunpur, Sultanpur, Gonda, Lucknow and Rae Bareli have been noted for making *khaprail.*

All the designs followed by the village potter are traditional. The Central Design Centre, Lucknow and its branches prepare some designs of artware for being supplied to the production units.

Oval and round articles are generally prepared by the throwing method. The prepared clay is thoroughly kneaded by the Kumhar on a *patri* and then he places it in the centre of the *chak* after wetting the latter with water. The wheel is then set in motion. He raises the clay with both hands and presses it again. The raising and pressing of the clay is repeated many times to make it more homogeneous and workable. The potter then proceeds to give shape to the soft clay by his skilful fingers. He inserts the thumbs of both his hands into the lump of clay and presses outside with the ball of each thumb in opposite directions until a symmetrical basin in the top of the lump has been carved out. After this, his fingers begin working on the outside surface of the basin and he pulls up the rim evenly alround, gradually narrowing the diameter. Time and again during the process of making, he immerses his hands in water and applies the wet hands to the ware. Small and simple vessels such as *piala,* plate, *hunda, diwa, gilas,* small *gamla,* small *handia, chilam* etc. are prepared and finished on the wheel. About 6 articles can be prepared before the wheel is rotated again. Each ware when ready is severed from the lump with the *taga* (thread) and kept apart for drying.

A *ghara* or a *handia* cannot be completely prepared on the *chak.* On the potter's wheel, only a sort of cylinder of moist clay slightly bulging in the middle but without a bottom is prepared. The bottom position has to be joined to it with kneaded clay. Sifted cow dung ash or sand is sprinkled on the ware and it is beaten into proper shape with the pestle and the mallet. After the required shape has come up, the ware is allowed to dry for a couple of days after which a solution of common yellow earth is applied to it with a piece of cloth. After it has dried for another day, a solution of the rust-coloured earth *kabiz* or *geru* is applied to the upper half either with a brush or a piece of cloth. After drying for another day or two the *ghara* or *handia* are ready for the kiln. A coating of clay is sometimes given over the bottom of pots to give them extra strength. Sometimes, circles of black or white colour are made on the ware by revolving it on the wheel. Sometimes, crude paintings in black lines or white flowers are made on the *gharas.*

Semi-circular and heavy articles such as *nand* and *kunda* are prepared by lining or coating a mould with clay. The mould is smeared with sand so that it may leave the ware easily. To spread the clay lump on the mould, a wooden *thapi* is used.

After the wares have been prepared and dried they are arranged in the kiln called the *awa* everywhere except in Gathwal and Varanasi where it is known as *aurh* and *kaur* respectively. It is a simple circular pit, about 3 feet deep and 8 feet in diameter, dug in the ground either outside the potter's house or inside, in the courtyard. The material used for firing is *uplas* or *kandas* (dung-cakes) with straw and sweepings. In the hill areas pine leaves are used as fuel. Wood is more expensive. At the bottom of the *awa,* a layer of ashes about 3 inches thick is left. The dung cakes are arranged so as to stand up on their edges. The wares are placed on the *uplas* in layers, each layer being separated from the other by *uplas,* with their mouths downward, slightly inclining towards the centre. Small wares are enclosed in pans, so that they might not break. The whole pile has a conical appearance. It is covered over with dung, then with sweepings and straw and finally with clay. Several holes are bored in the covering all round the pile. The fire is applied from below. If the flames are pale, the heat is considered too slow and the holes are closed but if they are greenish the heat is considered too strong and the holes are opened. Usually, the utensils take about 24 hours in baking during summer and about 36 hours in rains. A big-sized *awa,* which can hold about 500 vessels, may require a firing of 2-3 days duration while a small-sized *awa* might be burnt for a night only. The size of the *awa* differs according to the need. When the fire has subsided and the *awa* has cooled, it is opened and the vessels are taken out with care and caution. The loss during baking varies from 10 per cent to 40 per cent. The factors responsible for such a heavy loss are want of proper care in the preparation of the clay and the ware and the primitive type of *awa* in which heat cannot be regulated.

The kiln for baking fine wares is called a *bhatti* which has been described separately in the monograph on pottery industry at Chunar and Khurja.

Plate No. 3



A potter in district Dehra Dun busy in manufacturing earthenwares
—Photo by Ramesh

[redacted]

COLOURING

Black colour is sometimes given to *surahis*, hookahs, *chilams* and oil vessels. Generally, mustard or linseed oil is smeared on these vessels before they are baked. Goat's dung, chips of deodar wood, straw, chaff etc. are added to the cow dung fuel in the kiln for producing copious smoke which thoroughly permeates the body of the wares, thereby giving a smooth black colour and greater strength to the wares. In some districts, lamp-black mixed with gummy water is applied to the unbaked vessel. After baking, an inferior black colour is produced. Some potters grind black pebbles in a *chakki* (grinder), mix the powder with gum or paste and then apply it to the unbaked vessel, such as *ghara*, with a brush or a finger for drawing crude patterns, which are of a dark-brown colour before baking but turn black on baking.

The terra-cotta (dark brown) colour is produced by applying to the unbaked vessel the rust-coloured earth known as *kabiz* mixed with mustard oil. The red ochre (*geru*) mixed with gum acacia is also applied to unbaked vessels, giving a salmon colour after baking. Similarly, the plum colour on hookahs is obtained by mixing *kharya mitti* with a coloured earth, in the ratio of one to two.

Toys and crude figures of deities are painted, after baking, in gaudy colours. These articles have to be given a white colour first.

CHAPTER VI

Cost of Production

The articles produced by the Kumhars consist of *gharas, mat* or *matka, handi* or *handia, surahi* or *jhajjhar, gilas, badhna, tawi, tabak, rakabi, piala, tashtari, martaban, dahauni, kulhar, shakorey, kurat* or *kunda, nand,* hookah, *chilam, chirag, diya, gamla, khaprail* and so on.

The *ghara* is used as a domestic vessel for keeping and cooling water by all the communities. Its cover is called *chapni.* Besides this, amongst the Hindus it is used on various ceremonies connected with marriage. The new *ghara* is made into a *ghat* or *kalas* when puja of various gods and goddesses such as Ganesh, Lakshmi, Brahma, Vishnu and Shiva is done. On other auspicious occasions, too, a *ghara* full of water is part and parcel of the ceremony. During the *shaptapadi* ceremony also a *ghara* full of water has to be kept under the wedding canopy. Its presence is necessary for a valid marriage according to the Hindu customs. The *ghara* is also sometimes used for carrying liquid articles, such as, sugarcane juice or milk or water from one place to another.

The *ghara* breaks in no time as a result of a fall. Ordinarily, its average life is 6 months even though it can last for years if handled with care. After one summer, the cooling power of the *ghara* disappears; it becomes dirty beyond cleansing and is, therefore, discarded or directed to other uses, such as storing grains.

The cost of production of a *ghara* of an average size comes to 5 nP. only but it is sold for about 25 nP., giving a margin of 20 nP. per *ghara* which includes the wages of the producer and the interest on the capital involved. It is difficult to state correctly as to how many *gharas* can be manufactured by one potter in a day because he prepares various wares of varying size every day. On a rough average, one workman can produce about 20-25 *gharas* a day, thereby earning about Rs. 4 to Rs. 5 in a day.

The *mats* and *matkas* are used for storing and cooling water for mass consumption, such as, the *piyao* or *sabils*, places where cold water is supplied to everyone free of charge, at the instance of some person or charitable institution. Hindus set up a *piyao* and the Mohammedans a *sabil* during the summer. The man who meets the cost of these arrangements is supposed to be earning the gratitude of thirsty people. These wares are also used for storing grain, *gur, rab, sheera* etc. They cannot be prepared by the throwing method. Not more than 2-3 *matkas* can be prepared by one workman during one day, on an average. The sale price varies from Rs. 2 to Rs. 2.50 nP. and the cost of production varies from 40 nP. to 50 nP. per *matka.* The difference of Rs. 1.60 nP. to Rs. 2 includes the wages of the worker.

The *handis* or *handias* are of varying size. Its cover is known as *chapni.* The poor among the Mohammedans and the Hindus cook *dal* or vegetables in a *handi*; the village shopkeeper stores various articles for sale in his shop in *handis*; these are also used for boiling milk on cow dung fire for hours together, after which it is made into curd from which butter is finally prepared by the process of churning. On ceremonial occasions, too, such as marriage, death and festivals, *handias* are used. The cost of producing a *handia* is the same as that of a *ghara.*

The *surahi* or *jhajjhar* is used only for storing and cooling water. Like the *ghara* it is also made of various sizes. The common form has a round body with a long narrow neck. The upper portion of the body usually has carvings of leaves and flowers. The body is made in two moulds, the mould of the upper portion having designs of leaves and flowers stamped on it, which appear on the *surahi* in relief. The moulded halves are joined horizontally in the middle. The neck and the bottom stand, too, are prepared separately on the wheel and then joined to the round body. Protuberanees in joints are scraped off. Some Kumhars also prepare *surahis* with flattened sides and a handle to hold it with. *Surahis* are used by people of all communities. In the villages, however, the use of *gharas* is more common and hence the village potter does not usually manufacture *surahis.* Potters living near or in the towns usually prepare these in large numbers especially just before the advent of summer.

On an average, one Kumhar can prepare 25-30 *surahis* a day. The cost of the material involved comes to 5 nP. and the sale price of a *surahi* is about 25 nP. The income per *surahi* comes to 20 nP., thereby yielding from Rs. 5 to Rs. 6 to the potter per day.

The earthen *gilas* (tumbler) is used for drinking water from the *surahi* or the *ghara.* It is used only by the Mohammedans because the Hindus believe that earthenware is defiled beyond purification when it has been touched by human lips in drinking from it. Ordinarily, the *Kasgars* prepare the *gilas.* It is shaped on the wheel and is quite simple and easy to make. One Kumhar is able to prepare about 800 *gilas* in a day.

Similarly, the *badhna* is used only by the Mohammedans for ceremonial ablutions before prayers. It has a spout and a sometimes handle also. A large number of *badhnas* are usually found kept in every mosque. It is prepared in the same way as the *surahi.*

The *tawi* is used for cooking *roti.* It is a flat plate, just like the iron *tawa,* on which *roti* (bread) is placed and baked This too is used by the Mohammedans only.

The *tabak* and *rakabi* are round flat dishes, some times with raised sides. A *rakabi* is smaller in size. The *tabak* is used for serving rice or other food; it is bigger than a full plate. These wares are used only by the Mohammedans. The *rakabi* costs 6 nP. to 12 nP.

and the *tabak* costs 37 nP. to Re. 1.25nP. per piece according to the size.

The *piala* (cup) and *tashtari* are also used by the Mohammedans only for drinking soup, milk, tea etc. The *piala* is without a handle. These articles are prepared by the throwing method on the *chak*. A potter can easily prepare about 1,000 of each in a day.

A *martaban* is a small deep jar with an elongated body, which is used by all for keeping pickles and acid articles. About one dozen of these can be made in a day.

The *dauhani* is a *handi* for keeping and warming milk. Ghee is also stored in it. The *kulhar* is used by *halwais* and milk-sellers for giving sweets, curds or milk to the customers. The *kulhar* is thrown away by the Hindus after use. An average potter can make about 1,000 *kulhars* in a day, by the throwing method, on a *chak*. They are sold @ Rc. 1 per 100 and the cost of production comes to 25 nP. per 100. The *shakorey* are also used by the *halwais* and milkmen. Their cost of production and margin of profit thereon is as in the case of *kulhars*.

The *kunal* or *kunda* is used to knead flour in the household of Mohammedans or low caste Hindus. They closely resemble the brass *parat* used in Hindu households. They are prepared by beating the clay with a *thapi* (mallet).

The *nand* or *kund* is used as feeding trough for the cattle as also receptacle for water by masons, for dyes by dyers, and for such other purposes. They are prepared by hand. Only 3-4 can be turned out in a day. The cost of material in a *nand* is about 75 nP. and the sale price is about Rs. 2.25 nP. per item.

The hookahs or hubble-bubbles are generally made by the Kasgars. Some of the hookahs have the *chilam* or tobacco-holder joined on to the body of the hookah which holds water, but commonly the *chilam* is separate from the hookah (the water-holder). The hookah and *chilams* are of various shapes and designs.

The *chirag* or *diya* are used by Hindus for illuminations during the Diwali or on some other festive occasions. These are also used for lighting houses. A *chirag* of $3\frac{1}{2}$" diameter costs one naya paisa but is sold for 6 nP.

The *gamlas* or flower-pots are prepared partly on the wheel and partly by beating with the *thapi*. A *gamla* costs 10 nP. but it is sold for 50 nP.

The *khaprails* cost about Rs. 5 per 1,000 but are sold @ Rs. 22 per 1,000.

In the villages, it is only in some cases that nominal payment for clay has to be made. Dung-cakes and colour are the main items of cost. Mostly, it is the labour involved in preparing the articles that is rewarded.

One potter of Lucknow district pointed out that he prepared 1,000 *kulhars* per day. In addition to the labour involved he has to spend about 0.75 nP. on the clay and Rs. 1.25 nP. on the fuel. Thus he spends about Rs. 2 on the *kulhars*, which are sold for Rs. 10 @ Re. 1 for 100 *kulhars*. His profit comes to Rs. 8 per 1,000 *kulhars*. Every third day, a clamp can be fired. Thus 11 clamps can be fired in a month. The monthly income would, therefore, be about Rs. 80 allowing 10 per cent for breakage. And then, all sorts of articles are put in the *awa* at a time. For about 4 months in a year, the potter cannot produce any earthenware, because of rains. The average monthly income from pottery, therefore, comes to Rs. 50 per worker. The price of earthenware during rains goes up. This income is sometimes supplemented by taking resort to subsidiary occupations. The average price of earthenware has gone up considerably but the cost of living too has gone up, and the real earnings of the potter have remained more or less unchanged. It is not a profitable occupation. The potter is just able to support his family ; it is difficult for him to save anything for the rainy day. He has to borrow, whenever any out-of-schedule expenditure has per force to be incurred. He is willing to shift to any occupation where he can earn a little more, which clearly shows that he is living on a lean margin of profits. Whenever a Kumhar has enough money he becomes a contractor or a carrier, thereby adding to the number of Kumhars who are not engaged in pottery. Actually speaking, there is not much scope for expansion in the pottery trade.

CHAPTER VII

MARKETING

Common pottery is in demand both in the villages and the towns. Earthenware are in greater use by the poor. In most of the villages, Kumhars fulfil the requirements of earthenware of the villagers. Potters living in the towns or vicinity thereof produce articles for the use of the townsmen also. In the villages, payment is not made in cash, but in the form of grain after the *rabi* and the *kharif* harvests. The amount of grain to be paid by every household is fixed. The potter has to supply each and every article required by the household. Generally, *nand*, *handiya*, *ghara*, *chilam*, *matki* etc. are supplied by the Kumhar for domestic use. On ceremonial occasions, articles like *shakorey*, *tashtries*, *kunda*, *matka*, *deepak*, *bholwa*, *kulhar* etc. are supplied. Articles are produced by the potter according to the fluctuating needs of the village. They also execute the orders of the people at short notice. The potters also sell their products for payment in cash or kind either at their own house or in the nearby markets. It is not feasible to carry the earthenware for sale to long distances.

The earthen vessels are considered clean when fresh from the kiln. They would not be polluted even if touched by a member of the Scheduled Caste. But once they have been put to use, say by pouring water therein, they can be defiled by the touch of such people. Hence, strict Hindus make purchases of their requirements of earthenware before the rains set in; consequently, the demand for earthenware goes up considerably in the month of March.

Some Mohammedans hold that earthenware prepared by Hindu potters are not clean and hence before using such a vessel they would purify it by chanting the *kalma* over it. As mentioned by Dobbs, before using a new pot, ladies belonging to the Sunni sect would say, "*Tal ki mitti, Kumhar ka chak, Nabi ke kalme se hua hai pak*", that is, the clay of the tank and the potter's wheel have been purified by the verse of the Prophet. The Shia ladies purify the earthenware similarly by saying a verse from the Koran.

The Mohammedans often prefer earthen cooking utensils to those of brass reputedly for the reason that the Prophet had ordained that "who keep earthen vessels in their houses are visited with respect by angels." The lower halves of the cooking pots (*handia*) are covered with a paste of mud and chopped straw so that they might not crack easily and might last long. Hence the demand for cooking earthenware is greater among the Mohammedans.

The higher caste Hindus eat off and drink from earthen vessels only once, after which these are thrown away. The *ghara*, *surahi* and *mat*, however, continue to be used. So far as possible, a Hindu keeps brass vessels. A larger number of earthenware is, however, in demand by Hindus on the occasion of festivals and ceremonies.

The village potters also sell their pottery in nearby markets, *hats*, bazars and *paintis*, on cash payment generally but on payment in terms of grain sometimes. Donkeys serve as the medium of transport. Sometimes the earthenware are transported on the head or by bullockcarts also. Transport charges have to be paid only when a cart is engaged.

Thus the Kumhars prepare earthenware for meeting the needs of the people within a radius of 3-4 miles. The vessels are not transported over long distances. The articles are manufactured according to the fluctuations of the limited demand. The market for the wares cannot be expanded.

CHAPTER VIII

Conclusion

The common pottery wares have been produced by the village potters since long. There is a steady demand for objects of common utility such as *gharas, matkas, surahis, handias, kulhars, sikoras, chilams,* hookahs and so on. The cultivators use the big *matkas* for storage of grain, and the shopkeepers for holding their merchandise. The poor people use earthen utensils for the preparation of their food. The wealthier Mohammedans are increasingly taking over to chinawares for eating and drinking but the poor continue to use the earthenware. There is no substitute for the *chilams.* The earthen hookah is more popular amongst the Mohammedans and the lower classes among the Hindus. Thus more or less there are no good substitutes which might replace the earthenware. The demand for these can increase with the increase of population. Otherwise, there is no possibility of streching it up, as can be done in the case of other articles. The market for earthenware is quite limited, the articles that are produced being sold ordinarily within a radius of 3 to 4 miles. They cannot be transported to longer distances without heavy breakage. Also, the cost of transport would be much more than the price of the articles.

The Khadi and Village Industries Commission has been taking some steps to develop the village pottery industry by organizing the potters in co-operative societies, advancing them loans for the development of the industry and for finding out ways and means for reducing the cost of production. In the Third Five Year Plan, the U. P. Khadi and Village Industries Board has a scheme of organising 35 co-operative societies of potters and spending an amount of Rs 3,061,840 on the development of this craft. As a result of this scheme it is estimated that 20,256 persons will get wholetime employment and 7,970 persons part-time employment and there would be an increase of Rs. 21,702,550 worth of pottery products.

The U. P. Khadi and Village Industries Board came into existence in 1961 with its headquarters at Kanpur. The resposibility of developing the pottery industry in the State now devolves on this Board. Loan and grant is given to deserving potters by the Board. The efforts of the Board are generally projected towards the development of brick kilns, glazed pottery units, and manufacture of tiles.

The Planning Research and Action Institute (P.R.A.I) Lucknow has set up a Pilot Project in village Gaura for (a) evolving a small kiln in which the cost of firing might be very cheap (b) evolving and supplying to the potters a jigger-jolley operated by foot just like a bicycle (c) provision of a common facility centre for supply of 'body', glaze and clay to the potters and (d) organising a sale centre and advancing requisite amount of loan. A P.R.A.I. type kiln costing about Rs. 1,500 has been evolved with the following advantages :—

(1) Economy of labour, in so far as only two persons are required for loading, firing and unloading the kiln.

(2) Less damage is caused to saggars.

(3) As a rule the wares are well-baked and undamaged.

This kiln can be used even as a substitute for the *awa,* where about 10 per cent damage usually takes place. The foot-operated jigger jolley moves 300 rounds per minute and about 3-4 maunds of 'body' can be turned into finished products in an hour. It is eminently suitable for preparation of cups, saucers, *kundi* etc. It costs only Rs. 400.

There is little scope for the development of common earthenwares prepared by the potters in the villages. The result is that either the potters are taking to other occupations, either in a principal or in a subsidiary capacity, or they are being trained and absorbed in the production of Chinaware as at Khurja, Chinhat, or Gaura.

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SECTION II

POTTERY INDUSTRY

AT

KHURJA

District Bulandshahr

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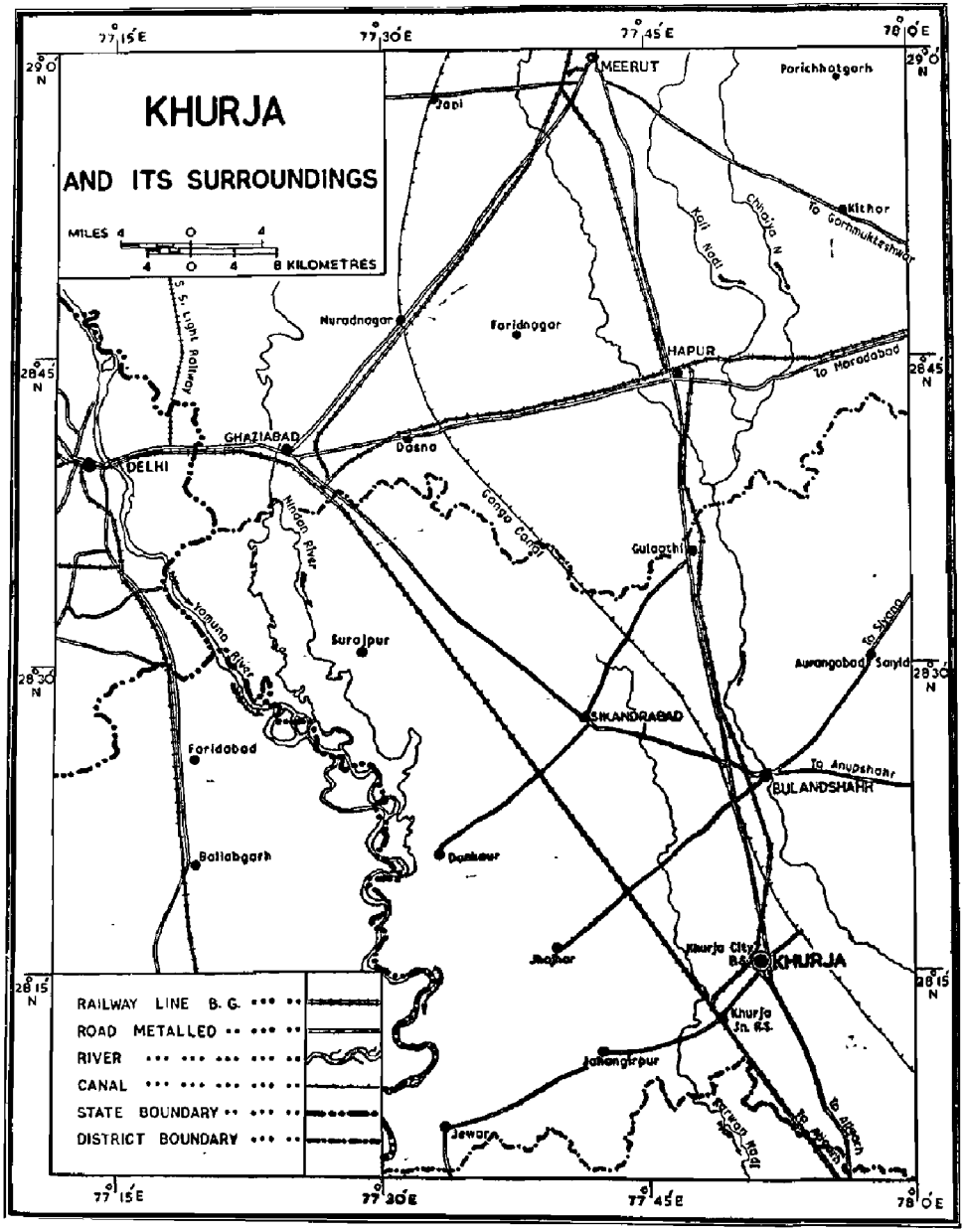
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KHURJA
AND ITS SURROUNDINGS
MILES 4 0 4
4 0 4 8 KILOMETRES
77° 15' E
77° 30' E
77° 45' E
78° 0' E
29° 0' N
28° 45' N
28° 30' N
28° 15' N
MEERUT
Parichhatgarh
Hapur
Kithor
To Garhmuktesher
Kali Nadi
Chhoija N
Nuradnagar
Faridnagar
To Moradabad
S. S. Light Railway
GHAZIABAD
DELHI
Dasna
Ganga Canal
Hindon River
Gulaothi
Yamuna River
Suraipur
To Shikoo
Aurangabad Sayid
SIKANDRABAD
Faridabad
To Anupshahr
BULANDSHAHR
Ballabgarh
Dankaur
Jhajhar
Khurja City B.G.
KHURJA
Khurja Jn. M.G.
Jalalpur
Jewar
To Aligarh
RAILWAY LINE B. G.
ROAD METALLED
RIVER
CANAL
STATE BOUNDARY
DISTRICT BOUNDARY

CHAPTER I

INTRODUCTION

Khurja town, the commercial capital of district Bulandshahr, stands on the Grand Trunk Road, ten miles south of Bulandshahr, thirty miles north of Aligarh and fifty miles south-east of Delhi. A metalled road runs south-west from the town to the Khurja Junction station on the Delhi-Kanpur-Howrah line of Northern Railway, a distance of nearly five miles. Khurja City railway station lies on the Khurja-Bulandshahr-Meerut section. At the time of 1961 Census, the town had 5,450 houses with a population of 41,491 persons, consisting of 22,394 males and 19,097 females.

Pottery making is the main industry of Khurja. According to Dobbs, "Bahadurgarh (Meerut) is the original home of the pottery now known as Khurja pottery..."[1] In the Gazetteer of district Bulandshahr also it has been mentioned that the pottery of Khurja traces its origin to the parent manufacturing town of Bahadurgarh.[2]

According to another tradition, the army of Tamerlane which invaded India about six centuries ago contained a large number of civilians including potters, from Egypt, Syria, Turkey and Persia. When returning from India after pillage, the civilians were given the option of settling in this country or marching back with the Army. A few of these potters established themselves in Delhi, Multan, Jaipur, Khurja and other towns around the capital. At Khurja they started making glazed red clay pottery according to the technique followed in their own country. They also prepared building materials such as tiles and minarets in blue pottery and also artwares, such as flower vases and pitchers with beautiful paintings in the Muslim style.[3] This pottery came to be popularly known as Blue Pottery and was patronised generously by the royal and aristocratic families of the nearby imperial city of Delhi. The wares were made of common red clay available from the ponds and coated with engobe as a white background for further decorations, mostly in blue and green. Transparent glaze was then applied to the wares. "They worked unnoticed from one generation to another till 1911 when two potters, known for their inherent skill on potter's wheel, were selected by the British Government to give demonstration in the Coronation Exhibition in London."[3] Thereafter, too, Khurja products had the pride of representing the ceramic art of the country in various international exhibitions.

In 1934, the U. P. Government deputed Prof. H N. Roy, who had returned from abroad, to conduct experiments on the manufacture of white wares. He worked here for a number of years and aroused among local potters the interest for making white wares. In 1942, the U. P. Government set up a factory at Khurja for the manufacture of pottery wares required by the Defence Department. This factory was closed down when the war was over as it failed to produce goods which could compete with products at other places in the country. For utilising the equipment and kilns installed in this factory, a Government Pottery Development Centre was started in 1946 in its place. The assets and liabilities of the factory were transferred to this centre. Potters who had worked in the factory were encouraged to set up their own pottery making units. They could take processed raw material from the Centre and fire their goods in its kilns. Moulds and saggars of the Centre could also be used by them. Technical guidance was also available to them. They were thus enabled to run their units with investment of small capital. The Centre worked as a common facility centre. It was by mere incidence that the Centre was set up at Khurja. In the initial stages only a few units were attached to it. In course of time their number increased and the industry expanded up to 1951-52, after which there was a fall as would be evident from the following figures showing the value of finished wares of Khurja pottery up to the year 1953-54 :—

Year	Value of Finished Wares
1946-47	Rs. 35,000
1947-48	Rs. 40,000
1948-49	Rs. 90,000
1949-50	Rs. 90,000
1950-51	Rs. 91,000
1951-52	Rs. 98,000
1952-53	Rs. 63,000
1953-54	Rs. 63,000

It was felt that the industry could neither expand further nor could there be any improvement in the quality of its products. Consequently, it could not have been possible for it to survive the keen competition from large-scale units within and outside the country. Hence in 1953, Shri T. N. Sharma, the Ceramic Expert who was in charge of the Centre, was deputed to study the working of small scale pottery industry in Japan and also to learn the technique of preparing fine porcelain and then report if it was possible to manufacture fine porcelain on small scale and whether the raw materials required in making it were available in the country. On his return in 1955, he reported that we could make on small scale as fine porcelain as is made in Germany or Japan with our own raw materials provided (1) the entire equipment could be made available and (2) the technique

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CHAPTER II

LABOUR

Pottery industry at Khurja is basically a small-scale industry. Hence the proprietor is not only the entrepreneur and manager but also a worker in the trade, even though he might not be a whole-time technical worker always. The following table shows the number of workers in pottery units :—

Number of Workers in Pottery Units

Units employing	Number of Units	Number of Workers
2-5 Workers	49	202
6-9 Workers	25	176
10-14 Workers	7	85
Total	81	463

About 60·5 per cent of the units employ 2-5 workers each only, 30·9 per cent employ 6-9 workers each and 8·6 per cent employ 10-14 workers each on an average. The number of labourers goes on fluctuating from time to time. All these pottery units are registered with the Government Pottery Development Centre for allotment of raw materials and availability of other facilities. But only three units are registered under the Factories Act. Obviously, a unit is not ordinarily expanded to such an extent as might lead to the application of the Factories Act or assessment of income-tax. Hence units are started in the names of various members of the same family.

Out of 463 workers, including the proprietors who are also workers, 460 were males and only 3 were females. Thus the number of female workers is negligible. They are employed mainly for reducing grog pieces into powder and for carrying clay from the Centre to the pottery. They are non-skilled workers. Besides these females, some womenfolk belonging to the Scheduled Castes are casually employed for transporting raw products from potters workshops to the Centre for firing operations or for carrying fired products from the Centre to the workshop for storage or for transporting body and glaze from the Centre to the potters' workshops. Women are not employed in the glazing and finishing processes as is done in Bengal Potteries, Calcutta. Twenty women, who were trained in the art of ceramic decoration at the Government Central Pottery Training Institute Khurja, have not sought employment in this industry at Khurja. Only one of them, who is a resident of Khurja, casually takes up the work of gold painting on fired pottery on a contract basis. All women engaged in the industry are Hindus by religion.

Out of 463 workers engaged in the industry, 199 (consisting of 169 adults and 30 children) are Hindus and the remaining 264 (consisting of 208 adults and 56 children) are Mohammedans. Thus, 43 per cent of the workers are Hindus and the remaining 57 per cent are Mohammedans.

Only 98 workers were found working in their own units and the remaining 365 workers including 86 children were working in the units of others as employees. Thus 21 per cent workers work in their own units and the remaining 79 per cent workers are employed in the units of others. Also more persons than one of the same household are employed in their own units in 17 units only, of which 5 units are of Hindus and 12 units are of Mohammedans.

The number of part-time and seasonal workers in the industry is very small. Out of the adult labour force, 164 Hindu males and 3 females and 208 Mohammedan males are whole-time workers and 2 Hindu males are seasonal workers. The children engaged fall within the age-group of 9-14 years and are whole-time workers. In addition to this labour force, about 164 more workers belonging to both sexes and communities perform odd unskilled jobs, mostly of a potter, in various units of the industry from time to time. They are employed on daily wages to cope with the pressure of work and are alerted in advance by the potter concerned to work for him on a particular day. The production of crockery is at its peak from November to March and that of electric and scientific goods from January to March. These workers are, therefore, in great demand during these periods.

The workers belonging to the same family working in their own unit are not paid wages separately. Some of them, especially the women and children, extend their helping hand, not in the pottery workshop but at their own residential houses, whenever there is any urgency. The non-family workers get wages for the labour they put in their masters' workshops. They can be categorised as skilled and unskilled workers. Workers who are efficient technical hands by virtue of their training and experience are skilled workers. They are quite dexterous at the use of implements and tools with which they work. The pottery industry at Khurja has approximately 377 skilled workers. Out of them, 81 persons are comparatively highly skilled workers, being fully conversant with the art of pottery manufacture in all its aspects. They are running their own pottery units. Before allowing them to start a pottery unit, the Pottery Development Officer examines them to ensure that they are fully conversant with casting, pressing or throwing, joining and finishing. The skilled workers are expected to perform the following duties :—

1. Shaping of the wares either by throwing or by jolleying method ;
2. Joining together the different parts of wares ;
3. Finishing the products before glazing ;
4. Painting and glazing the products ; and
5. Firing the wares.

The workers working on jigger jolley or throwing wheel, for example, must be well-trained and experienced in the art, otherwise they cannot shape the clay in the desired forms and even the slightest disturbance in the balance of pressure is bound to spoil the whole pot. Similarly, special skill is needed in joining the different parts of a ware or in finishing it, otherwise the product will be of a very poor quality. In the same way, glazing, painting and firing also require special skill and efficiency.

The following persons were reported to be the master craftsmen in the pottery industry :—

	Name of the Craftsman	Unit
1.	Sri Abdul Rahim	Central Pottery
2.	,, Abdul Karim	Standard Pottery
3.	,, Baldeo Prasad Sharma	Kailash Pottery
4.	,, Rashid Ahmed	Rashid Pottery Works, Jama Masjid
5.	,, Sumer Chand	Sumer Chand Pottery Works
6.	,, Abdul Aziz	National Pottery
7.	,, Farid Ahmed	Farid Ahmed Pottery Works, Jama Masjid
8.	,, Mohammed Ibrahim	Ibrahim Pottery Works
9.	,, Abdul Hamid	Hamid Pottery Works
10.	,, Abdul Waheed	National Flower Vases
11.	,, Jaswant Singh	Chemico Porcelain Works
12.	,, Narendra Kumar Bhardwaj	Bhardwaj Pottery Works
13.	,, Ramjilal	Ramjilal Pottery Works
14.	,, Bashir Ahmed	Bashir Ahmed Pottery Works
15	,, Sagir Ahmed	Azad Pottery Works

The unskilled workers are employed for performing functions for which no training or experience is required, *viz.*, as follows :—

1. Transporting raw materials such as clay, quartz, felspar, body and slip from the Development Centre to the potters' workshop ;

2. Transporting raw products from the workshops to the Centre for firing and then transporting back the fired wares to the workshops ;

3. Shaping the wares by casting or pressing method ;

4. Helping the potter in loading and unloading of kilns ;

5. Helping the potter in firing by putting coal into the fire-boxes ;

6. Keeping the saggars near the kiln at the time of loading and shifting them after the kiln has been fired ; and

7. Miscellaneous jobs.

This industry provides employment to about 236 unskilled workers, comprising 86 child workers and 150 adult workers, who are engaged on daily wages from time to time.

APPRENTICESHIP AND TRAINING

The Government Central Pottery Training Institute, Khurja admits 20 persons in Manufacturer's Course and 10 persons in Decoration Artist's Course every year. For Manufacturer's Course, the minimum qualification is Intermediate in Ceramics or Science. For potters, for whom 5 seats are reserved, the minimum qualification is High School. For Decoration Artist's Course the minimum qualification is High School with Drawing. Every applicant is required to give an undertaking on a prescribed form to the effect that he will work at Khurja after the completion of his training. For Manufacturer's Course the candidate should be below 25 years and for Decoration Artist's Course below 40 years. Each trainee is given a stipend of Rs. 25 p.m. for 10½ months only. For the country-wide study tour, railway fare up to the maximum of Rs. 75 per trainee and a daily allowance of 50 nP. per day is also given by the Institute.

For the Manufacturer's Course, the candidate has to select one of the following trades—(*a*) Cups and Saucers (*b*) Tea and Coffee Pots, Milk and Sugar Pots (*c*) Dinner Plates (*d*) Low Tension Insulators including Cut-outs etc. (*e*) High Tension Insulators (*f*) Hospital Wares (*g*) Scientific Wares (*h*) Tiles (*i*) Sanitary Wares (*j*) Dentures (*k*) Artwares (*l*) *Kundies* and Jars (*m*) Footed Bowls etc. and (*n*) Refractory or Insulating Bricks.

For the Decoration Artist's Course, the candidate has to specialise either in oriental, Persian style and modern style of paintings on flower vases or in gold and transfer decoration on crockery. Training in the art of ceramic decoration was imparted to 20 women as well, but the scheme of training women candidates had to be dropped out because the atmosphere of the units is not quite congenial to their employment and also because of certain administrative difficulties during the course of training.

Some trainees have set up their own units either in the town or in the Potters' Colony under the guidance of the Centre whereas some others have sought employment elsewhere, but none of them is engaged as a worker in a local unit owned by some one else because the wages offered are not attractive enough. Out of 100 persons who received training in the manufacturing of pottery, 49 had set up their own units, 18 were found working elsewhere in the pottery industry and the whereabouts of 33 were not known. It appears that the undertaking to work at Khurja after training is not enforced strictly.

The labourers working in the various units are procured locally. They pick up the work in course of time while working in the pottery units. When they pick up the work well, they shift to another unit as skilled workers. Thus, there is no system of apprenticeship in the units. If the local industry is to compete successfully with the industry at other places, the workers engaged in it should have thorough training in the work assigned to them.

RECRUITMENT

The number of workers in every unit is very small. The workers are appointed directly by the proprietors, either on the basis of their personal knowledge or because they happen to be the relatives or acquaintances of the workers already employed. There are no commission agents for recruitment of labour.

TEMPORARY AND PERMANENT WORKERS

All the workers in the industry are temporary. They can be turned out of their jobs by the proprietor any time without any notice or compensation. The units are supposed to remain closed on Sundays, but generally the workers are called in to work on these days as well. There is no system of granting casual or earned leave. Generally if a worker is absent he does not get any pay for that day. Sometimes leave with pay is granted to the workers but this concession depends on the sweet will of the proprietor.

MOBILITY

The labour force at Khurja is not very mobile. Mostly the workers are local persons with the exception of 12 persons who were imported from Bengal by some factory-owners for manufacture of insulators. Some of them have in due course set up their own units at Khurja. Some of the unskilled workers pick up the work of manufacturing in one concern and shift on higher wages as skilled workers to another concern. In some cases when a worker does not happen to be pulling on well with his employer, he shifts to another unit or when an employer wants to have the services of a particular skilled worker he attracts him by offering higher wages to him. In such a case, the possibility of ill-will between the two employers is always lurking there.

EFFICIENCY

The labourers are not very efficient because no systematic training has been imparted to them. They have some empirical knowledge gained by working for some time in a concern but they are ignorant of the scientific technique of pottery manufacture and are, therefore, incapable of evolving a new design or executing finework. This inefficiency of labour not only results in wares of poor quality which cannot survive competition from the better-managed units. According to the unit-to-unit survey carried out in 1961 by the Small Industries Service Institute, the average yearly production per worker at Khurja comes to Rs. 1,608 —the figures per worker in units producing crockery, chemical porcelain and electrical ware being Rs.1,157, Rs. 1,415 and Rs. 1,520 respectively.

ABSENTEEISM

The workers in this industry are wholetime workers without any subsidiary occupation. Hence the incidence of absenteeism is low. It is further lowered because of deductions in pay for every day one remains absent. The main cause of casual absenteeism is illness.

WAGES AND EARNINGS

There is no fixed principle of determining the rates of wages. The Minimum Wages Act does not apply to this industry at Khurja. The law of supply and demand appears to be the sole determinant of wages. The highly skilled workers are scarce and hence they can dictate their own wages. The proprietors, too, want to keep them in good humour. Workers are generally employed on a monthly wage basis. The prevailing rates for various types of workers are as follows :—

Type of Worker	Wages
1. Insulator makers (by throwing method)	Rs. 150 to Rs. 200 p. m.
2. Workers engaged in glazing, finishing and shaping by jigger jolley or casting method	Rs. 45 to Rs. 65 p. m.
3. Painters	Rs. 45 to Rs. 60 p. m.
4. Unskilled adults	Rs. 20 to Rs. 30 p. m.
5. Unskilled children	Rs. 15 to Rs. 20 p. m.

The unskilled workers employed casually on daily wages are paid at the rate of Re. 1.00 or Rs. 1.25 nP. per day.

The wages earned by the various types of workers are not sufficient for keeping their body and soul together. It seems that the industry cannot afford to pay higher wages, due to the low margin of profits.

No dearness allowance or any other allowance is paid by any unit. The workers cannot possibly press the proprietors to pay such an allowance. Similarly no bonus is paid. No fines are imposed for late attendance or deductions made for any damage done. The late-comer has generally to make up the deficiency by working till late in the evening.

PAYMENT OF WAGES

The payment of wages to workers employed on a monthly basis is ordinarily made a week or a fortnight after they have become due so that the worker might not leave the potter before informing a week or fortnight in advance. When the proprietor is facing a financial crisis, the workers might be required to wait even for two months or more. Similarly, when a worker is in a pressing need of money the proprietor makes him advance payment which is to be deducted from his wages later on.

The daily wage workers are generally paid every day or when the period of their continuous employment is over. Sometimes, however, they too might be required to wait till the availability of funds with the employer. They do not get any pay for non-working days but the monthly rated men enjoy the privilege of paid holidays. They also enjoy paid off-days on a festival. The system of earned leave or leave with pay is totally absent.

HOURS OF WORK AND OVERTIME

Generally one shift of 8 hours is worked. During winter the working hours are 8 a.m. to 12 noon and 1 p. m. to 5 p. m. and during summer 8 a. m. to 12 noon and 2 p. m. to 6 p. m. Sometimes the workers have to work overtime but no overtime wages are paid. Once a while, when the proprietor has received a big payment, he does give some money to his workers for going to a cinema show.

WELFARE WORK

No labour welfare work is being done nor are any medical facilities provided, for which one has to make one's own arrangement. The labourers have got their own housing arrangements. Some proprietors and workers are no doubt living in some of the 100 quarters in the State-owned Potters' Colony. Of the 100 quarters, 76 were occupied by 39 potters—4 Mohammedans and 35 Hindus—out of whom 33 are ex-trainees of the Government Central Pottery Training Institute. Of the remaining 24 quarters, 7 are occupied by the Central Design Centre, 10 are used for storing clay and other raw materials by the Pottery Development Centre and 7 are occupied by foreign experts working at the Centre.

WORKING CONDITIONS

The working conditions are far from satisfactory. There are no arrangements of proper ventilation in the buildings of the units. Quartz and felspar are milled into a fine powder in grinding machines. The surrounding atmosphere is thick with fine particles of these materials. The workers attending to this job either at the Centre or in the factories are not provided with any masks. Hence there is every likelihood of the occurence of silicosis. Also, the driving belts remain unguarded. This leads to avoidable accidents sometimes.

WORKERS IN TRADITIONAL POTTERY

Potters interested in the revival of blue pottery, for which Khurja was initially known, have formed themselves into an Industrial Co-operative Society of traditional potters. The Society has 18 members, of whom 12 are ex-trainees under the Scheme for revival of traditional pottery. Each member has deposited Rs. 12.50 nP. as share money. A grant of Rs. 1,380 and a loan of Rs. 5,000 was received from the Director of Industries. Unfortunately, none of the members of the society is a worker, the general feeling being that it is below one's dignity to undertake the production of blue pottery. Hence the Society has engaged a supervisor, @ Rs. 4 a day and a labourer @ Re. 1.50 nP. a day for producing about 300 pieces every month. The raw material, clay, glaze, coal etc. are provided by the Society. Mostly, flower vases are produced and sold away at Delhi.

EXPENDITURE PATTERN

Budgets of 25 persons engaged in pottery industry were studied as a qualitative sample. Five of the representative budgets are discussed here.

A proprietor named M.H.K. has an income of Rs. 200 per month on an average from pottery. His family consists of 3 adults and 3 children. His expenditure pattern is as follows :—

Item of Expenditure	Actual Expenditure	Percentage
1. Food	Rs. 106.49 nP.	53.25
2. Fuel & light	Rs. 13.39 nP.	6.69
3. Clothing	Rs. 31.56 nP.	15.78
4. House rent	Rs. 10.50 nP.	5.25
5. Insurance	Rs. 24.00 nP.	12.00
6. Miscellaneous	Rs. 10.00 nP.	5.00
7. Savings	Rs. 4.06 nP.	2.03
Total	Rs. 200.00 nP.	100.00

This is a balanced budget. One good feature of the expenditure pattern is that provision for insurance has been made. The children go to school. Even though it is a Mohammedan household, no expense is ncurred on smoking or chewing tobacco or consuming betel and betel-nuts.

Another proprietor S.|C. has an income of Rs. 400 p. m. The family consists of 2 adults and 2 children. The details of his expenditure are as follows :—

	Item of Expenditure	Actual Expenditure	Percentage
1.	Food	Rs. 213.37 nP.	53.34
2.	Fuel & light	Rs. 21.37 nP.	5.34
3.	Clothing	Rs. 30.00 nP.	7.50
4.	House repairs	Rs. 4.00 nP.	1.00
5.	Insurance	Rs. 23.00 nP.	5.75
6.	Miscellaneous	Rs. 56.12 nP.	14.03
7.	Savings	Rs. 52.14 nP.	13.04
	Total	Rs. 400.00 nP.	100.00

In this budget, an amount of Rs. 96. 50 nP. included under the heading 'Food' is spent on liquor while another amount of Rs. 32.12 nP. is spent on cigarettes, betels and betel-nuts. There is excessive expenditure on these items. The good feature of the budget is the expenditure on life insurance and the amount of Rs. 52.14 nP. as saving.

C.S. is a skilled worker getting Rs. 60 per month. He is alone. His expenditure pattern is as follows:—

	Item of Expenditure	Actual Expenditure	Percentage
1.	Food	Rs. 22.64 nP.	37.73
2.	Fuel & light	Rs. 3.75 nP.	6.25
3.	Clothing	Rs. 4.00 nP.	6.67
4.	Rent	Rs. 1.00 nP.	1.67
5.	Miscellaneous	Rs. 2.50 nP.	4.17
6.	Savings	Rs. 26.11 nP.	43.51
	Total	Rs. 60.00 nP.	100.00

This worker saves a large proportion of his income.

Another skilled worker R. L., who has an income of Rs. 65 per month and has a family of 2 adults and one child, spends Rs. 49.74 nP. on food, Rs. 5.75 nP. on fuel and light, Rs. 12.50 nP. on clothing, Rs. 2 on rent and Rs. 6.25 nP. on miscellaneous items, thereby making his budget deficit by Rs. 11.24 nP.

The expenditure pattern of a non-skilled worker N, the earning of whose family consisting of himself and his wife is Rs. 50 per month, is as follows :—

	Item of Expenditure	Actual Expenditure	Percentage
1.	Food	Rs. 29 37 nP.	58.74
2.	Fuel & light	Rs. 3.93 nP.	7.86
3.	Clothing	Rs. 3.83 nP.	7.66
4.	Rent	Rs. 3.12 nP.	6.24
5.	Miscellaneous	Rs. 2.37 nP.	4.74
6.	Savings	Rs. 7.38 nP.	14.76
	Total	Rs. 50.00 nP.	100.00

This is a balanced budget, with some provision for the rainy day.

INDEBTEDNESS

The exact extent of indebtedness amongst the proprietors and workers engaged in the industry is not known. The Centre used to supply raw materials to the potters on credit also against the advance of Rs. 3,500 deposited by the National Small Indsutries Corporation. But the Corporation ceased functioning in October, 1962 and the credit facilities were naturally withdrawn.

On the recommendation of the pottery Development Officer Khurja, the Directorate of Industries (Loans & Grants Section) Kanpur also sanctions loans and grants to individual units for various purposes connected with the development of pottery industry, such as, the purchase of machines and tools. Only 3 per cent interest is charged on such loans. The recovery is made within 4 years together with interest in 8 six-monthly equal instalments. The grants are meant for assisting educated young men in starting industrial undertaking and to equip the organised institutions such as vocational schools and co-operative societies for establishing and organising industrial units.

Short-term financial accommodation is sometimes locally arranged by the proprietors with each other, but mostly they have to take recourse to the local money-lenders at a high rate of interest. Due to business jealousy, one potter would not ordinarily accommodate another but in some cases such accommodation is available either on basis of personal friendship or of family relations. As regards the workers, they might be required to borrow either because of insufficiency of earnings or for meeting emergencies like marriage, death, and illness. Whenever required, they obtain loans from the employers or from money lenders. The incidence of indebtedness among the workers was not, however, reported to be high.

CHAPTER III

Raw Materials

The main raw materials used in the manufacture of pottery products are clay, quartz and felspar and the subsidiary raw materials are gypsum, coal and colours. The body or slip which is used in the manufacture of porcelain goods or stoneware is prepared after mixing mainly clay, quartz and felspar in various proportions. Similarly, the liquid known as glaze meant for creating non-porosity and shine in the product is also prepared after mixing these main raw materials and adding a few more chemicals such as zinc oxide and barium carbonate. Brown glaze for *kundies* is prepared by mixing mangenese dioxide, red iron oxide, zinc oxide and barium carbonate. Sometimes clay might not be added to the preparation of glaze. Gypsum is used in making moulds for the pottery industry and coal is needed for firing the products at the requisite temperature. Colours prepared from metallic oxides are also used for artistic paintings or decorations on the products.

In the manufacture of blue pottery, which is the traditional art of Khurja, local red clay continues to be used as in other terra-cotta products. China clay is, however, used in the manufacture of white pottery. It is quite soft and soapy and is mainly used in making porcelain, stoneware and fine earthenware. It is also known as kaolin, a corruption of the Chinese word *kauling* meaning 'high ridges', from where the Chinese obtained their white clay for preparing porcelain. This clay is heat-resistant and has a low plasticity as compared to the red clay which is more plastic but less heat-resistant. Various types of clays such as Rajmahal china clay, Bengal Pottery china clay, Ahmedabad china clay, Kasim Bazar china clay, Chandia clay, Bikaner clay, Delhi clay, and Kundara clay are used at Khurja. All these clays have basically the same major qualities but variations of ingredients in detail are there.

Quartz is a form of silica and is found in abundance in nature. It gives greater hardness and durability to the ware and makes the product whiter. In the non-porous wares, such as fine stoneware and porcelain, it combines with the alkalies and makes a viscous liquid which flows into the pores of the body and thereby makes the product non-porous. The raw quartz is fired in a kiln at a sufficiently high temperature for making it soft and grindable. A fine grinded powder of quartz is used in the body for ensuring against crazing and porosity. Its percentage in the body varies with the various types of products.

Orthoclase felspar is the chief variety used in pottery manufacture. In combination with quartz, felspar lessens porosity and gives the product a shining lustre. In the absence of quartz, felspar is useless, because the body cannot become vitreous. The presence of quartz dissolves the particles and produces a viscous liquid which flows through the pores of the body. When mixed with clay in a purely powdered state, it dissolves the particles of clay and silica, thereby making a glossy liquid during the process of firing. After clay, it is the most important raw material in the manufacture of white wares.

Another material used in connection with pottery products is gypsum or the hydrated sulphate of lime. On being heated to about 120°C it turns into plaster of Paris, which is used in the industry for making moulds only.

Bituminous variety of coal burns with a long flame and gives out a high temperature. It suits the pottery furnaces well in the process of firing.

Colours are used for decorating the pottery products such as crockery and flower vases. Ordinary colours cannot be used in the manufacture of pottery as they disappear at a high temperature. Metallic oxides or compounds of such oxides are used for this purpose, as they can easily stand the high temperature of firing. Ceramic colours are comprised of stain or the real colouring matter and flux which forms an intermediate layer between the body and the colouring matter. The substance commonly used as flux consists of ground pitchers or white pottery wares. A good flux can also be prepared by calcining quartz, felspar, china clay and white lead in various proportions. Generally black, green, blue and brown colours are used by the potters.

SOURCES OF SUPPLY OF RAW MATERIALS

All the raw materials except gypsum or plaster of Paris are imported by the Government Pottery Development Centre and then supplied to the various potters according to their needs. Clay is imported from the following sources :—

Type of Clay	Source
1. Raj Mahal china clay	M/s Rajmahal Quartz, Sand & Kaolin Co., 31, Jackson Lane, Calcutta
2. Ahmedabad china clay	M/s Aswin & Co., 635, Relief Road, Ahmedabad-1
3. Bikaner clay	M/s Starke & Co., 138, Kamla Market, New Delhi
4. Kasim Bazar china clay	M/s Maharaja Cossim Bazar China Clay Mines, 138, Canning Street, Calcutta
5. Chandia clay	M/s Oriental Potteries Ltd., Chandia Road, District Sohdol, Madhya Pradesh
6. Kundara clay	GovernmentCeramic Concerns, Kundara, Kerala
7. Delhi clay	M/s Guideway Ceramic Industries Mahipalpur, Delhi
8. Bengal Pottery clay	M/s Bengal Potteries Ltd., Patherghat, China Clay Mines, P. O. Colganj, District Bhagalpur

Quartz is found in India at Ajmer, Alwar, Gaya, Ramgarh, Bangalore, Kishangarh and Nellore. Quartz from different places differs in property as well as in chemical composition. For pottery industry at Khurja, quartz and felspar are supplied by M/s Bharat Mineral Supply Corporation, Imperial Road, Ajmer, M/s Chandmal & Co., Madanganj, Kishangarh, Rajasthan, M/s Mool Chand Sethi, village Sanodh P. O. Ramsar, Ajmer and M/s Joshi Minerals, Sandilya House, Ramganj, Rajasthan.

Coal is supplied by M/s Samla Collieries Ltd., 33, Netaji Subhash Road, Calcutta.

China clay, quartz, felspar and coal are not imported by any of the potters with the exception of M/s Central Pottery and National Pottery. These raw materials are obtained by the Government Pottery Development Centre. Clay, quartz and felspar are turned into body and glaze and sold to the potters. Only six potters have their own equipments for turning these raw materials into body and glaze. Hence they purchase clay, quartz and felspar from the Centre and prepare the body and glaze. Coal is also generally supplied to the potters by the Development Centre.

Gypsum is turned into plaster of Paris by M/s Goenka Chemicals, Khurja and sold to the potters. As regards colours, only 10 pottery units out of the 81 units surveyed sometimes prepare their own colours. The remaining units invariably purchase these from the Centre. These 10 units, too, make purchase from the Centre when they are not in a position to prepare their own colours.

During the year ending March 31, 1961, 33,690 maunds of body and 1,794 maunds of glaze were utilized in production by the 81 units surveyed. Out of this, 5,915 maunds of body and glaze were prepared by 6 pottery units.

PREPARATION OF RAW MATERIAL

Quartz and felspar which are mixed with clay for preparation of body and glaze are hard and stony in nature. They have, therefore, to be ground very fine before being mixed with clay. Quartz is calcined at a sufficiently high temperature for making it soft. It is then crushed. The crushed pieces are further ground in a pan-roller mill. The material is ultimately transferred to a ball mill for final grinding up to the desired fineness. The cylinder of the ball mill is filled with small hard flint pebbles. During the process of its slow rotation for long hours, the coarse material is ground very fine by the continued impact of the pebbles with each other and the material. Felspar is also ground in the same manner but it is not calcined. When the hard materials have thus been ground properly, the requisite quantity of clay is mixed with them in the ball mill which is further rotated till a uniformly ground slip has been prepared. This slip is used for preparation of articles by the casting method. If products are to be prepared on a potter's wheel or by a jigger jolley, the slip is further passed through the filter press for dewatering it. It gets stiffened and is turned into a plastic mass. It is then put into a pug mill for being kneaded mechanically. The clayey mass which finally comes out is technically known as the body.

Glaze is also prepared in the ball mill in the same manner as body. When the materials are finely ground, the required chemicals are mixed with them and the mill is rotated for a few hours.

For the preparation of colours, metallic oxides are properly mixed with each other in water. The mass is mixed in a pot mill. This mass is then dried and calcined in a furnace, ultimately giving out powdered colour, ready for use for decoration work after being mixed with a little slip.

CHAPTER IV

Articles and Their Designs

The following articles are mainly manufactured by the potters at Khurja :—

(*i*) Electrical goods, such as, kit-kats and insulators;

(*ii*) Scientific goods, *e.g.*, crucibles, dishes, and pestle mortars;

(*iii*) Porcelain balls and lining bricks;

(*iv*) Crockery articles, such as, tea-sets, baby tea-sets, *guria* tea-sets, tea-pots, cups, saucers, *dongas*, footed bowls, *kundies*, jars etc. ; and

(*v*) Artware, mainly, flower vases.

Kit-kats of H. C. type (Japanese) and M.E.M. type (English) are manufactured by 16 units and insulators of shackle and stain type by 10 units. The margin of profit on these articles is high and the market is assured. Hence more and more units are taking to the production of these articles. Scientific goods are produced by 4 units only. Pestle mortars of wedgewood shape are more commonly manufactured in various sizes. These are used by *vaids*, hakims and in the households also. Porcelain balls and lining bricks are produced only by one unit. The demand for these articles is limited.

Crockery is manufactured by the largest number of units. Tea-pots of various types are manufactured by 17 units. Georgian shaped tea-pots are manufactured by all the units. In addition, 5 units manufacture Sunshine type, one unit produces Imperial type and 6 units prepare I. C. type tea-pots. All these designs are imitations of the designs available in the market. The only self-thought design is the elephant-shaped tea-pot manufactured by Sri Rahim Khan potter. The spout of the pot is just like the trunk of an elephant. It has not, however, been imitated by others. Georgian pattern of tea-sets is the most popular, as 7 units out of 8 units engaged in the production of tea-sets, prepare this type of tea-set. The Sunshine design is an imitation of the tea-set being manufactured by M/s Bengal Potteries, Ltd. The baby tea-sets are meant for being used by children. Similarly, the *guria* tea-set is meant for play by young girls who play with dolls.

The crockery articles produced at Khurja are quite heavy in weight. The glaze is not white and evenly spread. The finish, too, is poor. Crude paintings in different colours are made on some of the crockery articles. These paintings are made by poorly-paid and ordinary painters who cannot, therefore, be expected to display any artistic talents. The superior type of wares have gold linings at times but these linings have a tendency to fade and disappear very soon. Perhaps, the main virtue of crockery produced at Khurja is its cheapness.

Flower vases of various designs, sizes and shapes are manufactured at Khurja. Plate No. 9 shows a white porcelain vase with an all-over decoration of black and white glass beads embedded on the surface. The plain finished vase, which is made by the casting method is first painted with a suitable adhesive. The craftsman then puts it on the potter's wheel and as it turns, he sprays by hand glass particles which tend to soften and stick to the surface of the object. Surplus particles are then removed by brushing. Glass beads of other colours and colour combinations—yellow and green, red and yellow, blue and red, yellow and blue—are also used on different shapes of flower vases. The inner surface remains glazed in white. The vases of this type look quite charming. Besides, the colour beads can cover up the manufacture defects, if any, on the surface of the vase. Such vases are produced only by one unit.

Plate No. 13 shows a mould-cast light blue vase decorated in red, gold and green horizontal stripes. The design and the colour scheme have perhaps been inspired by British and European apothecarie's jars of the XVII or XVIII centuries. Plate No. 14 shows a large (21 inches in height) porcelain vase with typical Persian style design. Plate No. 5, too, shows porcelain vase (15 inches in height) featuring the Persian style of painting. Plate No. 16 shows a round-shaped white porcelain vase decorated in red, gold and blue stripes and a painting showing a deer hunting scene. Another such vase has a scene of bull-fight depicted on it. Plate No. 17 shows a traditional blue pottery flower vase with a height of 11 inches. It is reminiscent of the XIV century Persian design and colour influences. The technique of manufacture of these vases has been described in detail in Chapter VI.

The pottery industry at Khurja has small units with workers of ordinary means. They are not perhaps competent enough to evolve new designs. They cannot afford to employ experts for studying the tastes of the customers and evolving new designs which might attract more customers and capture the market. Also they are so hard-pressed financially that they cannot afford to take the risk of introducing articles of designs which might not become popular in the market. Hence they have to remain content with imitations of the designs of various articles being sold in the market. Articles of such designs have an assured market.

The U. P. Government established the Central Design Centre at Lucknow in 1957 with the object of introducing new designs and reviving the traditional Indian designs in 5 handicrafts, including pottery manufacture. A few designs in flower vases and articles of red clay manufacture were supplied by this Centre but they were not adopted by the potters. In 1962, a Design Extension Officer was posted at Khurja. His main task is to introduce new designs according to the latest market trend. Unfortunately, none of the designs evolved at the Centre was found having been adopted by the local potters for reproduction on commercial scale. For non-adoption of the designs, the following reasons were reported :—

(i) The potters were generally reluctant to take the risk of taking to new designs for which the market is not assured. They prefer to produce articles of designs which have already an established market. Whatever is produced by them at present is sold in the market without any difficulty.

(ii) The designs that are evolved depict more the artistic imagination of the designer without much stress on the utility and marketability of the ware. For example, the design of coffee set evolved at the Centre would not find a single customer in the market because the pots and the cups are too angular to be cleaned without lot of inconvenience.

(*iii*) There is also lack of proper liaison between the Design Extension Officer and the potters.

CHAPTER V

Tools and Implements

The main machines, tools and implements used in the pottery industry are as follows :—

1. Jaw crusher ;
2. Pan roller mill ;
3. Ball mill ;
4. Blunger ;
5. Filter press ;
6. Pug mill ;
7. Jigger jolley ;
8. Pressing machine ;
9. Potter's wheel ;
10. Moulds ;
11. Saggars ; and
12. Sample *saria*, knife, hammer, brush, drum, glaze vessel, etc.

JAW CRUSHER

The jaw crusher is a powerful mill used for crushing quartz and felspar into small pieces of half inch to one inch in size. It has a pair of corrugated hard steel plates known as jaws placed in front of each other at an angle. The two jaws, by powerful mechanism, crush the hard substance into small pieces. The cost of the machine varies from Rs. 3,000 to Rs. 10,000 depending on its size.

PAN ROLLER MILL

The pan roller mill consists of two heavy stone rollers, between which quartz or felspar is further crushed to sufficient fineness after the crushed material has been taken out of the jaw crusher. The machine is available at a cost of about Rs. 3,280.

BALL MILL

The material from the pan roller mill is transferred to the ball mill for the final grinding. The mill consists of a hollow cylinder of steel, lined inside with special bricks of porcelain. The lining keeps the material out of contact with the iron casing so that no iron particles get mixed up with the material. The cylinder is filled with the material together with some hard flint pebbles or porcelain balls and made to rotate mechanically on a horizontal axis. In the process, the material is crushed into fine powder. Wet grinding is done by mixing some water with the material.

The cost of the mill varies between Rs. 1,375 and Rs. 12,180 depending on its size.

Only six potters in Khurja have their own ball mills for grinding body and glaze. The remaining potters depend upon the Government Pottery Development Centre for their supply of these materials.

BLUNGER

When the grinding of quartz and felspar is over, the required quantity of clay is mixed with them in a mixing tank called the blunger. This machine has a vertical shaft with a few blades fixed at a certain angle so that the materials are mixed by the movement of the blades with the rotation of the shaft.

This machine is available at a cost of Rs. 2,625.

FILTER PRESS

The filter press is used for dewatering the slip. "This machine consists of several iron discs or trays grooved inside so that when they are pressed together each pair of trays forms an enclosed chamber. Inside each such chamber is hung a bag of strong cotton cloth in which the slip is pumped under pressure. As the bag is filled with the slip, the water is forced out through the pores of the cotton bags, which retain the clay. Cake-like masses come out of the filter press bags".*

The cost of a filter press varies between Rs. 7,100 and Rs. 15,900 according to its size.

PUG MILL

The dewatered cakes of clayey mass are put into the pug mill for making the body homogeneous. This machine kneads the clay by means of blunt knives placed at different angles. "These knives of a pug mill first cut the clayey mass into pieces and then push them forward into a chamber where the pieces are compressed into a homogeneous mass ready for working."

The cost of the machine is about Rs. 8,775.

JIGGER JOLLEY

The lower portion of this machine, called the jigger, consists of a vertical shaft fixed to a table and provided with a cup-shaped wheel-head on the top, termed the jigger head. On this jigger head, is placed a plaster mould for giving proper shape to the ware to be made. The jigger can be rotated rapidly by means of a belting arrangement connected with motor.

The upper framework, called the jolley, is a device for carrying a tool, called profile, which gives the shape to one side of the ware, while the other side is formed by the plaster mould. The profile is a thick sheet of iron or steel bevelled at one edge and of such shape as to press the body against the mould,

*Bose, H. N. : *Introduction to Silicate Industries*, page 131.

CHAPTER III

Raw Materials

The main raw materials used in the manufacture of pottery products are clay, quartz and felspar and the subsidiary raw materials are gypsum, coal and colours. The body or slip which is used in the manufacture of porcelain goods or stoneware is prepared after mixing mainly clay, quartz and felspar in various proportions. Similarly, the liquid known as glaze meant for creating non-porosity and shine in the product is also prepared after mixing these main raw materials and adding a few more chemicals such as zinc oxide and barium carbonate. Brown glaze for *kundies* is prepared by mixing mangenese dioxide, red iron oxide, zinc oxide and barium carbonate. Sometimes clay might not be added to the preparation of glaze. Gypsum is used in making moulds for the pottery industry and coal is needed for firing the products at the requisite temperature. Colours prepared from metallic oxides are also used for artistic paintings or decorations on the products.

In the manufacture of blue pottery, which is the traditional art of Khurja, local red clay continues to be used as in other terra-cotta products. China clay is, however, used in the manufacture of white pottery. It is quite soft and soapy and is mainly used in making porcelain, stoneware and fine earthenware. It is also known as kaolin, a corruption of the Chinese word *kauling* meaning 'high ridges', from where the Chinese obtained their white clay for preparing porcelain. This clay is heat-resistant and has a low plasticity as compared to the red clay which is more plastic but less heat-resistant. Various types of clays such as Rajmahal china clay, Bengal Pottery china clay, Ahmedabad china clay, Kasim Bazar china clay, Chandia clay, Bikaner clay, Delhi clay, and Kundara clay are used at Khurja. All these clays have basically the same major qualities but variations of ingredients in detail are there.

Quartz is a form of silica and is found in abundance in nature. It gives greater hardness and durability to the ware and makes the product whiter. In the non-porous wares, such as fine stoneware and porcelain, it combines with the alkalies and makes a viscous liquid which flows into the pores of the body and thereby makes the product non-porous. The raw quartz is fired in a kiln at a sufficiently high temperature for making it soft and grindable. A fine grinded powder of quartz is used in the body for ensuring against crazing and porosity. Its percentage in the body varies with the various types of products.

Orthoclase felspar is the chief variety used in pottery manufacture. In combination with quartz, felspar lessens porosity and gives the product a shining lustre. In the absence of quartz, felspar is useless, because the body cannot become vitreous. The presence of quartz dissolves the particles and produces a viscous liquid which flows through the pores of the body. When mixed with clay in a purely powdered state, it dissolves the particles of clay and silica, thereby making a glossy liquid during the process of firing. After clay, it is the most important raw material in the manufacture of white wares.

Another material used in connection with pottery products is gypsum or the hydrated sulphate of lime. On being heated to about 120°C it turns into plaster of Paris, which is used in the industry for making moulds only.

Bituminous variety of coal burns with a long flame and gives out a high temperature. It suits the pottery furnaces well in the process of firing.

Colours are used for decorating the pottery products such as crockery and flower vases. Ordinary colours cannot be used in the manufacture of pottery as they disappear at a high temperature. Metallic oxides or compounds of such oxides are used for this purpose, as they can easily stand the high temperature of firing. Ceramic colours are comprised of stain or the real colouring matter and flux which forms an intermediate layer between the body and the colouring matter. The substance commonly used as flux consists of ground pitchers or white pottery wares. A good flux can also be prepared by calcining quartz, felspar, china clay and white lead in various proportions. Generally black, green, blue and brown colours are used by the potters.

SOURCES OF SUPPLY OF RAW MATERIALS

All the raw materials except gypsum or plaster of Paris are imported by the Government Pottery Development Centre and then supplied to the various potters according to their needs. Clay is imported from the following sources :—

Type of Clay	Source
1. Raj Mahal china clay	M/s Rajmahal Quartz, Sand & Kaolin Co., 31, Jackson Lane, Calcutta
2. Ahmedabad china clay	M/s Aswin & Co., 535, Relief Road, Ahmedabad-1
3. Bikaner clay	M/s Starke & Co., 138, Kamla Market, New Delhi
4. Kasim Bazar china clay	M/s Maharaja Cossim Bazar China Clay Mines, 138, Canning Street, Calcutta
5. Chandia clay	M/s Oriental Potteries Ltd., Chandia Road, District Sahdol, Madhya Pradesh
6. Kundara clay	Government Ceramic Concerns, Kundara, Kerala
7. Delhi clay	M/s Guideway Ceramic Industries Mahipalpur, Delhi
8. Bengal Pottery clay	M/s Bengal Potteries Ltd., Patherghat, China Clay Mines, P. O. Colganj, District Bhagalpur

Plate No. 1



Glaze, ready for use, is being unloaded from the ball-mill into a bucket.

—Photo by Ramesh

Plate No. 2



One worker is casting a tea-pot by pouring body slip into a mould while the other is joining the handle of a tea-pot.

—Photo by Ramesh

Plate No. 3



Joining the spout of a tea-pot

—Photo by Ramesh

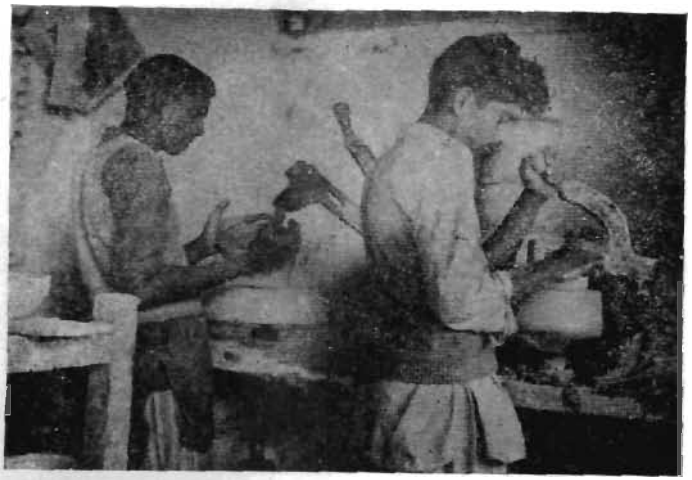
Plate No. 4



The worker is busy in shaping a flower vase on a potter's wheel.

—Photo by Ramesh

Plate No. 5



Preparing *kundies* with a jigger jolley
—*Photo by Ramesh*

Plate No. 6



Removing the footed bowls from the moulds after drying them in the sun
—*Photo by Ramesh*

Plate No. 7



Finishing the handle of a tea-pot with a knife
—Photo by Ramesh

Plate No. 8



Painting the tea-pots with a brush
—Photo by Ramesh

CHAPTER VI

TECHNIQUE OF PRODUCTION

PREPARATION OF SLIP OR BODY

The ground quartz and felspar are mixed with clay in the ball mill with water (vide plate no. 1). When the materials have been mixed properly, the mixed mass is passed through an electromagnet for removal of iron particles that might have got mixed with it during the operation of mixing of the raw materials in the ball mill.

FORMATION OF ARTICLES

Pottery products are prepared in three stages of body, viz.,

1. Liquid form or slip;
2. Plastic form; and
3. Semi-plastic or dry form.

The casting method is adopted when the body is in liquid form. The slip is poured into moulds of plaster of Paris (vide plate no. 2). According to their nature, the moulds absorb some water from the clay slip. After a moment, the mould requires extra slip which is poured from time to time till the required thickness of clay layer is deposited round the inner side of the mould. Then the extra slip is poured out into a bucket and the mould is kept in rest for a few minutes. When the mould is dry, the clayey layer inside the mould dries gradually, shrinking a little in the process. Ultimately, the whole casting comes out of the mould easily in the form of a ware, having its shape according to the mould used. When the mould has many parts they have to be tied together before use with the help of a string.

Tea-pots, sugar-pots, milk-pots, flower vases and sometimes cups and saucers are made by the casting process. For tea-pots, handles and spouts are cast separately. They are joined to the pot in a semi-dried state (vide plate no. 3). The process is a delicate one. The proportion of water in both the parts to be joined is to be equal otherwise the ware may crack at the joint. The end of the part to be joined is dipped in slip and then fixed at the point of joining. Casting does not require highly skilled labour. The casting slip should not be plastic. As compared with the pressed or thrown pieces, cast pieces are lighter and weaker because of their porosity. Also, cast wares contract more than pressed or jolleyed wares, during the process of firing. The casting process requires a large number of moulds of plaster of Paris because they are given to greater wear and tear.

Slip is dewatered through a filter press for its being brought into a plastic mass. For imparting greater homogenity to it, it is further passed through a pug mill. The resultant clay, commonly known as the body, is ready for use either by the throwing method or the jigger jolley method of shaping. The oldest and most popular method of shaping is by the use of potter's wheel (vide plate no. 4). It is known as the throwing method. A potter's wheel may spin round either mechanically or manually by the thrower himself or one of his assistants. The thrower puts a lump of body on the revolving wheel and to make it workable he presses and raises it again and again. When it is soft enough, he begins giving a shape to it with the skilful movement of his artistic fingers. The shaped articles are detached with a piece of strong cotton string or brass wire.

When these articles in a semi-finished condition get a little hardened, finishing touches are given by turning. The process of throwing is generally used for making only round articles such as flower vases, *kundies*, insulators, jars etc. Thrown wares do not contract much in drying and have a neat and accurate appearance.

If the articles of the same kind are required they can readily be prepared cheaper on the potter's wheel.

Another method of giving shape to the plastic mass is known as the jolleying method (vide plate no. 5). The modern jigger jolley machine is a highly modified form of the potter's wheel. Two general shapes of the ware are made by jolleying, viz., the so-called hollow ware such as cups, bowls, *kundies*, etc., and the flat ware such as plates and saucers. The mould forms the outside and the profile the inside surface of the hollow ware.

In this process of shaping, a rotating mould made of plaster of Paris and a fixed iron tool play the main part. The mould is fitted in a cup-shaped vessel known as the jigger-head. The iron arm to which a profile is attached, for giving shape to the wares, is known as jolley. A profile is shaped in accordance with the moulds of the wares.

When an article of the same size is to be produced on a large scale, the jigger jolley can be used with advantage. In the process of making, the plastic body is put on the mould, placed in the head of the rotating jigger. The moulds are cleaned with a cloth. The potter presses the body into the mould with a wet hand and then pulls down the arm of the jolley in which the profile is adjusted in such a manner as to give the article the required shape and thickness. The extra body is removed by the profile during the operation. After a little while, the ware gets a little dried and can be removed from the plaster mould, because the mould leaves the ware without any difficulty (vide plate no. 6).

Semi-plastic material is used in the preparation of cut-outs, porcelain tiles and switches by the pressing method. The body is first dried, powdered, and then mixed with water and oil. The electrical goods are made by a hand pressing machine fitted with a die. The powder form is not utilized for manufacture of wares at Khurja.

DRYING

After the articles are made, they are carefully dried before they are fit for the next operation. The wares should be dried in such a manner that all the parts may get equal heat. The best method adopted is to dry them in the sun. But in the rainy season sometimes potters have to dry the wares in the heat of the fired kiln by putting them on the roof of the hot kiln.

FINISHING

The main object of finishing is to clean the articles and to correct any imperfection in shape. Plate no. 7 shows the handle of a tea-pot being finished with a knife. The wares made on jigger jolley are also finished on the same machine by the process of turning. Complicated wares having other parts joined to them such as sugar-pot, milk-pot, tea-pot etc. cannot be turned on jigger and are, therefore, finished by hand with the help of sand paper or an iron sieve. After this preliminary finishing, the wares are rubbed with a wet cloth, the process being known as water-finishing.

PAINTING

Decoration of wares is generally done before glazing even though, in actual practice, decoration is done under glaze, in glaze and over glaze. For under glaze painting, the colour is mixed with glycerine or gum solution to facilitate the movements of the brush on the biscuitware. Flowers and scenery are painted on the wares by a brush by freehand painting (vide plate no. 8). Ceramic colours are used for this purpose as they do not disappear even at a high temperature. These colours are generally supplied by the Government Pottery Development Centre, but some of the potters make these colours themselves. Some producers of flower vases mix the colours with glaze and apply these to the vases. Decoration on wares, already fired, is done by enamel colours, which are again fired at a low temperature of about 800° C. Transfers and gold decoration are also sometimes done and the wares are fired again at a low temperature. Sometimes, for decorating fired wares, glass particles of various colours are sprayed on the outer surface of the ware and again fired at a low temperature. Thus some of the manufacturing defects in flower vases can be concealed by this method of decoration. The National Pottery Works has specialised in the product of such flower vases. Plate no. 12 shows a white porcelain vase with an all-over decoration of black and white glass beads embedded on the surface. It was prepared by the National Pottery Works. The vase was made by the casting method. After being finished, its plain surface was first painted with a suitable adhesive. It was then put on the potter's wheel and turned. As it rotated, the craftsman sprayed glass particles mixed with ceramic colours on the vase by hand. It was then fired at 600° C, till the glass particles began to soften and stick to its surface. When cooled, the surplus articles were removed by brushing. Glass beads of other colours, too, are similarly used to give a beautiful appearance. Other potters are ignorant of this useful technique with the exception of some potters at Jama Masjid, Khurja.

GLAZING

Pottery products are coated with a very thin layer of a very smooth glossy coating. The main purpose of the glaze coating is to make the ware impermeable to liquids. Glaze is supplied to the potters by Government Pottery Development Centre. A few potters have their own ball mill for preparing glaze.

METHODS OF GLAZING

Quite a few methods of glazing are prevalent in India. When only one side of the ware is to be glazed, the pouring method is usually adopted. Where the wares cannot be dipped in glaze without inconvenience, the spraying method is adopted. Dusting is done only on cheap and inferior articles. When more than one coloured glaze is required side by side on decorative wares, the method of painting the glaze with the help of a brush is applied.

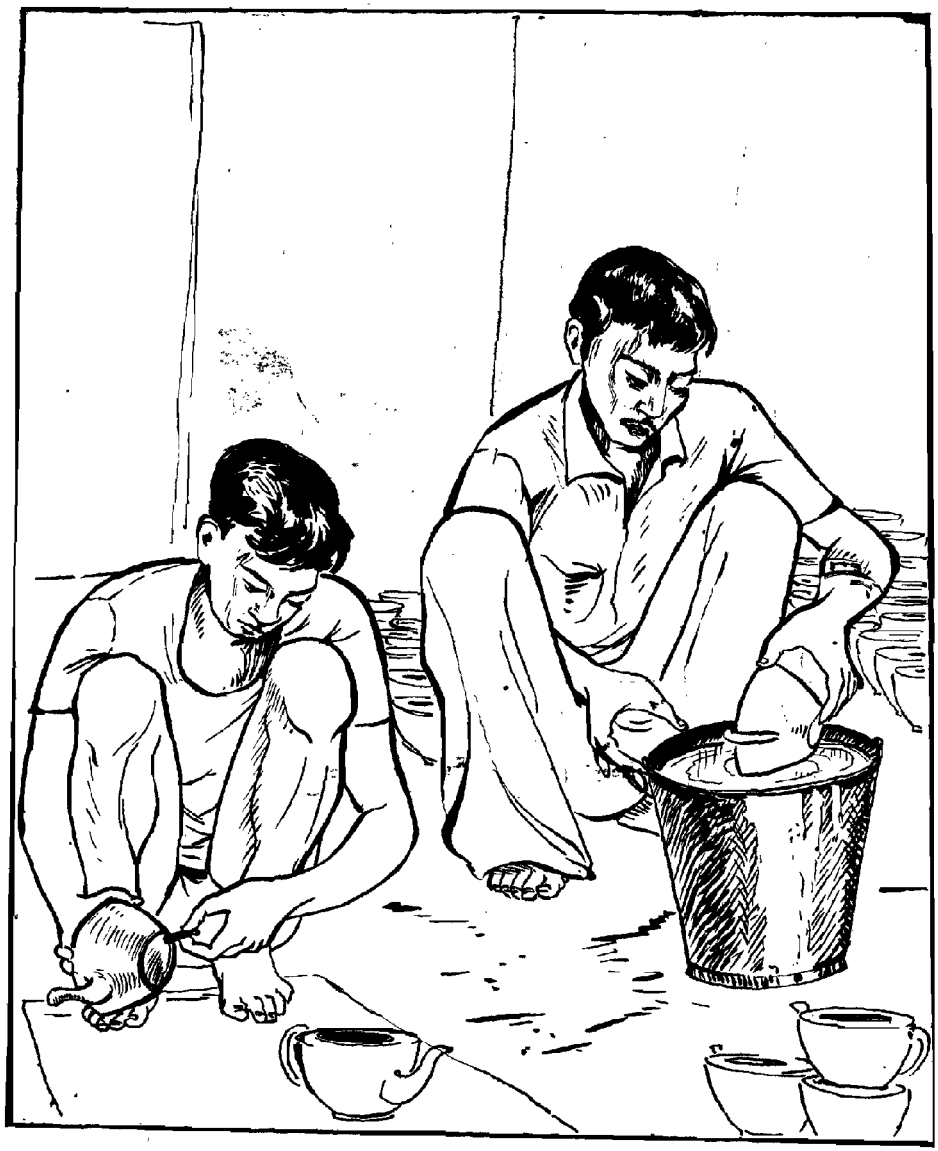
Dipping method is the most satisfactory and rapid manner of applying glaze on the wares. In most parts of the country, this method is practised. In Khurja only the method of dipping is in vogue. The potter dips the ware in the glaze kept in a big vessel (vide plate no. 9). Dipping is done in such a manner that every part of the ware is coated with glaze. After a few seconds the ware is removed from the glaze slip (vide plate no. 10). The thickness of coating depends on the porosity of a ware, the time of immersion and the density of the glaze slip. The glaze at the bottom of the ware is scratched with a knife so that it may not get stuck to the saggar in the process of firing (vide plate no. 11). Porcelain articles are only biscuited before glazing as they are thin and soft enough. Green articles must be so moistened with the glaze slip that they might not break.

FIRING

When the articles are glazed they are brought to the next operation of firing in the kilns.

In Khurja all the kilns are of the down-draught variety having various diameters. Two Japanese type kilns and a kiln with a six feet diameter are allotted to the potters who make electrical goods such as kit-kat, insulators, chemical porcelain and other scientific goods, viz., disnes, crucibles, funnels, desiccators etc. The cost of constructing these kilns is, no doubt, low but their consumption of fuel is high. Besides, the temperature inside the kiln remains uneven and the strain on the brick work due to continuous heating and cooling necessitates frequent repairs. There are only 10 potters who have their own kilns. The remaining potters fire their goods in the kilns of Government Pottery Development Centre which charges nominal rent from them. The green articles are kept in saggars made of fire, clay and grog (vide plate no. 11). These boxes are capable of bearing high temperature and protecting the wares from the effects of fuel gases and smoke during firing. They are loaded in the kiln in such a manner that there remains some distance between the two lines of saggars so that flames may pass through this passage, thereby heating the wares kept in the saggars. The floor holes remain open and the loading

Plate No. 9



A craftsman is dipping the ware into glaze slip kept in a bucket. Pottery wares are given a coating of transparent or opaque glaze before firing. The thickness of coating depends upon the time of immersion and density of glaze. The glaze at the bottom of the ware is scratched with a knife so that it may not get stuck to the saggar in the process of firing.

Plate No. 10



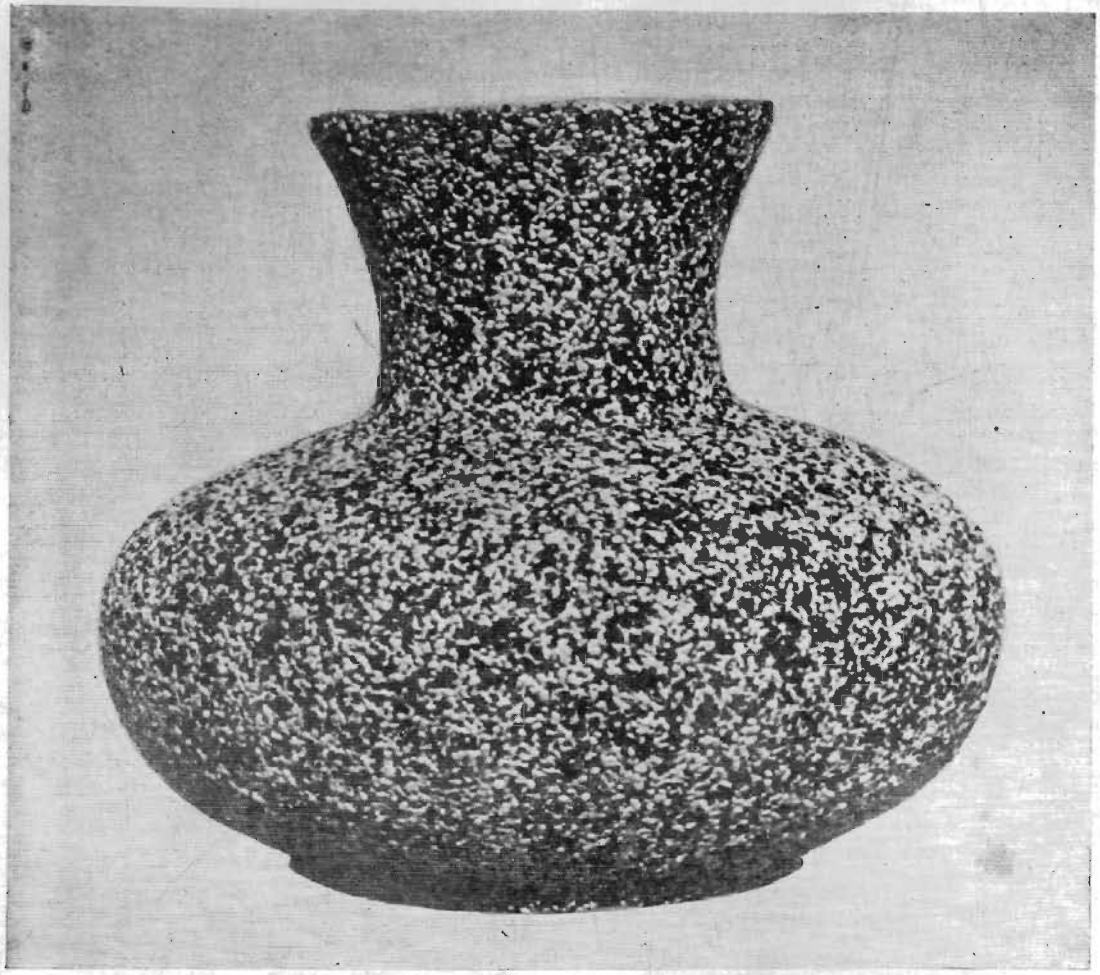
Keeping the glazed tea-pots aside
—Photo by Ramesh

Plate No. 11



Wares are being loaded in saggars which are arranged in the kiln for firing.
—*Photo by Ramesh*

Plate No. 12

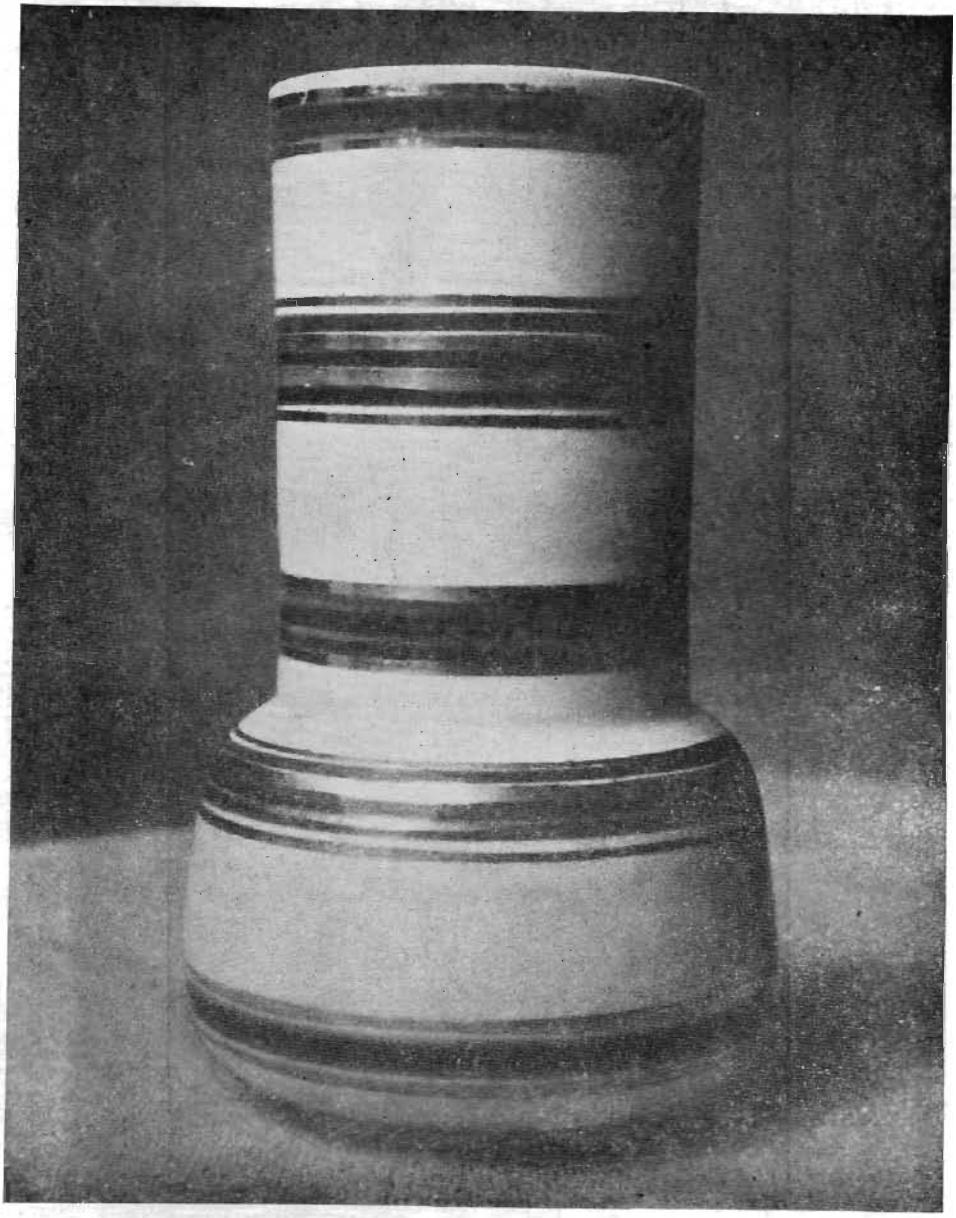


WHITE PORCELAIN VASE WITH AN ALL-OVER DECORATION OF BLACK AND WHITE GLASS BEADS EMBEDDED ON THE SURFACE—HEIGHT 9".

For producing such vases the plain finished vase, which is made by the casting method, is first painted with a suitable adhesive. The craftsman then puts the vase on the potter's wheel and as it turns, he sprays glass particles mixed with ceramic colours on the vase by hand. It is then fired at 600°C, at which temperature the glass particles tend to soften and stick to the surface of the object. Surplus particles are then removed by brushing.

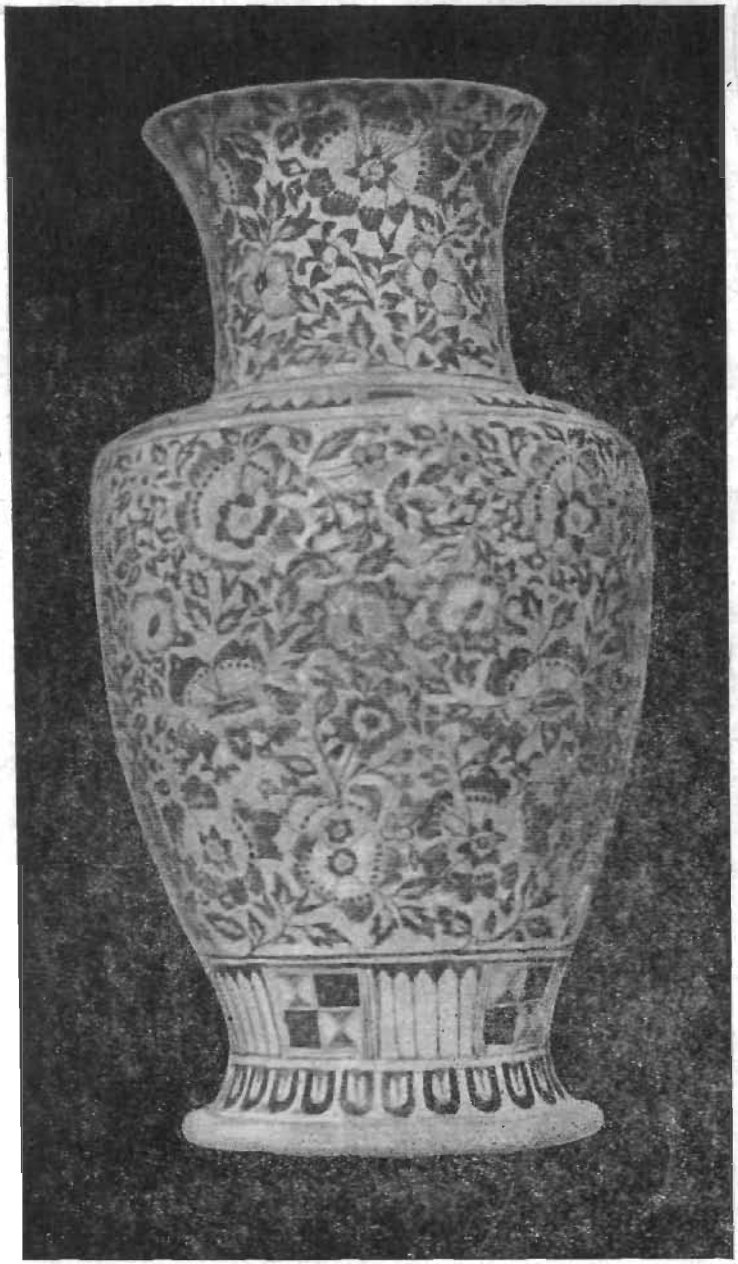
—Photo and caption by Mrs. Ruth Reeves

Plate No. 13



Mould-cast light blue vase decorated in red, gold and green horizontal stripes
—*Photo by Mrs. Ruth Reeves*

Plate No. 14



Large porcelain vase with typical Persian style design
—Photo by Mrs. Ruth Reeves

Plate No. 15



Porcelain vase featuring Persian style of painting ; height 15 inches.

—Photo by Mrs. Ruth Reeves



White porcelain vase decorated in red, gold and blue stripes. A hunting scene has been painted on it.

is kept one foot below the crown of the kiln. When loading is completed the gate of the kiln is closed with bricks. For burning coal, all the fire places are provided with grate bars.

Firing is checked at different stages for different kind of wares. Fine earthenwares are fired up to the stage of incipient fusion of the particles while stoneware and soft porcelain bodies are fired till they begin showing translucency.

In the first stage of firing, potters fire the kiln slowly till there is red heat inside. Generally, they take about 8 hours for this purpose in 12 feet diameter kilns. When red heat is visible through the holes of the kiln, they are closed and the heat is raised slowly. From time to time, the ash below the grate is removed. After putting the damper down, the intensity of firing is again raised. Sample pieces, which are kept in saggars in front of the holes, are taken out with the help of an iron bar curved at one end. When the glaze melts perfectly and to the satisfaction of the potter, the temperature is generally maintained for about an hour to provide equal heat to every part of the ware. This period is known as the soaking period. When the kiln has ceased smoking through the chimney, fire-boxes are closed with plates made of fire clay and grog so that air may not enter the kiln. The damper is put down completely which is generally raised again after 3 or 4 hours for allowing the heat of the kiln to pass through the chimney so that the kiln might cool down. After about 20 hours, all holes of the kiln are opened and generally after 24 hours the gate is also opened to make the kiln cool. When it has cooled, the fired wares are brought out.

"Pottery wares are fired in different stages. In the first stage of firing, the articles are baked to sufficient hardness so that they can be easily dipped in the liquid glaze slip without crumbling into pieces. This baking without any glaze is known as biscuit firing. The baked articles or biscuitwares are then dipped in the glaze slip and fired again. This second firing is known as the gloss firing. In this fire, wares are given a glossy appearance by means of a very thin coating of a glossy material known as the glaze. A third firing is often necessary for giving coloured decoration on the wares. This firing for fixing the decorative colours on the wares is known as enamel firing."

TECHNIQUE OF PRODUCTION OF SOME ARTICLES

Plate no. 13 shows a mould-cast light blue vase decorated in red, gold and green horizontal stripes. Both the design and colour scheme may have been inspired by British and European apothecarie's jars of the 17th and 18th centuries.

First, the model is produced by making a cylindrical piece of plaster of Paris following the general dimensions of the vase. When this cylinder is dried, the shape is made by carving the plaster of Paris. The working mould is made by arranging a tin cylindrical shaft around the pattern. The distance between the tin sheet and the pattern is the thickness of the final form of the vase. A plaster of Paris solution is then poured into the space chamber thus made between the pattern and the tin sheet. It is poured only up to a certain point because, for convenience in casting, the final form must be made in two pieces. The tin sheet is removed after the plaster of Paris has set, the upper part being taken out first and the lower one afterwards. In order to facilitate the removal of the working mould, the model or pattern is painted with varnish and a soap solution is applied to it before casting takes place. When the working mould has dried it becomes ready for casting. Into this is poured the slip containing a mixture of china clay, ball clay, quartz, felspar, electrolytes, soda ash, soda silicate and ceramic colour. In this case the latter is blue. When the slip has dried, it is taken out of the cast and finished by hand with sponge and water. The ceramic colour stripes—brownish red, navy blue and green—are now applied by means of a turning platform. The vase is then given a transparent glaze consisting of a mixture of quartz, felspar, china clay, whiting, zinc oxide and barium carbonate. The vase is then fired at 1250°C. The exact temperature to which the kiln has to be fired is ascertained by placing small glazed pieces of the same body facing the "sample hole". The potter takes out these pieces and when he finds that the glaze is fully vitrified, he stops firing. The vase or series of vases are allowed to cool by themselves and the finished pieces are then decorated with a gold solution (gold-rosinate). The vase is again fired in coal-fired muffles at 750°C. It is after these processes that the vase assumes the beautiful and attractive appearance that it has.

Plate no. 14 shows a large porcelain vase with a typical Persian style design. It has a height of 21 inches. It was prepared more or less like the vase in plate no.13. After being taken out of the case, the vase was half-fired at 900°C, the craftsman regulating the degree of fire by the sampling method. The design of the vase was first painted on paper, the outline of which was needle-perforated, pasted on the vase and an ink poured through the holes. Brown, green, blue and black ceramic colours were then applied with a paint brush, after which the vase was glazed and fired.

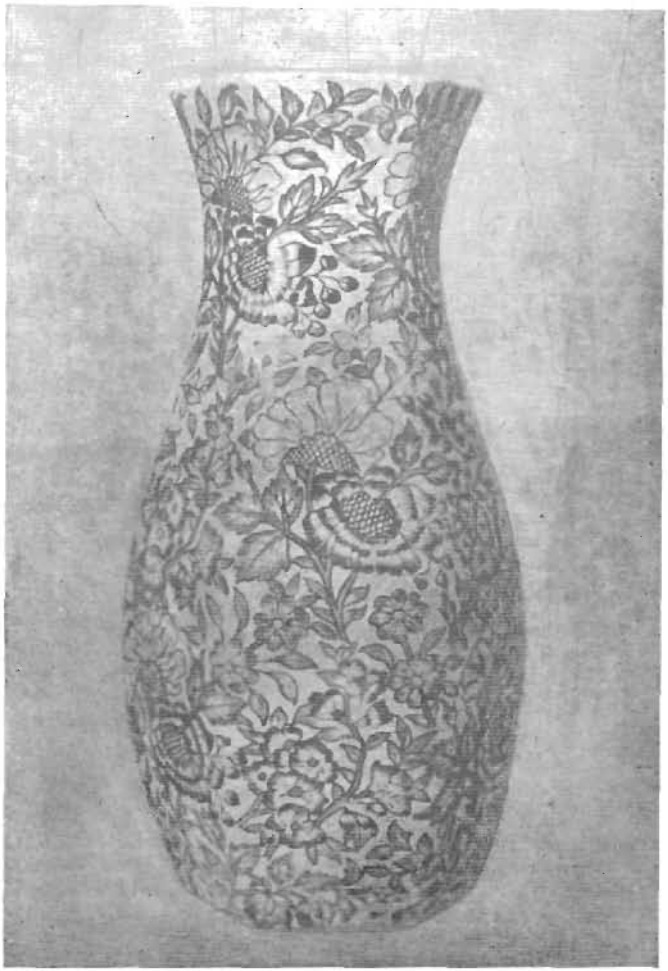
The porcelain vase shown in plate no. 15 has also been prepared similarly.

Plate no. 16 shows a white porcelain vase decorated in red, gold and blue stripes and painting showing the hunting of a deer. It has a height of 12 inches. The slip, a mixture of quartz, felspar and clay, is poured into the mould and the process continues until the layer sets round the mould up to the required thickness. When the casting dries, it is taken out of the mould and finished by hand with sponge and water. The design is then painted on the ware with a brush and ceramic colours. The pattern is then given a coating of transparent glaze mainly composed of quartz, felspar, barium carborate, zinc oxide and whiting. After glazing, it is subjected to a process of firing at about 1250° C. Sample pieces of the same body of which the pattern is cast are kept in the kiln. The fireman observes these sample pieces from time to time in the kiln and when the body and glaze are

completely vitrified he stops firing and the kiln is allowed to cool slowly. The wares are then taken out of the kiln.

Plate no. 17 shows a traditional blue pottery flower vase, with a height of 11 inches. The vase is reminiscent of the 14th century Persian design and colour influences. It is made of red clay and white engobe and the painting has been done with cobalt and chromium colours. This vase was made from local clay on a potter's wheel. When dry, the complete vase was dipped in a solution of white clay. The quality of this white clay was such that its coefficient of thermal extension was the same as that of the local clay. This process is known as 'engobing'. After being engobed it was painted with copper and cobalt stains. It was then fired at a low temperature and glazed with a fritted transparent glaze, containing mostly cullet and borax after which it was again fired at 950° C.

Plate No. 17



Large traditional blue pottery vase : height 11 inches.
—Photo by Mrs. Ruth Reeves

Plate No. 18



Some crockery wares manufactured at Khurja

—Photo by Ramesh

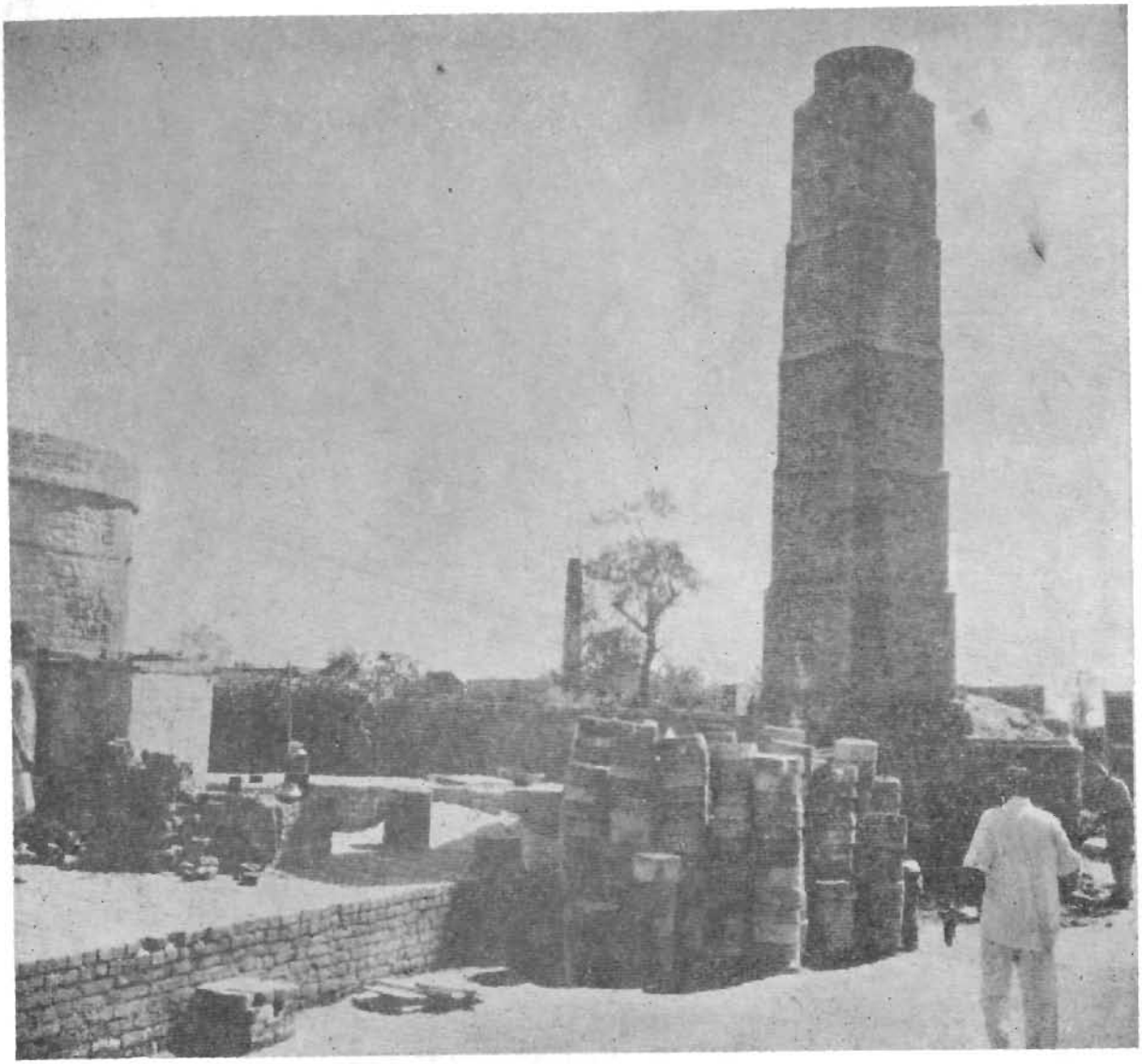
Plate No. 19



Flower vases of various designs

—Photo by Ramesh

Plate No. 22



A view of Government Pottery Centre, Khurja
—Photo by Ramesh

CHAPTER VII

Cost of Production

Most of the potters at Khurja purchase raw material in the form of body and glaze from the Government Pottery Development Centre. They do not maintain a proper account of the expenses incurred. Hence it is difficult to calculate the cost of production accurately. The cost fluctuates according to the type of material used. Quartz, felspar and clay are brought from different places at different rates. They are mixed in different proportions for preparing different types of body and glaze. The costing of body and glaze is done at the Development Centre, which charges from the potters some money for storing and grinding the materials in addition to the 7 per cent overhead charges.

The costing of old mixture body for the manufacture of crockery is as follows :—

Raw Material	Cost
1. Calcined quartz	Re. 1.93 nP. per maund
2. Felspar	Re. 1.71 nP. per maund
3. Edge-runner mill charges	Re. 0.43 nP.
4. Ahmedabad clay	Rs. 6.16 nP. per maund
5. Kasim Bazar clay	Rs. 5.30 nP. per maund
6. Bikaner clay	Rs. 2.96 nP. per maund
7. Rajmahal clay	Rs. 6.40 nP. per maund

The cost of body at the Centre, as approximately calculated, is as follows :—

Items of Cost	Amount
1. Cost of 5 mds. body (mixture of quartz, felspar and clay)	Rs. 18.90 nP.
2. Cost of 1 md. body	Rs. 3.78 nP.
3. Storage charges per maund @ 12 per cent	Re. 0.46 nP.
4. Grinding charges	Re. 1.03 nP.
5. Cost of 1 md. body to Centre	Rs. 5.27 nP.

By adding an amount 75 nP. per maund as the overhead charges, the price charged by the Centre comes to Rs. 5.27 nP. plus 75 nP., *i.e.*, Rs. 6.02 nP. per maund. The Centre does not charge any profit.

The cost of different types of bodies and glaze used for different products is as follows :—

Type of body/glaze	Cost per maund
1. Kit-kat body	Rs. 4.66 nP. to Rs. 5.00 nP.
2. *Kundi* body	Rs. 3.30 nP. to Rs. 3.50 nP.
3. Tile body	Rs. 4.50 nP. to Rs. 4.99 nP.
4. Chemical porcelain body	Rs. 6.06 nP. to Rs. 7.00 nP.
5. Pestle mortar body	Rs. 5.60 nP. to Rs. 5.80 nP.
6. Insulator body	Rs. 4.50 nP. to Rs. 5.06 nP.
7. Transparent (S. F.) glaze	Rs. 20.00
8. Glaze for *kundies*	Rs. 18.00

The sale price of the above material is calculated by adding 7 per cent as overhead costs.

The estimate of cost including expenditure on raw materials, colour, labour, depreciation of saggars and moulds and other expenses is calculated according to the size of the kiln. If different sizes of wares and various types of articles are fired in a kiln, it becomes quite difficult to calculate the cost of production incurred by the potter. On one occasion he might fire *kundies*, on another tea-pots and yet on a third occasion *kundies* and tea-pots of various sizes, whose rates are different, might be fired together, thereby leading to complications in the calculation of cost.

If a potter loads a kiln of 12 feet diameter with tea-pots, the expenditure would approximately be as follows :—

Items of Expenditure	Cost
1. Body 60 mds. @ Rs. 5.25 nP. per md. plus 7% overhead charges plus transportation charges	Rs. 340
2. Glaze 3 mds. @ Rs. 20 per md. (including overhead charges)	Rs. 60
3. Coal 110 mds. @ Rs. 2.25 nP. per md. (including overhead charges)	Rs. 247.50 nP.
4. Rent of the kiln	Rs. 21
5. Weighing charges of coal @ 6 nP. per maund	Rs. 6.60 nP.
6. Labour charges including transportation	Rs. 200
7. Rent of the workshop	Rs. 25
8. Depreciation of saggars and moulds	Rs. 100
9. Miscellaneous expenses	Rs. 22
Total Expenditure	Rs. 1,022.10 nP.

If all the fired goods happen to come out under commercial quality, the total value of the articles fired in a kiln of 12 feet diameter will be as follows :—

Number	Rate per Dozen	Sale Price
1. 60 dozen tea-pots of 6 cups each	Rs. 9.75 nP.	Rs. 585
2. 50 dozen tea-pots of 4 cups each	Rs. 8.12 nP.	Rs. 406
3. 60 dozen tea-pots of 2 cups each	Rs. 6.00	Rs. 360
Total Sale Price		Rs. 1,351

In actual practice, about 15 per cent to 20 per cent goods have to be rejected because they are either broken or are underbaked or overbaked, or have some other defects. Hence the average selling price of the products of a kiln with 12 feet diameter comes between Rs. 1,200 and Rs. 1,250. The margin of profit is also between Rs. 175 and Rs. 200. The average cost per piece comes to 50 nP. and the selling price per piece is generally 65 nP., giving out an average margin of about 30 per cent.

The cost of production of pestle mortars in a kiln of 10 feet diameter would be as follows :—

Items of Expenditure	Cost
1. Body 80 mds. @ Rs. 7.50 nP. per maund	Rs. 600
2. Glaze 2 mds. @ Rs. 20 per md.	Rs. 40
3. Coal 85 mds. @ Rs. 2.25 nP. per md.	Rs. 191.25 nP.
4. Weighment charges	Rs. 5.31 nP.
5. Labour charges, including transportation charges	Rs. 315
6. Rent of workshop	Rs. 20
7. Depreciation of saggars	Rs. 40
8. Miscellaneous expenses	Rs. 25
Total Cost	Rs. 1,236.56 nP.

The sale price of the fired products would be as follows :—

Quantity	Rate per Dozen	Sale Price
55 dozen pestle mortars with 5" inner diameter	Rs. 18	Rs. 990
55 dozen pestle mortars with 3" diameter	Rs. 9	Rs. 495
Total Sale Price		Rs. 1,485

The cost price per piece is approximately 93 nP. per piece and the sale price is Re. 1.12 nP. per piece. The margin of profit is approximately 20 per cent.

The cost of production of *kundies* fired in a kiln of 12 feet diameter is as follows :—

Items of Expenditure	Cost
1. Body 70 mds. @ Rs. 3.25 nP. per md.	Rs. 227.50 nP.
2. Glaze 4 mds. @ Rs. 20 per md., including overhead charges	Rs. 80
3. Coal 100 mds. @ Rs. 2.25 nP. per md., including overhead charges	Rs. 225
4. Weighment of coal and transport @ 6 nP. per md.	Rs. 6
5. Rent of the kiln	Rs. 21
6. Rent of workshop	Rs. 25
7. Labour charges including transportation	Rs. 200
8. Depreciation of saggars and moulds	Rs. 100
9. Miscellaneous Expenses	Rs. 5.50 nP.
Total expenditure	Rs. 890.00

The sale price of the fired products would be as follows :—

Number	Rate per dozen	Sale Price
1. 3,500 *kundies* of 6" diameter & $2\frac{1}{2}$" height	Rs. 3.75 nP.	Rs. 1,093.75 nP.
2. 3,500 *kundies* of $1\frac{1}{2}$" diameter	Re. 0.57 nP.	Rs. 166.25 nP.
Total Sale Price		Rs. 1,260

Since about 15-20 per cent of the fired products have to be rejected due to breakage or some defects, the average sale price comes to Rs. 1,065. Thus there is a margin of about Rs. 175 per kiln of *kundies*. The cost of a *kundi* of 6" diameter comes to 25 nP. and its sale price is about 30 nP., thereby giving about 20 per cent profit.

The cost of production of Japansese type kit-kats would be as follows :—

Items of Expenditure	Cost
1. Body 10 mds. @ Rs. 5.15 nP. per md.	Rs. 51.50 nP.
2. Glaze 10 seers @ Rs. 20 per md.	Rs. 5
3. Coal 25 mds. @ Rs. 2.25 nP. per md.	Rs. 56.25 nP.
4. Weighing & transportation charges of coal @ 6 nP. per md.	Rs. 1.50 nP.
5. Rent of the kiln	Rs. 3.50 nP.
6. Rent of the workshop	Rs. 20
7. Labour charges	Rs. 80
8. Depreciation of saggars	Rs. 10
9. Other expenses	Rs. 2.25 nP.
Total Cost	Rs. 230

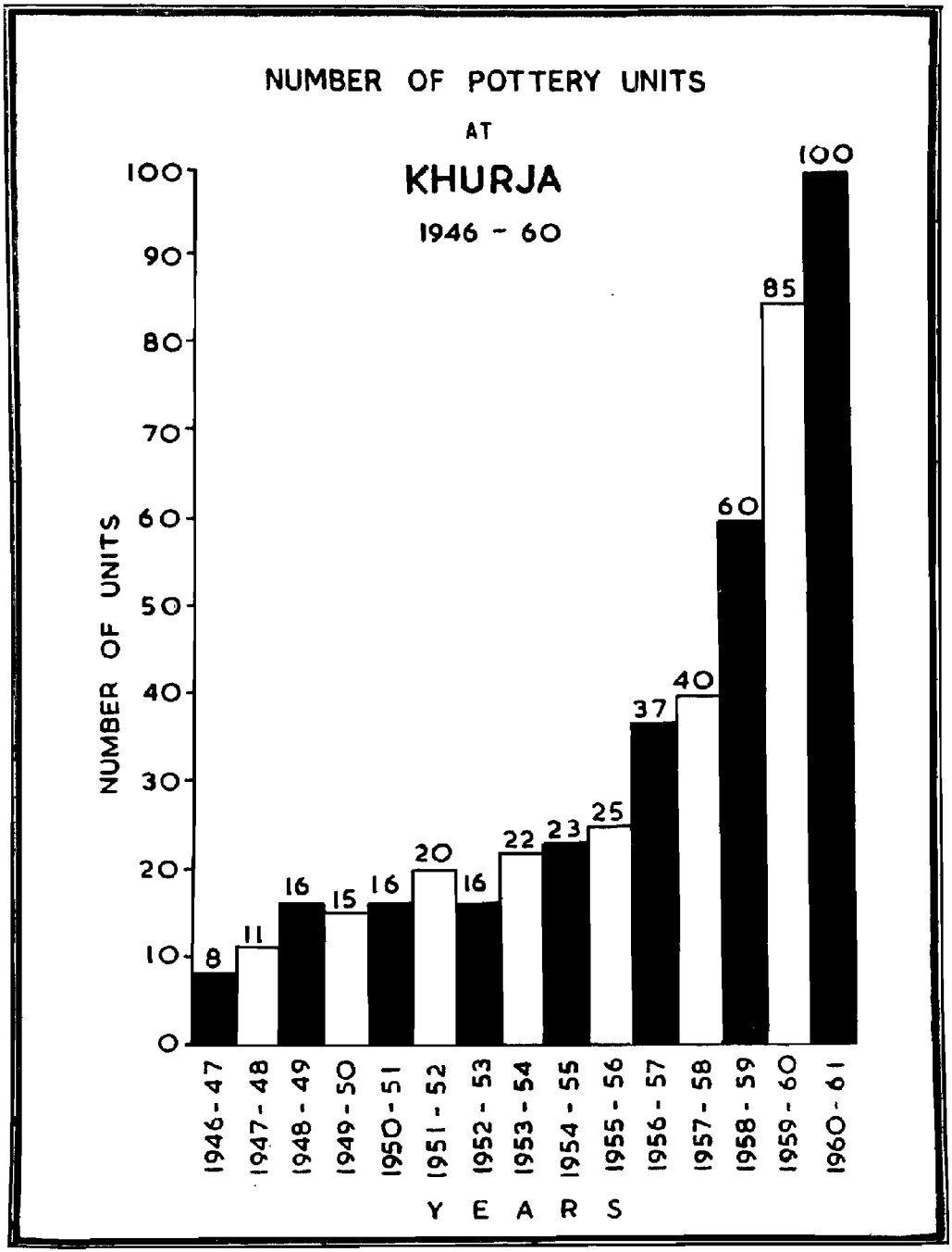
The sale price of the fired goods would be as follows :—

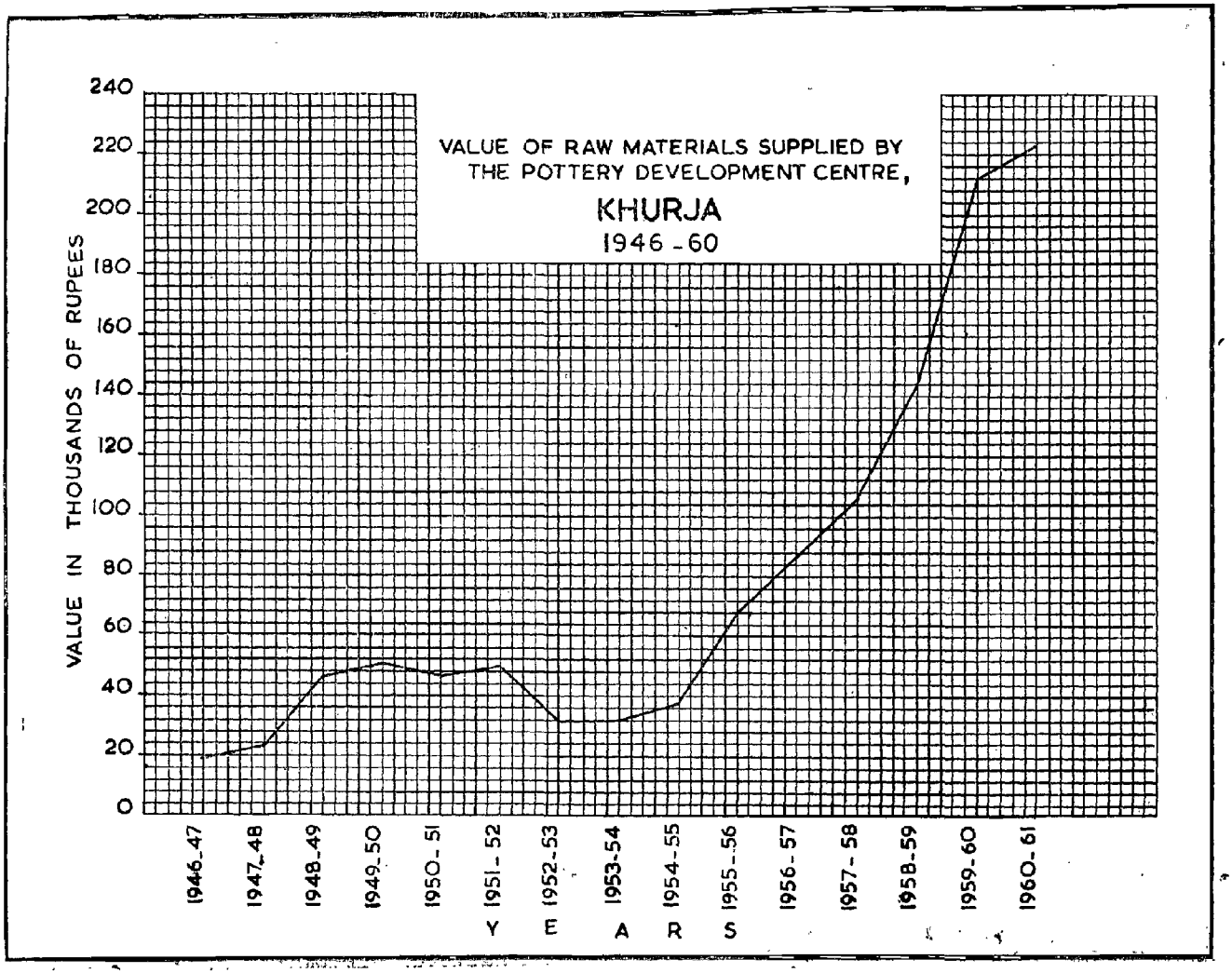
Number	Rate per 144 pieces	Sale price
1,440 pieces M.E.M. Type	Rs. 20	Rs. 200
1,440 pieces H. C. Type	Rs. 16	Rs. 160
Total Sale Price		Rs. 360

After accounting for broken and damaged kit-kats, the sale price comes to Rs. 340 approximately, which shows an average profit of about 48 per cent.

The cost of production of insulators fired in a kiln of 12 feet diameter is as follows :—

Items of Expenditure	Cost
1. Body 90 mds. @ Rs. 5 per md.	Rs. 450
2. Glaze 3 mds. @ Rs. 20 per md.	Rs. 60
3. Coal 110 mds. @ Rs. 2.25 nP. per md.	Rs. 247.50 nP.
4. Labour charges	Rs. 320
5. Weighing and transportation charges of coal @ 6 nP. per md.	Rs. 6.60 nP.


NUMBER OF POTTERY UNITS
AT
KHURJA
1946 - 60
NUMBER OF UNITS
0
10
20
30
40
50
60
70
80
90
100
8
11
16
15
16
20
16
22
23
25
37
40
60
85
100
1946-47
1947-48
1948-49
1949-50
1950-51
1951-52
1952-53
1953-54
1954-55
1955-56
1956-57
1957-58
1958-59
1959-60
1960-61
YEARS


VALUE OF RAW MATERIALS SUPPLIED BY
THE POTTERY DEVELOPMENT CENTRE,
KHURJA
1946 - 60
VALUE IN THOUSANDS OF RUPEES
240
220
200
180
160
140
120
100
80
60
40
20
0
1946-47
1947-48
1948-49
1949-50
1950-51
1951-52
1952-53
1953-54
1954-55
1955-56
1956-57
1957-58
1958-59
1959-60
1960-61
YEARS

Items of Expenditure	Cost
6. Rent of the kiln	Rs. 21
7. Rent of the workshop	Rs. 25
8. Depreciation of saggars	Rs. 50
9. Miscellaneous expenditure	Rs. 20
Total Cost	Rs. 1,200.10nP.

The sale price of the fired goods would be as follows :—

Number	Rate per dozen	Sale Price
500 dozen	Rs. 3	Rs. 1,500

The profit per kiln comes to Rs. 300 approximately. The cost of production of one insulator being 20 nP., with a selling price of 25 nP. per piece, the average profit comes to about 25 per cent.

In view of the shortage of kilns, each proprietor is able to carry out about 8 firings every year. If they can get a kiln every month, the industry would be more profitable and attractive.

The process of firing adds an element of great uncertainty in the quality of the product. Some products get deformed in the operation of firing. Sometimes all the articles may come under the first quality but sometimes all the articles may be damaged. All the kilns at Khurja are fired with coal and hence there is no surety of the quality of the product after firing. The firing skill of the fireman plays an important role in the matter. One extra charge of coal to the fire boxes may lead to overbaking or deformation of all the goods, whereas a smaller dose of coal may bring out underbaked goods.

The average profit on the different kilns loaded with different goods is as follows :—

Product	Size of Kiln	Profit
1. Tea-pots	12 feet diameter	Rs. 200
2. Tea-sets	18 feet diameter	Rs. 500
3. Kit-kat	6 feet diameter	Rs. 300
4. Kit-kat	Japanese type	Rs. 120
5. *Kundies*	10 feet diameter	Rs. 100
6. *Kundies*	12 feet diameter	Rs. 160
7. Pestle mortars	12 feet diameter	Rs. 350
8. Insulators	12 feet diameter	Rs. 300

According to the figures collected during the year ending March 31, 1962, the cost of production of pottery products at Khurja was Rs. 587,840 whereas the value of the finished goods was Rs. 761,750, thereby giving a profit of about 29 per cent to the proprietors.

TREND OF PRODUCTION

The pottery industry at Khurja has been expanding fast as indicated by the following figures supplied by the Centre :—

Years	Number of Workshops	Value in Rupees of Raw Material sold by Centre	Index Number	Value in Rupees of Goods produced by Potters	Index Number
1946—47	8	19,000	100	35,000	100
1947—48	11	23,000	121	40,000	114
1948—49	16	45,000	237	90,000	257
1949—50	15	49,600	261	90,000	257
1950—51	16	47,700	241	91,000	260
1951—52	20	49,000	258	98,000	280
1952—53	16	31,500	166	63,000	180
1953—54	22	31,560	166	63,000	180
1954—55	23	37,590	198	72,50	207
1955—56	52	67,020	353	141,200	403
1956—57	37	85,990	452	171,562	490
1957—58	40	104,400	549	215.565	616
1958—59	60	143,385	755	327,576	936
1959—60	85	209,811	1,104	545.275	1,558
1960—61	100	222,672	1,172	636,500	1,819

As is evident from the above figures, in 1960-61 the number of workshops multiplied to 12½ times the number in 1946-47, whereas the value of production increased to 18 times and the value of raw material supplied by the Government Pottery Development Centre increased to 11¾ times.

The targets for the Third Five Year Plan are as follows :—

Year	Value in Rupees of finished Goods	Value in Rupees of Raw Materials to be sold by Centre	Number of Units
1961—62	600,000	300,000	120
1962—63	700,000	350,000	140
1963—64	800,000	400,000	160
1964—65	900,000	450,000	180
1965—66	1,000,000	500,000	200

As is evident from the above figures the industry has been expanding at a fast speed.

SUGGESTIONS FOR LOWERING THE COST OF PRODUCTION

The following suggestions for lowering the cost of production are offered :—

(1) The quality of articles produced should improve so that they might fetch a higher price and the percentage of rejected stuff might decline.

(2) Labour must be trained and efficient.

(3) Oil furnaces or electric kilns should be introduced at the Centre so that better quality goods might come out after firing. It is encouraging to note that an oil-fired tunnel kiln is being added at the Centre. It is expected that the quality of goods fired in this kiln would be better. The cost of firing would also be low and the dependence on uncertain coal supplies would be reduced. But then, one such kiln cannot suffice the whole industry.

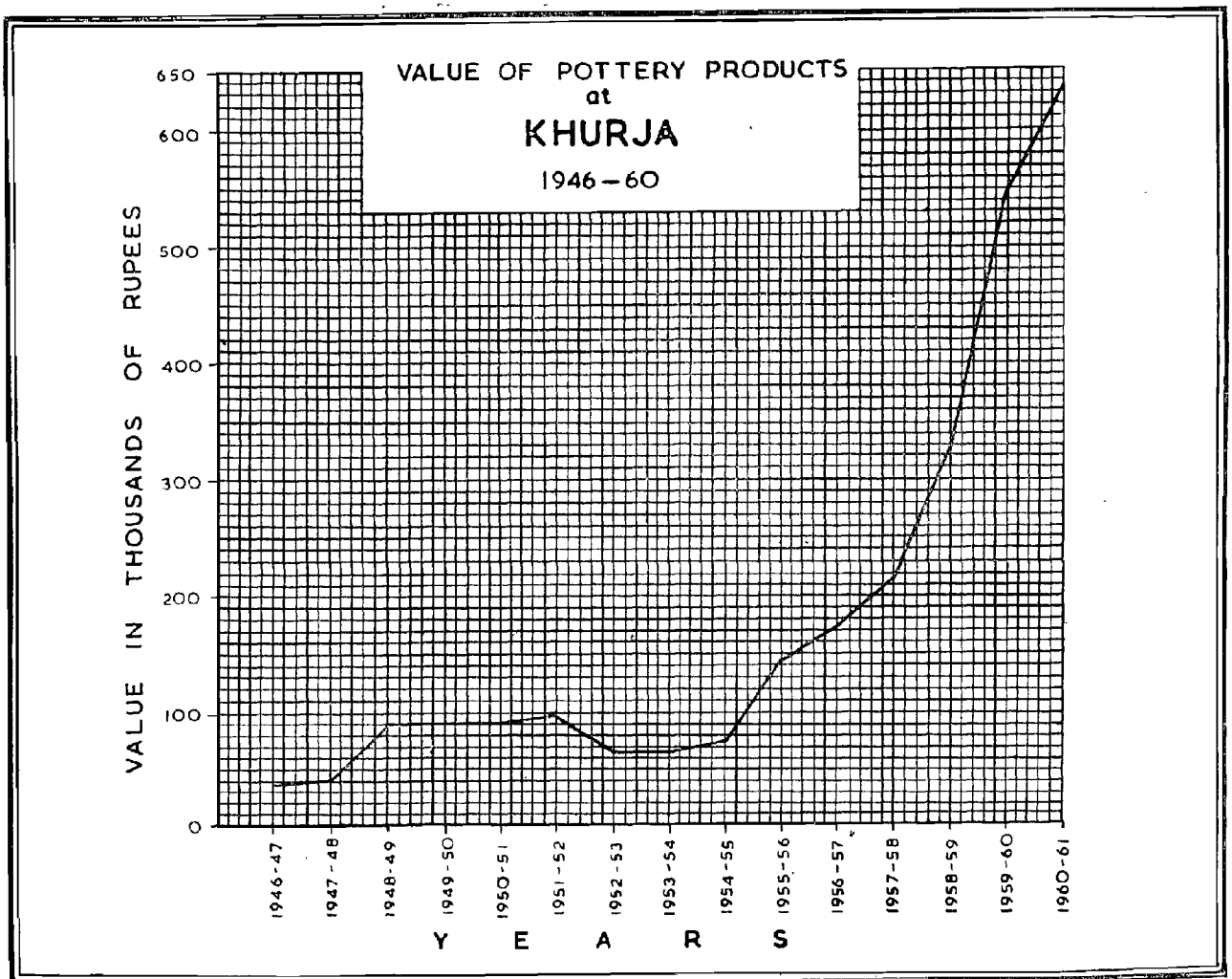
(4) On account of their weak financial position, about 90 per cent of the units do not have their own kilns and get their products fired at the Centre. Due to paucity of kilns at the Centre, every unit has to wait for its turn. Sometimes, the stocks of green articles, ready for being fired, go on accumulating in the workshops. If supplies of coal are not received regularly, the situation goes from bad to worse. Thus, automatically, a brake is applied on production. During the Third Five Year Plan, the kiln capacity of the Government Pottery Development Centre is going to be increased from 4 tons a day to 14 tons a day. The situation would then ease to some extent.

INVESTMENT PER UNIT

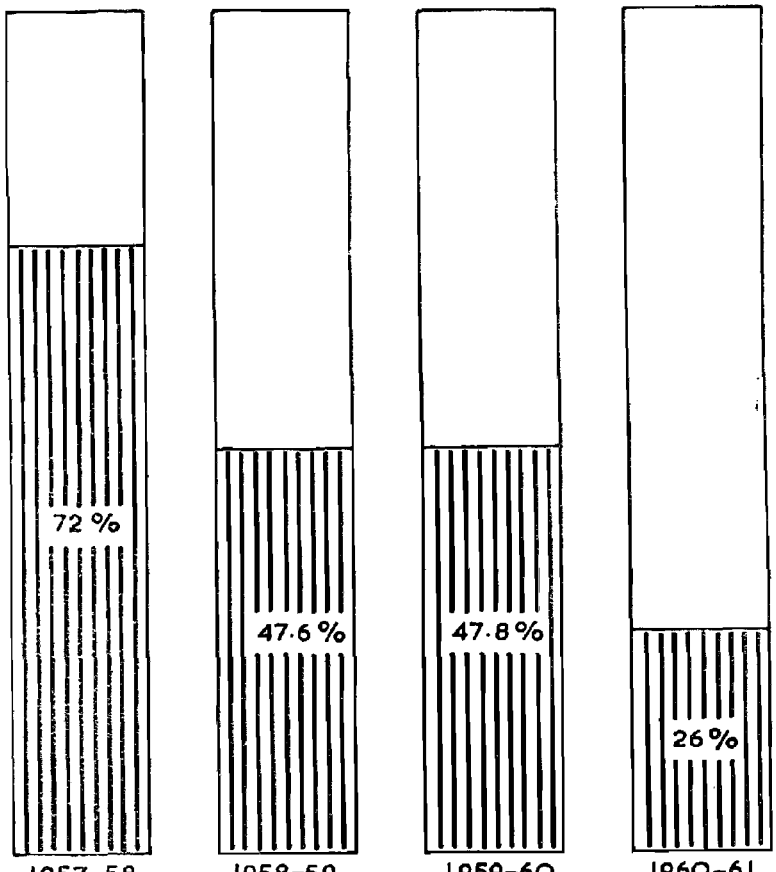
According to a survey made in 1961 by the Small Industries Service Institute, Kanpur, the average investment per unit was Rs. 6,176 for units producing crockery items, Rs. 8,647 per unit for units producing electrical porcelain items, Rs. 6,077 per unit for units producing chemical and laboratory porcelain wares. The investment per unit is quite low because about 3/4th of the units are working in rented premises and are using machines and equipments of the Government Pottery Development Centre. Some of the units are housed in the Potter's Colony within the premises of the Centre.

INVESTMENT AND PRODUCTION PER WORKER

According to the same survey, the investment per worker in units producing crockery items, electrical porcelain items and chemical and laboratory porcelain wares comes to Rs. 1,175, Rs. 1,807 and Rs. 1,490 while the production per worker comes to Rs. 1,157, Rs. 1,520 and Rs. 1,415 respectively, thereby giving a capital output ratio of 1 : 0.98, 1 : 0.84 and 1 : 0.95. Evidently the production per worker is quite low. The units cannot work in full swing throughout the year and hence the capital output ratio is so low.


VALUE OF POTTERY PRODUCTS
at
KHURJA
1946 – 60
VALUE IN THOUSANDS OF RUPEES
650
600
500
400
300
200
100
0
1946-47
1947-48
1948-49
1949-50
1950-51
1951-52
1952-53
1953-54
1954-55
1955-56
1956-57
1957-58
1958-59
1959-60
1960-61
Y E A R S

PERCENTAGE OF POTTERY PRODUCTS SOLD THROUGH DEPOT 1957-61



CHAPTER VIII

MARKETING

Marketing plays an important role in the development and survival of an industry, especially of a small-scale or cottage industry. If a proper marketing organization does not exist adequate profits would not accrue on account of the weak bargaining power of the producer and the existence of cut-throat competition among the producers.

In the past, the individual units of potters had their own arrangements of marketing their goods. Due to paucity of funds, the waiting power was weak and hence, whenever goods were ready for sale, they were disposed of at the earliest without waiting for a fair price. The margin of profits was, therefore, lean.

The marketing and sales promotion of Khurja pottery was done mainly by the National Small-Scale Industries Corporation, Delhi for a period of 5 years till October, 1961. One of the functions of the Corporation is to give marketing promotion assistance to small-scale industries. With this end in view, the Corporation had set up a Marketing Assistance Depot at Khurja in the end of 1956, because the pottery industry appeared to be an attractive proposition. The Depot was situated within the precincts of the Centre. An agreement was made between the Depot and potters incorporating the following terms :—

1. That the Depot shall be responsible for the sale of all articles, mainly crockery made by the potters ;

2. That the potters will not sell in competition with the Depot ;

3. That the prices to be paid to the potters by the Depot shall be fixed by the Development Centre and potters in consultation with the Depot on the basis of prevailing market rates ;

4. That the potters shall produce the articles in accordance with the requirements set forth by the Depot ;

5. That the Depot shall pay the potters for their goods within 10 days of the receipt of goods at the Depot ;

6. That each potter shall deposit with the Depot the sum of Rs. 200 either in lump sum or by deduction from payments.

The Depot worked in close collaboration with the Centre, although there was no formal agreement between the two. According to a mutual working agreement, the Depot used to deposit Rs. 3,500 with the Centre so that processed raw materials could be issued to the potters on credit.

The Depot undertook the marketing only of crockery and surgical goods. It also handled flower vases when orders were received from the show rooms run by the All India Handicrafts Board or various Governments and from other places. Electric goods, the production of which at Khurja has been on the increase, were not handled by the Depot because scientific arrangements for ensuring the production of these articles according to the prescribed specifications and standard did not exist.

Defective products were not accepted by the Corporation for marketing. This rejected stuff was marketed by the potters themselves through their own resources. Also, those potters who were not attached to the Depot, used to make their own marketing arrangement. In the beginning, the Depot used to purchase most of the production of the potters so that the producers could concentrate on the improvement of the quality of wares without botheration of finding a market. But, instead of improving the quality, they increased the quantity of production without caring for quality at all. Hence the Depot had to change its policy and limit its purchases only to quality goods.

During the slack season the Depot did not purchase all the quality goods even, with the result that the potters had to find out ways and means of marketing the surplus goods.

The main aim of the Depot was to develop a proper market for the products of Khurja pottery. The Depot saved the potters from competition and was instrumental in getting fair prices of the products.

The following figures indicate the work of marketing done by the Depot :—

Year	Value of Yearly Production	Value of Products sold by the Depot	Percentage of Col. 3 to Col. 2
1957—58	Rs. 215,565	Rs. 155,207	72%
1959—59	Rs. 327,575	Rs. 156,058	46.6%
1959—60	Rs. 545,275	Rs. 261,462	48.8%
1960—61	Rs. 636,500	Rs. 167,660	26%

The decline in the percentage of goods sold through the Depot is noteworthy. A close analysis reveals the following reasons for this decline :—

(1) Production of pottery goods has been on the increase. The value of products in 1960-61 was 2.96 times the value of products in 1957-58. During this period the stress has been on the production of scientific and electric goods, including insulators and kitkats, because of the greater margin of profit on these products. These products were not marketed through the agency of the Depot. Hence the percentage of value of goods sold through the Depot was bound to be on the decline.

(2) The quality of the articles produced by the potters is not of a high standard. The Corporation had to be strict in the matter of acceptance of products for sale through its agency so that its own reputation might not fall and also because the potters might not feel encouraged to produce poor quality goods.

(3) During the year 1959-60 the Depot handled products worth Rs. 261,462 while in the year 1960-61 the value of goods handled was Rs. 167,660 only which was about 64.7% of the figure for the previous year. This absolute landslide is apparently an index of something wrong with the affiairs of the Corporation and its Depot. Since it is not the policy of the Corporation to provide marketing facilities to a particular industry for an unlimited period, it withdrew after working for 5 years.

In 1960-61, goods to the extent of 74 per cent of the total value were sold by the potters themselves. They have no separate marketing organisation of their own. Naturally, the sale price of the goods so disposed of could not have fetched even a fair margin of profits. The producers directly contact the dealers, mostly at Delhi for contract of supply of these articles on a stipulated price. The goods are transported by trucks after being packed in gunny bags. Porcelain balls and tiles are generally transported by train, since there is little risk of their breakage in transit.

The pottery products of Khurja are sold locally as well as in Delhi, Uttar Pradesh and Punjab. The crockery items are mostly sold because of their cheapness. The quality of the products—design, durability and finish—is quite poor. Flower vases find a wider market—sometimes in foreign countries as well.

ADVERTISING

Since the units are small manufacturers with poor financial condition, they cannot possibly meet the expenses of advertisement. It does not seem to have been realised that the industry has to depend for its survival to some extent on continuous and systematic advertisement. At present the goods are sent for sale to some fairs and exhibitions but no separate stall showing the processes of manufacture in an interesting manner is regularly sent to the exhibition, as is done by the big manufacturing units in the country. Advertisement and propaganda should be organised in a systematic manner by the body of manufacturers with the help and guidance of the Centre. The evils of competition among themselves should also be brought home to the potters. It is also necessary not only to improve the quality of goods but also to set up a reliable system of standardising and marketing. The manufacturers should organise themselves into a co-operative marketing society, so that their condition might be ameliorated.

CHAPTER IX

Conclusion

The pottery industry at Khurja has been expanding and developing every year. In 1895 Khurja produced "glazed ornamental vases and flower pots to the annual value of Rs. 1,000 only without any prospect of the introduction of the manufacture of China jugs, cups, saucers and plates."[1] In the year 1946, there were 2 units producing white pottery in Khurja attached to the Government Pottery Development Centre, with a production of the total value of Rs. 19,000. In 1956-57 the number rose to 80 units. At the time of survey, there were a little more than 100 units attached to the Centre, though the survey of 81 units only which were found actually working at the time, was taken up. The value of the pottery products had gone up to Rs. 636,500 in 1960-61. As already pointed out earlier, in the Third Five Year Plan the pace of development is expected to be further accelerated because some more schemes for pottery development in Khurja have been sanctioned.

A Pilot Research and Processing Laboratory for porcelain is to be set up at Khurja. The main aims of the laboratory will be as follows: —

1. Introduction of the manufacture of fine porcelain crockery on a mass scale in Uttar Pradesh ;

2. Manufacture of other special type of porcelain not hitherto manufactured in our country ;

3. Encouragement to the development of pottery industry in the private sector ; and

4. Preparation of layouts, designs and estimates for new pottery units and evolution of new designs of moulds and kilns, and cheap and economic formulae for preparation of body and glaze. With the help of this laboratory, the pottery industry would flourish on a large scale in the State.

A High Tension Insulator Laboratory for testing high and low tension insulators has already been set up at Khurja. All electrical goods including high tension insulators will be properly tested and standardised. With the resultant improvement in quality, these articles would be sold in the market very easily. The insulator industry would get a fillip in this manner.

The State Government should consider the possibility of introducing the Quality Marking of pottery goods at Khurja early. As a result, the quality of products would improve, the consumer would be sure of the quality of goods that he would purchase and thus the demand for these articles would go up. Spurious goods would automatically be driven out of the market.

With a view to solving the problem of accommodation for the pottery units, the State Government has already constructed 100 quarters which are being used by the potters for their residence as well as workshops. The rent charged is quite reasonable. Another 50 quarters are to be added. Thus the problem of accommodation has been solved. It has also been decided to set up an Industrial Estate within an area of about 25 bighas 11 biswas at an estimated cost of about 7.5 lacs of rupees. The Estate will be just adjacent to the Government Pottery Development Centre. Under this scheme the Government will construct 18 workshops which will ultimately be given to the potters on a hire-purchase system.

A tunnel kiln with regulated heating arrangements will also be constructed near the Centre so that the firing operations could be conducted under a regulated temperature in an atmosphere free from smoke and its damaging effects on the goods. The quality of the products will improve ; also the percentage of damaged products will come down. There would be economy of labour and time and decrease in the cost of production.

For introducing the economies of large scale production, the capacity of the plant at the Centre is being raised from 4 tons to 14 tons per day. Every potter would be able to get a greater quantity of body and glaze at a slightly cheaper price. The number of kilns is also being increased. The Centre is being equipped with better types of pottery machines.

Marketing of finished goods was a great problem for the potters of Khurja. This problem was partly solved by the National Small Industries Corporation. After the withdrawal of the Corporation, the potters have to fend for themselves again. There is not much of difficulty in finding out customers for the products because of their cheapness. But the margin of profit naturally remains low, partly due to internal competition and partly because of the potter's urgency to sell. He cannot possibly keep his small capital blocked for long. Steps should, therefore, be taken to organize a Potters' Co-operative Marketing Society.

A scheme for imparting technical training in the art of pottery was sanctioned in the year 1956-57, with the main object of raising 20 manufacturing units every year. The Government Central Pottery Training Institute was established at Khurja for training 20 boys in manufacturing and 10 trainees of either sex in decoration every year. After the completion of the training, the trainees are encouraged to set up their own pottery units with the financial help and technical guidance provided by Government through the Centre. The scheme has been successful in expanding the pottery industry at Khurja. It has provided an avenue of employment.

As a result of the operation of the above scheme, it is expected that by the end of the Third Five Year Plan, the pottery industry at Khurja would provide employment to about 5,000 workers.

1. Dobbs, H. R. C. : *A Monograph on the Pottery and Glass Industries of the N.W. Provinces & Oudh*, 1895.

Sometimes, the pottery industry at Khurja suffers a set-back due to non-availability of wagons for transportation of raw materials such as coal, quartz, felspar and clays. Consequently, sometimes body and glaze are not available to the potters and sometimes loaded kilns remain unfired due to non-availability of coal. The potters are then unable to pay even wages to the labourers. Some unfailing arrangement for availability of wagons for the industry should be made.

Another problem before the pottery industry is the paucity of requisite finance for running the units successfully. The sale on credit basis further accentuates the problem. Formerly, the depot of the National Small-Scale Industries Corporation used to pay to the potters an advance up to 90 per cent of the price of goods immediately. The Centre, too, used to give raw materials on credit to the potters against the advance deposited by the Depot. But now none of these facilities exists. The only relief is the loan sanctioned by the Director of Industries from time to time. Some satisfactory arrangement of financial accommodation to the units should be made.

The pottery industry at Khurja has made a rapid progress. With all the interest that is being taken by the Government in its development and the active response of the potters of Khurja the future of this industry is bright. It would be no wonder if, in the coming years, Khurja might become a town like Stoke-on-Trent in England or Seto in Japan—well known for pottery craft all over the world.

APPENDIX I

A Note on Blue Pottery

Blue pottery for which Khurja has been traditionally known is manufactured with red clay. Nowadays, only flower vases and electric lamps are produced. Red clay mixed with calcite and quartz powder is generally used. The articles are made by the throwing method on a potter's wheel made of wood, consisting of one wheel disc above another on a common axis. The wheel is spun by foot. Both the hands of the craftsman remain free and the speed of the wheel can be regulated as desired. The shaped articles are dried in the sun and finishing touches are given either on the wheel or by hand. Thereafter a coating of engobe is applied to the ware so that the unpleasant colour of red clay might be hidden and the white background might serve as a base for further decorations in blue and green colours. White clay or a mixture of white clay and felspar serve as engobe. The engobed articles are biscuited at a low temperature of about 600°C. Thereafter, these articles are painted with colours of cobalt and chromium which give blue colours and copper oxide which gives green colour. The oxides are mixed with water for preparing the colours. The paintings are generally of Persian or Moghul style (vide plate no. 17). The background is covered with green or blue colours while flowers and leaves are left white.

After painting, the articles are glazed with a transparent low temperature glaze prepared from borax, lead, quartz, felspar, calcite, china clay and zinc oxide. Only a thin coating of glaze is applied. The glazed wares are subjected to a firing process. The firing of these articles is done in open top furnaces consisting of a fire-box below the ground of the furnace. Wood, generally tamarind wood, is used as fuel since it contains little smoke. The articles are put into ring-shaped saggars made of red clay, so that one piece does not touch the other. The flames from the firebox pass through the holes of the ground of the furnace, come into the main chamber and heat the wares. The open top of the furnace is covered with pieces of red clay. Test pieces or samples are kept in front of the hole left in the furnace. A wooden stick is passed through the sample hole into the furnace. When it burns with the heat of the furnace, the fireman sees in its light the test pieces and judges whether the glaze has melted or not. When he is satisfied, the firing is closed and the furnace is allowed to cool. The fired articles are taken out when the furnace has cooled down. If the wares are taken out hot, they are likely to get crazed by coming into contact with cool air. These articles are fired at a temperature of about 1,000°C in the manufacturer's own furnace.

The colours used in painting the ware are generally green and blue and hence this pottery has come to be known as blue pottery.

The Scheme for the revival of traditional pottery has been discussed in the first chapter. The Industrial Co-operative Society of traditional potters has in its employment only two persons, namely, Sayeed Ahmed and his younger son. They produce red clay pottery for the Society in all stages of manufacture. The household of Sayeed Ahmed produces blue pottery to order of the Handicrafts Emporium at Janpath Road, New Delhi. He and his son, who are employed under the Society, work at their house on off days ; they are also assisted by the son's wife. The emporium people give necessary specifications as regards design, shape, size, painting etc. of the article to be produced. Sometimes, samples supplied by the emporium are reproduced. Sayeed Ahmed is a master craftsman. The jobs of shaping the ware by the throwing method and painting it are performed by Sayeed Ahmad himself. His presence is also necessary during the process of firing the painted articles on which a glaze has been applied. Other operations are performed by other working members of the household.

The capacity of the kiln is about 20 to 25 articles of 8" to 12" height. The price of each piece varies from Rs. 10 to Rs. 20. Thus on an average, the articles fired at one time are sold for Rs. 200, thereby leaving an earning of Rs. 100 per month. The element of risk in the production of blue pottery is high. If the article gets spoilt either by crazing or by unpleasant or unsystematic painting, the emporium rejects it outright and it cannot be sold in the market even at 25 % of the normal price. The demand for blue pottery is limited and the household cannot take the risk of production on a large scale.

In addition to the blue pottery wares produced by Sayeed Ahmed, S.K. Jain, a resident of Khurja who had received training in the art of decoration at the Central Pottery Training Institute in the 1961-62 batch, has undertaken the production of red clay pottery with modern technique of shaping and glazing. He produces flower pots, statues, ash trays, toys etc. He has adopted the method of casting the red clay slip into the moulds of plaster of Paris. The moulds are self-prepared. The red clay slip is prepared by adding whiting, quartz and soda silicate in the common red clay available from Agwal, a place at a distance of about 2½ miles from Government Pottery Development Centre. Meat waste is also sometimes mixed with the slip for ageing purposes.

A thin coating of engobe is applied to the casted piece. Black, blue, white, brown, cream and green coloured engobes are used. He does not prepare the engobes himself; instead, he obtains his supply from the Director, Central Design Centre, Calcutta @ Re. 1.50 nP. per kilogram on an average. Another source of supply of engobes is the All-India Handicrafts Board, Calcutta.

The engobed pieces are biscuited in the kilns of the Centre. Biscuited pieces are coated with glazes of various colours. A number of coloured glazes are thrown on the pieces if a multi-coloured ware is to be produced. The dipping method is practised when only one glaze is to be coated. The glazes are obtained from Calcutta @Rs. 5.50 nP. per kilogram.

After glazing, the pieces are again fired in the kiln of the Centre at a temperature of about 1,000°C.

These products are generally supplied to the following customers :—

(1) U. P. Handicrafts Emporium, New Delhi

(2) All India Cottage Industries Emporium, New Delhi

(3) M/s S. N. Kapoor & Sons, 40 Hanuman Road, New Delhi

(4) Sri P. P. Anand, Organiser, Khadi Ashram, Pinjore (Ambala).

The demand is limited but even then the producer was optimistic about the future of this type of pottery.

APPENDIX II

List of Pottery Units Surveyed

	Name of Unit or Proprietor	Number of Workers
	(1) *Mohalla Khesgian*	
1.	M/s Abdul Aziz Tohit Ahmed	5
2.	Sri Abdul Rahim II	6
3.	Sri Abdul Rashid Ansari	4
4.	M/s Abdul Rauf and Abdul Rab	9
5.	M/s Abdul Rehman & Sons	6
6.	Sri Abdul Waheed	3
7.	Agarwal Pottery	5
8.	Sri Alimuddin	3
9.	Ashok Pottery	8
10.	Sri Ajmal Khan	4
11.	Sri Abdul Rashid	10
12.	Bhardwaj Pottery Works	5
13.	Chand Pottery Works	5
14.	Dayal Pottery Works	5
15.	Sri Fakir Chand Dania	3
16.	Sri Farid Ahmed	5
17.	Garg Pottery	5
18.	Golden Pottery	9
19.	Sri Hafiz Mahmood Ahmed	4
20.	Hari Har Pottery Works	4
21.	Hasan Pottery Works	6
22.	Kailash Pottery Works	7
23.	Sri Kaley Khan	5
24.	Sri Master Abdul Salam	5
25.	Mahavir Jain Pottery	7
26.	Sri Misri Lal	5
27.	Sri Mohammed Ibrahim	3
28.	Sri Mohammed Ilyas	5
29.	Sri Mohammed Ismail	12
30.	Sri Mohit Ahmed	5
31.	M/s Mohammed Rafi Mohammed Tahir	6
32.	Radhey Pottery Works	3
33.	Ramjani Pottery Works	3
34.	Sri Ramji Lal	4
35.	Sri Rashid Ahmed	5
36.	Sri Shakeel Ahmed	4
37.	Razi Pottery Works	6
38.	Shamshad Pottery Works	3
39.	Sri Som Datt Sharma	5
40.	Sri Jamil Ahmed	3
	(2) *Mohalla Salmahakan*	
41.	Sri Abdul Rahsid	4
42.	Sri Bashir Ahmed	5
43.	Sri Chandra Pal Gupta	6
44	Sri Mohammed Ishak Khan	3
45.	Sri Mohammed Mustafa Khan	5
46.	National Flower Vases	6
47.	National Pottery	6
48.	Niyaz Ahmad Bahsir Ahmed	5
	(3) *Mohalla Tarinan*	
49.	M/s Abdul Rehman Habibul Rehman	8
50.	Azad Pottery Works	8
51.	Sri Sabbir Ahmed	4
	(4) *Potters' Colony*	
52.	B. G. Brothers	4
53.	Chemico Porcelain	3
54.	Sri Chulhan Ram	3
55.	D. G. Brothers	9

Name of Unit or Proprietor	Number of Workers
56. Gopal Pottery	
57. H.M. Mathur	4
58. Jai Pottery Works	5
59. Sri M. P. Singh Yadav	4
60. P. K. Industries	5
61. Sri Ramesh Chandra Saxena	3
62. Ravi Pottery	6
63. Sri Shiv Kumar	5
64. Silico Porcelain	3
65. Sri S. K. Paraulia	4
66. Vinod Pottery	6
67. Vitrex Porcelain	3
(5) *Near Government Pottery Development Centre*	
68. Asian Pottery	11
69. Sri Gurcharan Singh	4
70. Hamid Pottery	9
71 Sri Haji Mohammed Hanif	8
72. Sri Mohammed Fazal	9
(6) *On Grand Trunk Road*	
73. Central Pottery	12
74. Standard Pottery	14
75. Sri Sumer Chand	14
76. Sri Yashpal Gupta	7
(7) *Sweepers' Colony*	
77. Sri Ram Gopal	6
(8) *Mohalla Sarai Nasrulla Khan*	
78. Modern Electric Works	6
(9) *Mohalla Sheikh Sahiban*	
79. Sri Ali Hasan Khan	6
(10) *Mohalla Punjabian*	
80. Burmex Porcelain	12
(11) *Mohalla Naya Ganj*	
81. Sri Kanti Prasad Sharma	5

TABLES

Table I—Distribution of Artisan Communities

Name of Craft	Number of Establishments surveyed	Number of Persons employed in Production		
		Persons	Males	Females
Pottery Work, Khurja	81	463	460	3

Table II—Number of Establishments and Number of Persons Employed

Community	Number of Units surveyed	Total Number of Adult Workers			Number of Families working under Co-operation	Number of Persons working in			
		Persons	Males	Females		Own Units	Employers' Workshops		
							Adult	Children	Total
1. Hindu	39	169	166	3	..	44	125	30	155
2. Mohammedan	42	208	208	..	4 in two groups	54	154	56	210
Total	81	377	374	3		98	279	86	365

N. B.—Total number of workers is 463 (377 adults and 86 children).

Table III—Distribution of Articles by Materials Used

Name of Article	Main Raw Material		Subsidiary Raw Material		Raw Material Imported		
	Name of Material	Number of Units engaged in manufacture of Main Raw Material	Name of Material	Number of Units engaged in manufacture of Subsidiary Raw Material	Raw Material	Place from which imported	Name of Units engaged in manufacture
1. Hospital wares, tea-sets, *kundi*, pestles, mortars, flower vases, etc.	(*a*) *Stoneware Body* Mixture of quartz, felspar, clays, etc.		S. F. Glaze		Quartz, Felspar	Rajasthan	M/s Bharat Mineral Supply Corporation, Imperial Road, Ajmer (Rajasthan)
2. Porcelain goods, e.g., kit-kats, crucibles dishes, insulators, etc.	(*b*) *Porcelain Body* Mixture of quartz, felspar and clays in different proportions of ingredients	3	S. F. Glaze	6	Clays	W. Bengal, Gujarat, Delhi and Madhya Pradesh	1. M/s Rajmahal Quartz, Sand, and Kaolin Company, Calcutta (West Bengal) 2. M/s Aswin & Co., Ahmedabad (Gujarat) 3. M/s Starks & Co., New Delhi 4. M/s Oriental Potterics Ltd., Chandia Road, Distt. Sahdol (Madhya Pradesh) 5. M/s Maharaj, Cessim Bazar, China Clay Mines, Calcutta (West Bengal)

N. B. Raw materials such as quartz, felspar and clays are imported by Government Pottery Development Centre, Khurja from outside the State. The Centre supplies processed raw material to the potters in the form of body and glaze. The potters who have their own ball mills for grinding also purchase the raw materials from the Centre.

Table IV—Designs

Names of Main Articles	Source of Design			Design			Colour used	
	Traditional	Self-designed	Other Sources	Name of Design	Number of Units engaged in its Manufacture		Name of Colour	Number of Units engaged in its Manufacture
1. Tea-pot	Traditional	One type designed	Imitation of foreign designs	Georgian, Sunshine, I. C., Elephant, Imperial	17 5 6 1 1	Number of units manufacturing tea-pots is 17.	Blue, black, brown, green, and ceramic, colours are used except in Sunshine design	
2. Tea-set	,,	—	,,	Georgian Sunshine	7 1		,,	
3. Baby-set	,,	—	Imitation of the matket design	I. C.	6		,,	
4. *Guria* set	,,	—	,,	Sunshine	1		—	Only 11 units prepare colours themselves; other potters purchase colours from Government Pottery Development Centre, Khurja.
5. Insulator	,,	—	,,	Shackle Stain	10 5	Number of units manufacturing insulators is 10	—	
6. Kit-kat	,,	—	,,	H.C.(Japanese) M.E.M. (English)	12 11	Total units 16		
7. *Kundi*	,,	—	,,	Common design	16		Brown colour	
8. Pestle mortar	,,	—	,,	Wedgewood	1		—	
9. Flower vase	,,	—	,,	Various types of designs	4		Black, blue, green, brown, etc.	

N. B. The Central Design Centre supplies a few designs of flower vases.

Table V—Consumption and Sale

Name of Article	Number of Units which sell to National Small Industries Corporation	Number of Units which supply direct to Dealers	Number of surveyed Units where there are Co-operative Sale Societies	Name of Article	Number of Units which sell to National Small Industries Corporation	Number of Units which supply direct to Dealer	Number of surveyed Units where there are Co-operative Sale Societies
1. Crockery viz., tea-pot, *donga*, cups, saucers, *kundies* footed bowl, baby-set tea-set, etc.	22	1. These 22 units also supply goods direct to the dealers when Corporation does not buy 2. 25 units supply direct	—	3. Chemical Porcelain, viz., Crucibles, dishes, etc.	4	These 4 units also supply direct to dealers.	—
				4. Scientific goods	2	1. These 2 units also supply direct to the dealers. 2. 3 units supply direct to dealers.	—
2. Electrical Goods		26 units					
				5. Flower vases	—	4	—
(a) Kit-kat	—	10 units					
(b) Insulator	—	16 units		6. Porcelain balls and lining	—	1	

Table VI.—Approximate Cost of Production and Sale Price of Some Articles and Average Earnings

	Name of Article	No. of Units producing these Articles	Cost per Maund of main Raw Material (Body)	Approximate Cost (per maund) of conversion into finished Product	Average Sale Price of finished Goods per Article	Average Earning per Worker
1.	Tea-pot (six cups)	17	Rs. 5.25 nP.	Rs. 11.78 nP.	65 nP.	
2.	*Kundi* (6" diameter, 2½" height)	15	Rs. 3.25 nP.	Rs. 9.36 nP.	25 nP.	
3.	Insulator (low tension)	10	Rs. 5.00 nP.	Rs. 8.33 nP.	25 nP.	Rs. 174.60 nP. per month for a proprietor-worker
4.	Kit-kat	16	Rs. 5.15 nP.	Rs. 17.65 nP.	13 nP.	
5.	Pestle mortars (4" diameter 3½" height)	5	Rs. 7.50 nP.	Rs. 7.83 nP.	Re. 1.12 nP.	
6.	Tea-set (decorated, 15 pieces)	8	Rs. 5.25 nP.	Rs. 14.75 nP.	Rs. 6.00 nP.	

Table VII—Master Craftsmen in Pottery Industry

1. Sri Abdul Aziz, National Pottery
2. Sri Abdul Hamid, Hamid Pottery Works
3. Sri Abdul Karim, Standard Pottery
4. Sri Abdul Rahim I, Central Pottery
5. Sri Abdul Wahid, National Flower Vases
6. Sri Baldeo Prasad Sharma, Kailash Pottery
7. Sri Bashir Ahmed, Bashir Ahmed Pottery
8. Sri Farid Ahmed, Farid Ahmed Pottery Works, Jama Masjid
9. Sri Jaswant Singh, Chemico Porcelain Works
10. Sri Mohammed Ibrahim, Ibrahim Pottery Works
11. Sri Narendra Kumar Bhardwaj, Bhardwaj Pottery
12. Sri Ramji Lal, Ramji Lal Pottery Works
13. Sri Rashid Ahmed, Rashid Pottery Works, Jama Masjid
14. Sri Sagir Ahmed, Azad Pottery Works
15. Sri Sumer Chand, Sumer Chand Pottery Works

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SECTION III

POTTERY INDUSTRY

AT

CHUNAR

District Mirzapur

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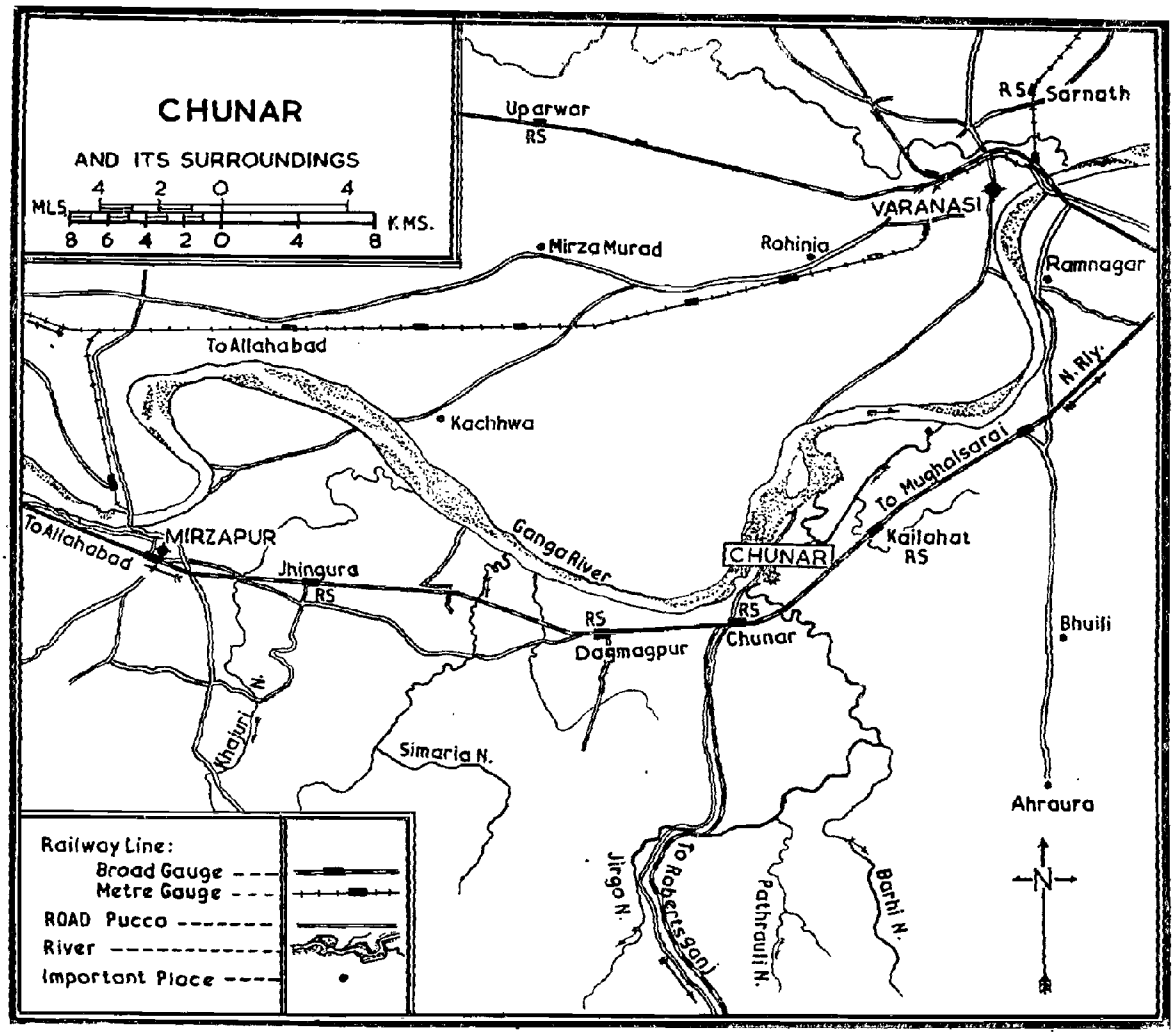
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17. The skilled *karigar* shaping a flower vase on a potter's wheel (red clay pottery)
18. A *karigar* pressing the plastic clay in a mould (red clay pottery)
19. Joining together the two parts of red clay flower vases
20. Potter's family engaged in glazing flower vases (red clay pottery)


CHUNAR
AND ITS SURROUNDINGS
4 2 0 4
MLS
K.MS.
8 6 4 2 0 4 8
Uparwar
RS
Sarnath
VARANASI
Mirza Murad
Rohinia
Ramnagar
To Allahabad
N. Rly.
Kachhwa
To Mughalsarai
To Allahabad
MIRZAPUR
Ganga River
CHUNAR
Kailahat
RS
Jhingura
RS
RS
RS
Chunar
Dagmagpur
Bhuili
Khajuri N.
Simaria N.
Ahraura
Railway Line:
Broad Gauge
Metre Gauge
ROAD Pucca
River
Important Place
Jirgo N.
To Robertsganj
Pathrauli N.
Barhi N.
N

CHAPTER I

INTRODUCTION

Chunar, with its celebrated fortress, is a town of historical importance in district Mirzapur. It lies in latitude 25° 7′ N and longitude 82° 54′ E at a distance of 21 miles from Mirzapur and 19 miles from Varanasi. This is the headquarters town of tahsil Chunar and has a railway station of the same name on the main line from Calcutta to Allahabad and Delhi, lying about 2 miles south-west of the town. It is a railway junction with a branch line to Robertsgunj stone quarry. The place is situated on the southern bank of river Ganga, and roads lead from it to Varanasi, Rajgarh and Mirzapur. The ancient town of Chunar was at a distance of 2 miles from the present town.

The hill on which the fort of Chunar stands resembles the foot of a man planted in river Ganga. There is a legend that in the *Dwapar Yug*, Vaman, the incarnation of God, while covering the entire world in 3 steps only, put his first gigantic foot on this hill and since then it assumed the shape of a foot. The hill is, therefore, called *Charan Adri*, meaning the foot-shaped hill. In course of time, the locality came to be known as Chunar. Thus the town has an ancient origin.

This town is also called Pathargarh (from *pathar*, a stone) because of its stone quarries. Some call it Nainagarh, after the goddess Naina Jogni, whose shrine is situated in a cave in the Bundu hill, beyond the railway station. Raja Bhartari Hari had come to this place for meditation and hence it is known as Bhartari Nagri also.

At the time of 1901 census, the population of Chunar was 1,635 souls. In 1951 it increased to 8,176 persons and in 1961 to 8,904 persons consisting of 4,732 males and 4,172 females. About 29.81 per cent of the population (2,280 males and 374 females) consists of workers. Out of them, 20.91 per cent are engaged in trade and commerce, 11.3 per cent in household industry and 8.36 per cent in manufacturing other than household industry.

The main industry and trade of the town are stone work and pottery. Chunar has been known for its strong sand stones from the quarries in the Vindhyan range. The famous Ashoka pillar excavated at Sarnath (near Varanasi) was made of Chunar stone. Chunar has also been known since long for its pottery products, just like Nizamabad in district Azamgarh or Khurja in district Bulandshahr.

The origin of the pottery industry at Chunar is not precisely known. In 1895, Dobbs had observed in the Monograph on the Pottery of the North-Western Provinces and Oudh: "The art of glazing was introduced 22 years ago by one Bacha Kahar who had learnt it at Bombay. It is probable, though this is not stated in the report received, that the same Bacha kahar is responsible for the feeble and debased European ornamentation now characteristic of this pottery." The distinctive features of Chunar pottery were described by him as follows :—

"Its colour is a black brown, approaching, when glazed, to black and is apparently due to the use of the special clays (*nakti* and *khasi*) noticed in the second Chapter. The ornamentation and shape of the wares is purely English and generally classic in character. It consists mainly in raised leaf and flower patterns made in moulds, the manufacture of which has been hereditary among certain families of Kahars for many generations. A basket pattern ware is made by the same Kahars in moulds which they buy from cane-weaving Khatiks. The articles made are sold both glazed and unglazed. . . . In the whole range of patterns, which is very large, there is hardly one to be seen bearing any traces of oriental origin. This unfortunate tendency has attracted, or perhaps resulted from the patronage of that large class of natives who prefer European to Indian articles, and of that still larger class of Europeans who, without the faintest understanding of the characteristics of oriental design, buy up eagerly anything produced in Asia under the delusion that they are investing in high art. The export trade in this ware is consequently larger than that of any other produced in these provinces."

This pottery was popular not only because of its decorative technique but also because of its low prices. The products were, however, weak and non-utilitarian and hence there is not much scope of expansion. Nowadays, the Kumhars or *kartigars* prepare pottery ware such as table-lamps, flower vases, ink stands, toys etc. from the alluvial clay of river Ganga which flows nearby and sell it to *bhatlidars* (owners of ovens or furnaces) who give the wares a coating of an opaque coloured glaze by a second firing and sell it to the dealers or the consumers directly.

In addition to the traditional red clay pottery, manufacture of white pottery was initiated at Chunar in February 1954, with the establishment of a Government Pottery Development Centre. There is a growing and persistent demand for white pottery wares. The traditions of pottery industry existed at Chunar. It was felt that with the provision of some facilities for training the craftsmen in the art of manufacturing white pottery and supply of raw material in processed form, as is being done at Khurja, the white pottery manufacture would conveniently develop at this place.

In the begining the Centre worked as a tuitional class, providing facilities to the local potters in the art of manufacturing white pottery. It produced pottery wares, such as, tea-sets, *kundies*, flower vases, toys, etc. worth Rs. 3,992 in the year 1954-55. Thereafter, the workers started their own production units, which were attached to the Centre for both guidance and supply of raw material. The production by 3 units, attached to the Centre, in the year 1955-56 was worth Rs. 2,556, just about half of the total production by the Centre. Subsequently, there

was a considerable decrease in the production at the Centre till it was discontinued in October, 1957. The potters can purchase processed raw materials from the Centre and also fire the products at its kilns on prescribed payment. At present 6 white pottery units are attached to the Centre. These units depend on the Centre for glaze, saggars, coal and kilns only. Sometimes potters purchase ceramic colours also from there.

The Centre is housed in a rented building with limited accommodation. A proposal to expand and shift the Centre to a more spacious Government-owned workshop was approved by the Government in the year 1959-60. The construction of machinery shed and other buildings estimated at Rs. 82,800 was recently started. The Centre will be shifted to the new building when it is complete.

As the plant did not meet the full requirements of the potters, pottery machines such as jaw crusher, edge-runner mill, ball mills, pug mill, pot mills, jigger jolleys and pressing machines have been obtained. Two more kilns have been added.

At present Chunar has six units producing white pottery in which 29 persons are engaged and 13 units that produce red clay pottery and give employment to 80 persons. Besides this, 20 Kumhar households work as *karigars* or basic producers of red clay articles. They are assisted by 80 members of their households.

METHOD OF SURVEY

The pottery industry at Chunar is run on small scale. A special investigator conducted the survey of the 6 white pottery units and the 13 red clay pottery units. Besides this, the 20 *karigar* households were also studied. The investigator had a technical background and was an ex-employee of the Government Pottery Development Centre, Khurja. He was trained in the methods of investigation. Schedules containing a comprehensive set of questions were given to him for being filled. He visited all the units, held free and frank discussions with the proprietors and workers about their problems and those of the handicraft and recorded their replies to the questionnaire. A reasonable check had to be exercised on absurdities or apparent inconsistencies in the replies.

In the initial stages, the investigator was viewed with suspicion, under the misconception that some information was being collected for levy of excise duty or taxes. When the aim and object of this survey were explained patiently and winningly by the investigator, the clouds of suspicion vanished and active co-operation in the survey was extended by the potters and everyone concerned.

For studying the income and expenditure pattern, a purposive sample of family budgets of 12 households was taken, covering seven households of skilled and unskilled workers and proprietors engaged in white pottery and five households of *karigars* and potters engaged in red clay pottery. People felt a bit hesitant in giving out the income and expenditure figures correctly. The tendency to indicate a depleted income and an inflated expenditure is but natural. Expenditure on items which are looked down upon in society is generally concealed.

After all the schedules had been filled up, 7 Tables and a master schedule, containing information about various aspects of the industry, were prepared. A detailed study of the Centre was also made.

A draft monograph was prepared thereafter and sent to the Officer on Special Duty, Registrar General's office, for his comments. In December 1962, the author and the Officer on Special Duty jointly visited Chunar for studying the various aspects of the pottery industry. Necessary additions and alterations were made in the monograph in the light of fresh experience gained as a result of the visit.

CHAPTER II

WORKERS ENGAGED IN THE CRAFT

Pottery industry at Chunar is basically a small scale industry. The following Table shows the number of workers engaged in the production of white pottery :—

TABLE No. 2.1

Number of Workers engaged in White Pottery

Name of Community	Number of Units	Workers		Number of Workers in	
		Adult	Child	Own Units	Employers' Workshops
Hindu	5	26	—	6	20
Muslim	1	2	1	2	1
Total	6	28	1	8	21

Thus, out of 29 workers only 3 are Muslims. One of them is a boy working with his father. No worker is a female. Only 8 workers worked in their own units and the remaining 21 persons worked in the workshops of their employers. Out of the six units, four units are owned by Kumhars, one by a Vaishya and one by a Mohammedan.

Ganga Pottery, owned by Ganga Prasad Kumhar, is located in *mohalla* Pir Bajid Shaheed. It was started in 1960 ; at present *kundi* and toys are manufactured by this unit. In addition to the proprietor, the following workers are engaged by this firm, all on contract basis :—

(1) Sita Ram, a skilled worker makes *kundies* on the potter's wheel, as there is no jigger jolley. He is able to earn about Rs. 50 p. m.

(2) Ram Kesh and Amjad Ali are engaged in casting and finishing the toys @ Re. 1 a day or Rs. 30 p. m.

(3) Jamuna does the painting work. He is paid Rs. 25 p. m. on an average.

He utilises 150 mds. of body and 9 mds. of glaze annually. The body, glaze, and coal are purchased from the Government Pottery Development Centre and the colours—brown, blue, green and black—from M /s Hira Pottery Works, Chunar.

He is able to manage about 15 firings of a 5 ft. diameter kiln every year and thereby produce articles worth about Rs. 4,050. He earns about Rs. 1,500 per annum or Rs. 125 p. m. on an average. The *kundies* and toys produced by this unit are sold to dealers of Varanasi, Tatanagar etc. or at stalls in *melas* and exhibitions.

M/s Hira Pottery Works, owned by Hira Lal Kumhar, is also located in *mohalla* Pir Bajid Shaheed. It was started in 1955 ; at present tea-sets, *kundies* and toys are manufactured by this unit. In addition to the proprietor, the following workers are engaged in this unit, all on contract basis :—

(1) Jagrupan, a skilled worker makes *kundies* on the potter's wheel or a jigger jolley. He is paid @ Rs. 6.25 nP. per 100 sets of 6 *kundies* each and is able to earn about Rs. 30 p. m.

(2) Chhangur alias Haridas and Pannar alias Ram Nath are engaged in the process of casting ; each of them earns about Rs. 20 p. m.

(3) Vishwanath alias Soniji works as a painter on various articles @ 3 nP. to 5 nP. per piece. He is able to earn Rs. 20 p. m. only.

The unit utilises 350 mds. of body and 25 mds. of glaze annually. Coal, glaze and Chandia clay are purchased from the Government Pottery Development Centre ; quartz and felspar from M/s Sahni & Co., Khurja and clay from Calcutta Mineral Supply Co., Calcutta. Zinc oxide, cobalt oxide, iron oxide, chromium oxide, antimony oxide, tin oxide etc. are purchased from firms at Calcutta and Bombay and blue, brown, green and black colours are prepared by the firm.

On an average he is able to arrange every year 10 firings in a kiln of 10 feet diameter, produce articles worth Rs. 10,080 and earn about Rs. 2,880 annually or Rs. 240 p. m.

The organisational structure of the remaining four pottery units is more or less the same as of these two units.

The following Table shows the number of persons working as *bhattidars* or as their employees, in the red clay pottery :—

TABLE No. 2.2

Number of Workers in Red Clay Pottery

Community	Number of Units	Number of Workers				Number of Workers in					
						Own Units			Employers' Workshops		
		P	M	F	C	M	F	C	M	F	C
Hindu	9	64	16	34	14	14	16	14	2	18	—
Muslim	4	16	7	6	3	7	6	3	—	—	—
Total	13	80	23	40	17	21	22	17	2	18	—

Note.-'C' stands for 'Children'.

Thus 80 per cent of the workers are Hindus. The womenfolk are active participants in the craft because it is more or less a household industry. Out of 63 adult workers, 63.5 per cent are females. Out of 80 workers in the industry, 17 persons (21.25 per cent) are children. Out of the 23 adult males, 22

21 males (91.3 per cent) work in their own units, but out of the 40 adult females, 22 females (55 per cent) work in their own units. They are generally employed for grinding glaze or for other miscellaneous duties. They are not Kumhar by caste. This work does not provide them full-time employment.

Besides the above, 20 households of *karigars*, comprising 100 males, females and children are also engaged in the initial process of red clay pottery. They prepare articles from red clay, bake them and sell the biscuited wares to the *bhattidars* who glaze and fire the wares in their own *bhattis*. Thus 180 persons were found engaged in the red clay pottery.

SKILLED WORKERS

Workers who are efficient technical hands and can ordinarily perform the following duties are treated as skilled workers in white pottery :—

(1) Shaping the wares by the throwing method ;

(2) Joining together the different parts of a ware ;

(3) Finishing and painting of wares ;

(4) Glazing the wares ; and

(5) Firing the products.

The throwing of articles on a potter's wheel requires special skill. If two parts of an article having unequal percentage of water are joined, cracking at the joint might result at the time of firing. Similarly, finishing of articles, especially images, requires a special skill. If firing is not perfectly and technically carried out, the whole lot might be damaged.

Out of 29 workers in white pottery 25 workers (86.2 per cent) are skilled. Most of them are the local Kumhars who, besides having inherited this skill, have been working on the potter's wheel since long. The following persons are reputed to be highly skilled workers :—

Name of Worker	Unit
1. Ganga Prasad	M/s Ganga Pottery Works
2. Hira Lal	M/s Hira Pottery Works
3. Jagrupan	M/s Hira Pottery Works
4. Purshottam	M/s Gupta Pottery Works
5. Ram Raj Gupta	M/s Gupta Pottery Works

The following workers (*karigars* and *bhattidars*) in red clay pottery are known to be highly skilled :—

Names of *Karigars*		Names of *Bhattidars*
1. Bhaggal	6. Hira Lal	1. Latru Mian
2. Jaggu	7. Mithai Lal	2. Munna Mian
3. Baichen	8. Raghunath	3. Punnu Ram
4. Baldeo	9. Ram Sumer	4. Ram Jatan
5. Sita Ram	10. Chhedi Lal	5. Sobh Nath

UNSKILLED WORKERS

In the white pottery, only 4 persons can be termed as unskilled. They are engaged in transporting raw materials from the Centre or M/s Hira Pottery Works to the workshops or transporting wares from the workshops to the Centre and back after firing, or helping the potters in firing, or preparing the clay or drying the moulds in the sun etc. Other labourers are also engaged as and when required.

In the red clay pottery, all workers except the 20 *karigars* and 13 *bhattidars* are semi-skilled or unskilled. The *karigars* prepare the wares which are sold to the *bhattidars* who glaze and fire them in their ovens.

All the workers are local. They remain engaged in the industry throughout the year.

WAGES

A skilled worker who throws wares at a potter's wheel is able to earn between Rs. 60 and Rs. 90 p. m. while one engaged in finishing or casting has an average income of Rs. 30 to Rs. 45 p. m. Preparation of articles on a jigger jolley, painting, glazing and firing are ordinarily done by the proprietors themselves. Workers are generally employed on a contract basis. The average income of the six proprietors is Rs. 152.50 nP. p.m.—ranging between Rs. 100 and Rs. 240 p. m.

As regards workers engaged in red pottery, the *karigar* earns less than the *bhattidar*, because the margin of profit of the latter is higher. Ram Sumer Parjapati,a *karigar*, is assisted by his wife, 2 adult daughters and a child. He obtains about 2,000 maunds of clay from a pond at Mahal, at a distance of one mile from Chunar and pays Rs. 10 per annum as royalty. He also obtains clay from the bed of river Ganga. He is able to prepare about 200 flower vases a day, the sale price of the products being about Rs. 1,810 per annum. He is thus able to earn Rs. 1,800 annually or Rs. 150 p. m. but a *bhattidar* household with 5 workers as above is able to earn Rs. 175 p. m. on an average.

EXPENDITURE PATTERN

A study of budgets of 12 households was made. Budgets of the following persons, which are of a representative type, are discussed to bring out the expenditure pattern :—

(1) Ganga Prasad, proprietor of M/s Ganga Pottery Works, having an average income of Rs. 125 p. m. ;

(2) Hub Lal, a worker skilled at the potter's wheel, with an average income of Rs. 60 p. m.;

(3) Ram Sumer, a *karigar* in red clay pottery, having an average income of Rs. 150 p.m. ; and

(4) Sobh Nath, a *bhattidar* in red clay pottery, having an average income of Rs. 275 p.m.

Ganga Prasad aged about 28 years has his wife and two children in his family. He manufactures *kundies* and toys and employs one skilled worker on the potter's wheel, two persons for casting and finishing and one person for painting. He is not assisted by his wife and children. He works himself in the pottery unit. His net income (including his wages) comes to about Rs. 125 p. m. His expenditure pattern is as follows :—

Items	Amount spent
1. Cereals and pulses	Rs. 25.00
2. Vegetables	Rs. 5.00
3. Milk, ghee and oil	Rs. 22.00
4. Condiments	Rs. 4.00
5. Sugar and *gur*	Rs. 2.50
6. Tea	Rs. 7.50
7. *Bhang*	Re. 0.25
8. Fuel & light	Rs. 7.50
9. Smoking, betel, betel-nuts etc.	Rs. 6.75
10. Clothing and footwear	Rs. 12.17
11. House rent	Rs. 3.00
12. Miscellaneous	Rs. 11.37
Total	Rs. 107.04

There is a saving of Rs. 17.96 nP. p. m. It is a balanced budget, with a high percentage (61.89) of expenditure on food items.

Hub Lal has two more adults in his family but he is the only earner. He is engaged in casting toys and pottery wares in Gupta Pottery and other units. As a skilled worker in white pottery, his income per month is Rs. 60. His expenditure pattern is as follows :—

Items	Amount spent
1. Cereals and pulses	Rs. 26.75
2. Vegetables	Re. 1.75
3. Oil and ghee	Rs. 4.00
4. Condiments	Re. 1.00
5. Sugar and *gur*	Re. 1.00
6. Liquor	Re. 1.00
7. Fuel & light	Rs. 3.25
8. Betel, betel-nuts, etc.	Re. 1.00
9. Clothing and footwear	Rs. 6.00
10. House rent	Re. 1.00
11. Miscellaneous	Rs. 2.25
Total	Rs. 49.00

There is a saving of Rs. 11.00 p. m. It is a balanced budget with about 70.4 per cent expenditure on food items.

The household of Ram Sumer consists of 4 adults and one child. All of them work together in production of biscuited ware of red clay. The monthly income of the household is about Rs. 150. The expenditure pattern is as follows :—

Items	Amount spent
1. Cereals and pulses	Rs. 42.00
2. Vegetables	Rs. 3.75
3. Milk, oil and ghee	Rs. 13.50
4. Condiments	Rs. 2.00
5. Sugar and *gur*	Rs. 2.50
6. Tea	Rs. 4.00
7. Intoxicants	Rs. 10.00
8. Fuel and light	Rs. 6.68
9. Smoking, betel, betel-nuts etc.	Rs. 5.00
10. Clothing and footwear	Rs. 10.62
11. Miscellaneous	Rs. 2.75
Total	Rs. 104.80

There is a monthly saving of Rs. 45.20 nP. It is a balanced budget with a handsome saving.

Sobh Nath, aged about 38 years, has five adults and five children in his family. He is a *bhattidar* who purchases biscuited ware (clay toys and flower vases) from the *karigars*, and glazes and fires them in his own ovens. He is assisted by 3 males and 4 females and 2 children of his own family. In addition, two females from outside are employed in his unit. The income of the household is about Rs. 275 p. m. The expenditure pattern is as follows :—

Items	Amount spent
1. Cereals and pulses	Rs. 79.00
2. Vegetables	Rs. 5.50
3. Milk, oil and ghee	Rs. 34.00
4. Condiments	Rs. 5.00
5. Sugar and *gur*	Rs. 7.00
6. Tea	Rs. 5.00
7. Liquor	Rs. 30.00
8. Fuel and light	Rs. 15.50
9. Smoking, betel, betel-nuts etc.	Rs. 5.00
10. Clothing and footwear	Rs. 30.00
11. Miscellaneous	Rs. 4.00
Total	Rs. 220.00

There is a saving of Rs 55.00 p. m. It is a balanced budget with a high percentage (75.95) of expenditure on food items.

INDEBTEDNESS

The exact amount of indebtedness is not known. Borrowing is not generally resorted to for meeting domestic expenditure. Short-term financial accommodation, required in connection with production by proprietors of white pottery units, and *karigars* and *bhattidars* in red clay pottery, is sometimes arranged mutually. If needs be, loans are taken from the local moneylenders on payment of a high rate of interest. There is no Co-operative Credit Society of the employers or employees engaged in the industry.

CHAPTER III

Raw Materials

I. WHITE POTTERY

The main raw materials used in the manufacture of white pottery products are clay, quartz and felspar and the subsidiary raw materials are gypsum, coal and colours. The body or clay slip used in the manufacture of stoneware is prepared by mixing mainly quartz, felspar, and clays in different proportions. Similarly, the liquid known as glaze, meant for creating non-porosity and shine in the product, is a carefully prepared mixture of these main raw materials and some chemicals such as zinc oxide or barium carbonate. Brown glaze for *kundies* is prepared by mixing manganese dioxide, red iron oxide, zinc oxide and barium carbonate. Gypsum is not used in its natural form in white pottery industry. It is turned into plaster of Paris and is used for making moulds only. Coal is used for firing the products while colours prepared from various metallic oxides are used for decoration work.

China clay which is used in white pottery is quite soft and soapy in touch. The colour of this clay may vary due to the presence of different proportions of vegetable matters but on firing, these organic colouring matters vanish, leaving behind quite a white mass. This clay is heat-resistant and has a low plasticity.

Quartz is a form of silica and is found in abundance in nature. Before being put to use it is first calcined for making it soft and workable. It gives strength and whiteness to the wares and also ensures against crazing and porosity.

Orthoclase is the chief variety of felspar, largely used in pottery manufacture, mainly because it is found in abundance and in a fairly pure form. It is used as flux. It melts into the pores of the body and, at a sufficient high temperature, attacks at the free particles of quartz and binds them with a cementing glass, thereby making the product non-porous. Next to clay, it is the most important raw material in the manufacture of white wares.

Plaster of Paris is prepared by heating gypsum powder to about 120°C, when it turns into a white powder, called the plaster of Paris.

Bituminous variety of coal is largely used in pottery furnaces as it burns with a long yellow flame.

Ordinary colours are of no use in the pottery industry as they disappear even at a low temperature of firing. Ceramic colours for decorating white pottery products are used because they can easily stand the high temperature of firing. Metallic oxides are the main colouring agents.

SOURCE OF SUPPLY OF RAW MATERIALS

All the raw materials are imported by Government Pottery Development Centre, Chunar. Potters purchase some of the raw materials from the Centre according to their needs. Clay is imported from the following sources :—

Type of Clay	Name of Supplier
1. China Clay	M/s Indian Mineral Associated Industries, Calcutta (W. Bengal).
2. Chandia Clay	M/s Oriental Potteries, Chandia Road, Madhya Pradesh.

Quartz and felspar powders are obtained by M/s Hira Pottery Works, Chunar from M/s Sahni & Co., Khurja (U. P.).

Coal is supplied to the Centre through M/s Nandlal Paliwal & Bros., Firozabad.

Plaster of Paris is obtained by the units from M/s Indian Industries, Dehra Dun. As regards colours, only 2 units in white pottery industry out of the 6 units surveyed, prepare their own colours. The remaining 4 units either purchase these colours from M/s Hira Pottery Works or from the Centre. Potters engaged in the manufacture of red clay pottery prepare the colours themselves. The main source of getting oxides are Varanasi and Mirzapur, with the exception of a few oxides such as cobalts and manganese which are available at the Centre.

Coal and glaze are supplied to the six units only by the Centre. Other raw materials are also available at the Centre but these units do not purchase from there mainly because it is not economic to do so. In fact the Centre was not found to be quite popular with the units.

During the year ending March 31, 1961, 1,440 maunds of body and 104 maunds of glaze were consumed in production by the six pottery units.

PREPARATION OF RAW MATERIALS

Quartz and felspar in powdered form and clay are brought by the units at the Centre and got mixed in the ball mill on payment of prescribed charges. Water is also proportionately added to the material during the process of mixing. The ball mill is provided with flint pebbles. The coarse material is ground very fine by the continued impact of the pebbles with each other and the material during the process of its slow rotation. The resultant mixture is known as slip or sometimes loosely as body. It is used for preparation of articles by the casting method. If articles are to be prepared on a potter's wheel or by a jigger jolley, this body is generally stored in cemented cubical pits for dewatering it by vaporisation of water in the natural course. After kneading and wedging, it is ready for use just like the red clay.

White transparent glaze is also prepared in the ball mill in the same manner as body. When the materials are finely ground some chemicals such as zinc oxide, calcium carbonate, barium carbonate etc. are mixed with them and the mill is rotated for about four hours.

For the preparation of colours, certain metallic oxides with other ingredients are mixed with water thoroughly in a pot mill. This liquid is then dried and calcined in the furnace, thereby giving out powdered colour which is ready for use in decoration work after being mixed with a little slip. Generally blue, brown, green, and black ceramic colours are used in paintings.

II. RED CLAY POTTERY

In the manufacture of red clay pottery, clay is the main raw material and colours and wood, the subsidiary raw materials . The Chunar wares are made from two special clays called *nakti* and *khasi*. The clay is available from the alluvial deposits of river Ganga or from a *kachcha* pond in village Sarayya at a distance of about 1½ miles from Chunar. Payment has to be made by the *karigars* to the persons having proprietary rights over these sources of clay. Most of them have to pay Rs. 10 per year for the clay. According to Dobbs, in 1895 an amount of 8 annas only had to be paid annually in district Mirzapur. The *karigars* complained that the rate of payment for clay has increased unreasonably.

The clay is stored in the open. When it has dried after an exposure of 2-3 days, it is pounded with a heavy wooden pounder called *moongri* and then sifted through a big sieve. The bigger pieces of clay are dissolved in water. The powdered clay is added and the whole clay is worked up into a stiff paste by kneading it again and again with hands. The clay paste is wedged with a common sickle or with a two-handled bow-shaped slicing instrument made of iron. Some of the potters do not use the slicing instrument but knead the clay only with their feet and hands. Similarly, some potters do not pay adequate attention to pounding and sifting of clay ; the sieve is not at all used and the powdered clay is sifted through fingers only. Sometimes, clay of river Ganga and of the pond in village Sarayya is mixed, generally in equal quantity, for preparing clay of requisite plasticity. The clay is plastic when wet and is capable of retaining the shape when dried.

Moulds for red clay pottery are also made of this common clay. Baked moulds serve the purpose of saggars.

The glaze that is used in red pottery is prepared by grinding borax and lead with copper oxide, iron oxide and cobalt oxide in varying proportions to obtain different shades of colours. Borax and lead give brown colour and manganese alone gives black colour. Coloured opaque glaze is popularly used. All the 13 *bhattidars* prepare glaze of various colours themselves by grinding the material on stone-slab. Manganese and cobalt are obtained from the Centre, borax and copper oxide from Mirzapur and lead from Varanasi.

During the year ending March 31, 1961, the *bhatidars* handled wares in which 9,556 maunds of red clay was used. They applied 598 maunds of coloured opaque glaze on these wares.

Wood is used as fuel for baking or firing the red pottery wares in the kiln of *karigars* or *bhattis* (ovens) of *bhattidars*. It is available locally.

CHAPTER IV

Tools and Implements

The following tools and implements are used in the manufacture of white pottery at Chunar :—

BALL MILL

This machine is used for grinding raw material for preparation of slip body and glaze required in white pottery. It is a hollow cylinder made of steel, but lined inside with porcelain bricks for keeping the material out of contact with iron cylinder so that the iron particles might not get mixed in the material and produce unpleasant spots on the articles after firing. This ball mill or grinding cylinder is rotated on a horizontal axis by means of a motor. Generally, one third of the cylinder is left vacant for the movement of the material. Material is ground up to the desired fineness. The mill is charged with flint pebbles or porcelain balls which are the chief agents of grinding the material. In wet grinding, generally 40 to 45 per cent of water is mixed with the material to be ground. The charging hole is closed when the mill rotates. The porcelain balls fall from top to below and crush the material.

The ball mills are of different sizes, varying from 2½ maunds to 60 maunds in capacity. The cost of a ball mill of size, 4'6" × 3'8" is about Rs. 4,000. Since it is a costly machine, no unit has purchased it. The ball mill at the Centre is used by them.

The main source of supply of all pottery machines is M/s Kusum Engineering Co., Calcutta.

JIGGER JOLLEY

This machine, too, is used by the white pottery units. It consists of a jigger head which is the improved form of a potter's wheel. This jigger is driven by power or by a boy assistant. There is a foot-brake to stop the machine or to check the speed at the will of the operator. The revolving jigger head receives the mould and the arm of the jolley is lowered down, to which is attached the profile, which gives the shape of the wares. Jolley is that part of the machine which has a profile and which can be applied to the exterior or interior of the mould. Profiles are thick sheets of iron, cut in such a shape that with the pressing of the clay they give proper shapes to the wares. The thickness of the profiles depends upon the nature of the clay. When clay that is used is very plastic, these profiles must be extra strong. Only round and oval articles can be shaped by the jigger jolley machine. The main sources of supply are M/s Khurja Engineering Corporation, Khurja and M/s Goenka Chemicals, Khurja. The cost of the machine is approximately Rs. 200. The units have their own jigger jolleys.

Primitive type potter's wheel made of stone is used by Chunar potters. The diameter of the wheel varies between 2½ and 4 feet and its thickness from 3 to 4 inches. Its weight is from 1½ to 2½ maunds. The wheel is rotated on a pivot of tamarind wood, which is either fixed in the ground or can be taken from place to place. On the upper surface of the wheel are one or two notches, near the circumference of the *chak* (wheel), inclined towards the centre at an angle of 45° to the surface. The centre of the wheel is placed on the tamarind axle (*kili*), with the latter fitting in the grove in the lower surface of the *chak*. The turning stick, which is about 3 feet long, is fitted in one of the notches on the surface of the wheel which is then rotated by the potter. The stick (*danda*) is usually made of bamboo. Initially, the *chak* is spun round by hand and then the *danda* is fitted in one of the notches, the potter holding the end of the stick with the left hand and the upper end thereof with the right hand, over the centre of the *chak*, which is thus spun round in a well-balanced manner. The impetus given at a time is sufficient for keeping it spinning for 5 to 10 minutes, during which time the clay is "thrown" on the wheel and wares are shaped. The *chak* remains raised about 6 inches above the ground on its tamarind wood point. When the wheel begins slowing down, the potter stops the shaping work and sets it going again with the help of the *danda*.

The smaller *chak* is lighter in weight and can be used by the younger generation with ease or for preparing smaller articles. The potter boys start working at the small wheel only. The big sized *chak* can be used only by the grown up potters. Articles of bigger size are generally prepared on it.

The stone wheels are locally available for Rs. 14 to Rs. 25, the price varying with the size of the *chak*. These wheels last for generations.

MOULDS

Moulds are necessary for casting the wares either from slip or body. These are the costliest and most important parts of the potter's trade. First of all, models are prepared which represent the shape of the articles. Working moulds are prepared with the help of master mould the first mould, which is obtained by casting from the model. The white pottery working moulds are made of plaster of Paris and are slightly bigger than the master mould, to allow shrinkage in firing. Plaster of Paris is chiefly used by the potters due to its great absorption power and working facility. The interior of the mould gives the exterior shape of the wares. The moulds are prepared by the potters themselves. Their cost varies greatly according to the size and type of the mould.

Moulds used in red clay pottery are made of common clay by the *karigars* themselves. They are used after being baked in clamps.

SAGGARS

These are special refractory boxes made of fire, clay and grog. Even at a high temperature there is

no sign of fusion in them. White pottery articles are placed in these saggars for saving them from smoke and direct contact with flames during the process of firing. The boxes, round or rectangular in shape, are supplied by the Centre on payment of fixed charges per firing to the Centre. On a 5 feet diameter kiln, for example, the Centre charges Rs. 12 for the saggars as rent.

OTHER TOOLS

In addition to the above, the following minor tools and implements are used in pottery :—

	Name of Tool or Article	Price per Piece
1.	Knife	Re. 0.12
2.	Thread	—
3.	Brush for painting	Re. 0.25
4.	Glaze vessel or tub	Rs. 5.00
5.	Drum for storage of body or glaze	Rs. 17.00
6.	Shovel for charging coal into fire-boxes	Rs. 4.50
7.	*Jali* (gauze) for finishing the wares	—
8.	Hammer for making small pieces of coal	Rs. 2.50
9.	Sample bar for taking out the sample pieces from the kiln	Re. 0.50
10.	Strong iron bar for operating fire-boxes during firing	Rs. 7.50
11.	Mug for casting etc.	Re. 1.50
12.	*Balti* (bucket)	Rs. 3.50
13.	Basin	Rs. 4.00
14.	Sieve	Rs. 3.50

In the preparation of red clay pottery, the *karigars* use the potter's wheel, thread, knife and moulds of red clay only. The thread or cutting string is used for separating the "thrown" ware from the clay lump on the rotating wheel. The string is gently drawn through the clay at the point where it is to be cut. For separating larger ware from the lump, sometimes a knife is used.

Water in a jar (*handia*) is kept just near the wheel so that the potter may wet his hands in it as he works. The piece of reed, with the cutting thread wound round it, remains soaked in water in the *handia*.

The wares are scraped and smoothened with a *jali* (gauze) before being baked but after they have dried for a few hours. Sometimes they are fixed on the wheel once again and scraped with the *jali*.

The *bhattidars* use a stone slab for grinding glaze on it, *balties* to store the glaze and red clay thimbles to protect the wares from getting joined together during the process of firing.

Plate No. 1



SOME WHITE POTTERY WARES

All these articles have been manufactured by the casting method. Painting is done after drying and finishing. Thereafter, a transparent white glaze is coated. The glaze and paintings shine after the article has been fired in a down-draught kiln.

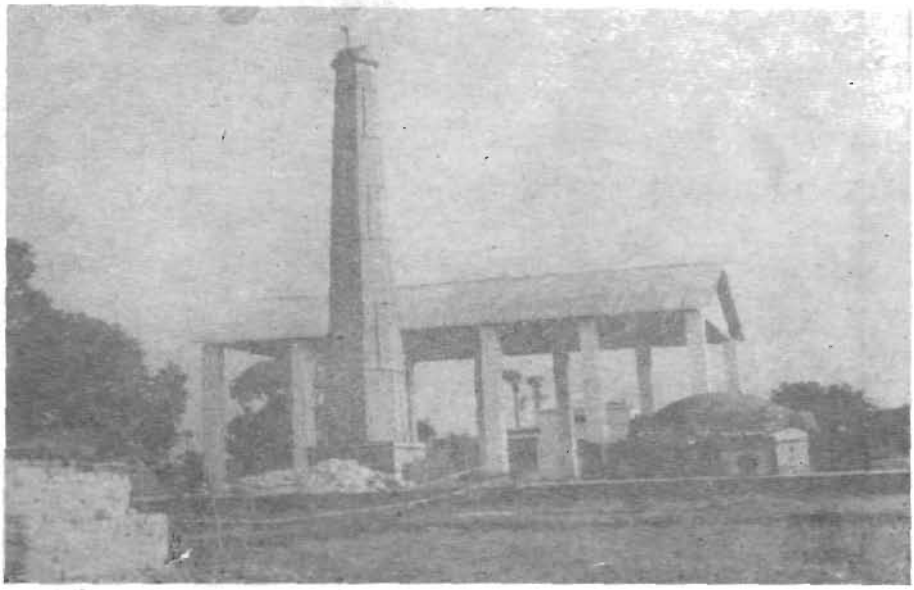
Plate No. 2



SOME POTTERY PRODUCTS OF WHITE CLAY

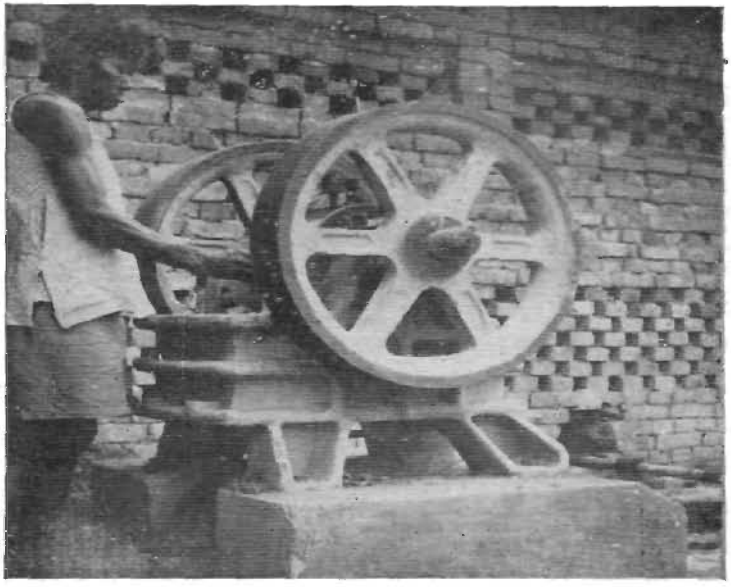
All these products except *kundi* sets have been manufactured by the casting method. After drying and finishing, they have been painted. A transparent white glaze has been coated after painting. Then they have been fired in a down-draught kiln. The paintings shine again after firing.

Plate No. 3



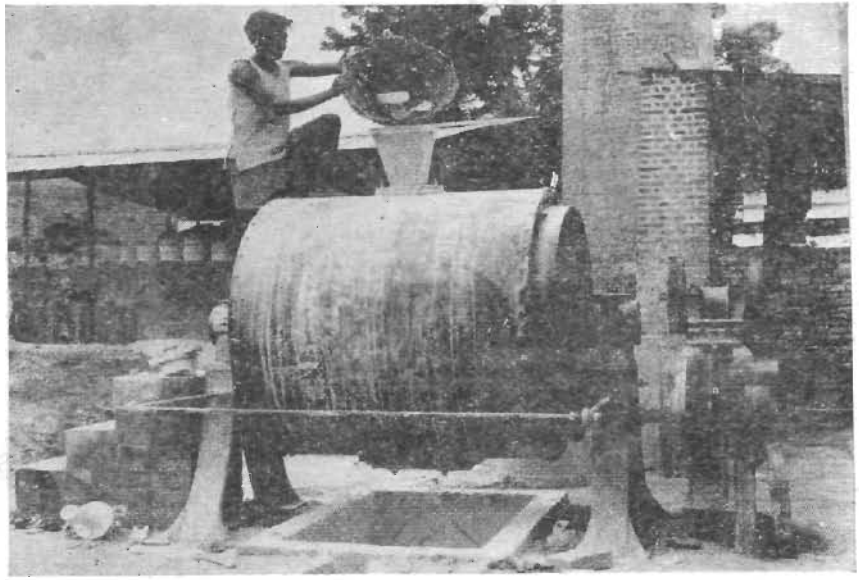
A view of the new site of Government Pottery Development Centre at Chunar

Plate No. 4



Jaw crusher at the Centre—the machine crushes stones into 1—2 inch pieces. Generally quartz and felspar blocks are reduced to pieces by this machine.

Plate No. 5



Quartz is being loaded in the ball-mill at the Centre for being turned into powder.

Plate No. 6



A skilled worker is casting a white pottery image and another is joining its various parts. Clay slip is poured into moulds of plaster of Paris.

CHAPTER V

Technique of Production

The pottery industry at Chunar produces the following articles of various designs mainly in toys and flower vases :—

	Articles	Design	Number of Units engaged in Manufacture
1.	Images of deities	Lakshmi Ganesh Shiva Parvati Krishna	5 units of white pottery 13 units of red clay pottery
2.	Toys	Elephant Dog Deer Cat Horse Camel Cow	5 units of white pottery 13 units of red clay pottery
3.	*Kundies*	Traditional design	6 units of white pottery
4.	Footed bowls	Bowl shaped	1 unit of white pottery
5.	Flower vases	Various designs	6 units of white pottery 13 units of red clay pottery
6.	Ink-stands and Table lamps	Various designs	1 unit of white pottery 13 units of red clay pottery

Almost all the pottery products at Chunar are imitations of designs available in the market with the exception of red clay flower vases and ink-stand. Some of the potters get the models prepared by designers from outside and then prepare from them the casting moulds.

Another source of designs of toys is provided by plastic toys. Attractive and popular toys of plastic are picked up from the market and their imitations in red clay or white pottery prepared. One of the interesting objects produced on glazed red clay is a replica of the Asokan Capital. This model was adopted about 15 years ago from a model on china clay. The artisans are ignorant of the fact that Chunar used to produce Asokan Capital on stone in ancient periods. Similarly, Sri Ram Raj Gupta produces china clay images of Venus de Milo. The design is a copy of the clay image available in the market. Similar images of Rabindranath Tagore, Mahatma Gandhi and Lord Buddha are produced.

"The ornamentation and shape of the Chunar ware (red pottery) made of red clay is purely English and generally classic in character. It consists mainly of raised leaf and flower patterns made in moulds, the manufacture of which has been hereditary among certain families of Kahars for many generations. . . ." It is only rarely that the artisans themselves use their own creative skill in evolving new designs either in white or in red pottery.

The Government Pottery Development Centre has appointed a designer whose job is to prepare and supply new designs to the units engaged in white pottery. During our visit to the Centre in November 1962, it was found that the designer had some school background of art but was without any footing in the craft. He had made efforts to evolve new designs on objects of artistic and decorative value—quite unrelated to the types of objects in demand. Naturally, the designs had not been adopted by the artisans, who would not hazard the production of articles the demand for which is doubtful.

A. WHITE POTTERY

As almost all the potters manufacture flower vases, clay toys, bowls and *kundies*, casting, throwing and jolleying processes are employed by the white pottery units while only throwing and hand pressing processes are employed by the red clay pottery units. The manufacture of toys and flower vases is done by casting, throwing and hand pressing methods. *Kundies* are thrown on the primitive type potter's wheel or prepared on a jigger jolley. The white pottery ware are manufactured in the following stages :—

I. MODELLING

Modelling is generally done by casting, throwing or jolleying methods.

(*a*) Casting method

Skilled labour engaged on contract basis is employed for casting and finishing the products. Clay slip having the consistency of cream is cast into a hollow mould of plaster of Paris after its various parts have been tied together with a strong wet string, for, a damp string contracts and clamps the mould tighter. Freshly made slip is never used for it is then full of air bubbles. It must be allowed to settle for some days till the clay sinks to the bottom. Every precaution has to be taken to avoid air bubbles. When being put to use, the slip is mixed by diving one's hand and rotating it. When it is thoroughly mixed, the hand is withdrawn. Neither too-thick nor too-thin slip can be put to use. Ware prepared of too-thin slip is usually full of air bubbles.

Slip is taken out of the bucket or crock with a small jug and poured very slowly into a bigger jug to avoid making bubbles. If bubbles appear, they are removed. The slip is poured slowly into the mould until it reaches the top of the pouring hole. As the moisture in the slip is absorbed by the dry plaster, a thin coating of clay starts forming on the surface of the mould and the level of the slip begins dropping. More slip has to be poured in. If the mould is not kept filled up to the top of the pouring hole, the ware would be of unequal thickness. When the layer of the clay in the mould has assumed the required thickness round the inner side of the mould, the extra slip is poured back from the mould into the bucket or crock containing the slip and the last trickles shaken. The spare slip is removed from round the pouring hole so that the upper

part of the spare might not hold the figure from pulling downwards from the hole in the process of contaracting and consequently cause it to crack in the process of drying.

"The mould will be ready to open if the clay feels firm to the touch when you insert a finger in the pouring hole and shows a slight contraction away from the mould."[1] When the string is removed, the mould should be held firmly together. A piece of iron should be cautiously inserted in all the corners turn by turn and gently levered. The top piece of the mould should be lifted straight up so that a part of the figure might not be scraped as a result of pulling. The ware should then be gently taken out of the mould. The spare from the bottom should be cut away and the casting allowed to dry.

A tea-pot is cast in the above manner in four separate parts, viz., the main body, the handle, the spout and the cover.

(b) Throwing method

This method is employed only for the manufacture of round articles such as *kundies*, flower vases etc. In the process, the thrower keeps a lump of plastic clay in the centre of the revolving wheel, presses it by his wet hands and raises it again and again till the clay becomes homogeneous and workable. The thrower then shapes the soft clay into *kundies* and flower vases with the skilful movement of his trained and artistic fingers. He inserts the thumb of both his hands into the lump of clay and presses outwards with the ball of each thumb in opposite directions, until a symmetrical basin in the top of the lump has been carved out. After this his fingers begin working on the outside surface of the basin and he pulls up the rim evenly alround. Time and again during the process of making, he immerses his hands in water and applies the wet hands to the ware. When ready, the article is detached from the wheel by a strong cotton thread or thin copper wire and kept apart for drying.

(c) Jolleying method

This method is employed for shaping *kundies* and footed bowls. The moulds are placed on jigger head which rotates rapidly. Plastic clay is placed inside these moulds. The profile which is attached with a jolley is then lowered down and it gives shape to the articles, cutting the extra clay out. The profiles are so adjusted that they shape the articles to the required thickness. The mould is then removed from the jigger head and allowed to dry.

II. FINISHING

The processes of joining the different parts, which are made separately, and correcting the imperfections in the shape are included under the term 'finishing'. The seams have to be removed with a scraper. If there are any bubbles, they have to be probed and mended with spare clay, which is stuck on with slip. Roughness and irregularity, if any, have also to be smoothened. As the toys and images are casted in parts, the latter have to be joined by casting slip before glazing. In case of tea-pot, the handle and the spout are joined with the main body with great care. The joints have to be smoothened and finished. The proportion of water in both the parts should be equal, otherwise the articles will crack at the joint in the process of firing. Articles such as *kundies* made on a potter's wheel are also 'turned' on the same wheel. The term 'turning' connotes the finishing of round or oval articles on potter's wheel of the jigger head.

III. DRYING

The main precaution to be taken in the process is that all the parts of the ware must get equal heat otherwise warping would take place. Drying makes the articles hard enough for glazing. At Chunar, the wares are dried by exposure to the sun till they are leather-hard because dryers, as used in big factories, are quite costly and the potters of Chunar cannot afford them. When the wares have dried to the requisite degree, these can be worked on again if necessary, sharpening the details which were difficult to work in softer condition.

IV. PAINTING

Painting on the products is done by hand with the help of a painting brush and ceramic colours. At Chunar, painting is always done under glaze, which means that the finished articles are painted before glazing. Under glaze colours can be painted on leather-hard ware or on biscuit ware but the latter method is preferred. The colours are available in powder form. They are mixed with a little water and a drop of gum tragacanth. If gum is not applied, the colour would wash off when glaze is applied. A soft-fired biscuit ware cannot be painted easily because its porous surface has a tendency to soak the colours. Similarly, it has to be ensured that the biscuit ware does not catch a greasy patch because the effected portion would not take the glaze.

If painting is done on unfired ware, gum and water are used. The colour does not hold as fast to clay as to biscuit ware. In that case, the ware is not dipped in glaze ; it is sprayed on the ware.

V. GLAZING

"Glaze is a form of glass, composed of *silica*, *flux* and *alumina*. *Silica* melts at a very high temperature, so it is necessary to add a *flux*, such as *lead*, to make it melt more easily. A glaze could be made of flint (which contains silica) and lead alone, but on reaching melting point in the kiln it would flow so freely that it would run off the ware. This is prevented by the addition of *alumina*, which will thicken the glaze and make it more sticky.

"Clay contains alumina, so a transparent glaze can be made as follows :

60 parts white lead (flux)
31 „ flint, containing silica
9 „ china clay (kaolin), containing alumina."[2]

1. Drawbell, Marjorie: *Making Pottery Figures*, 1961, Page 56.

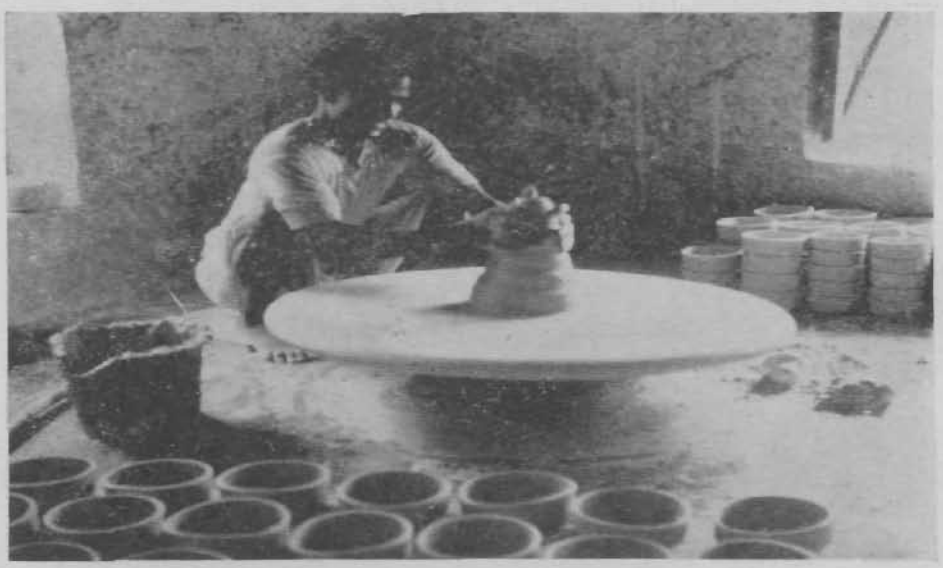
2. *Ibid*, Pages 83-84.

Plate No. 7



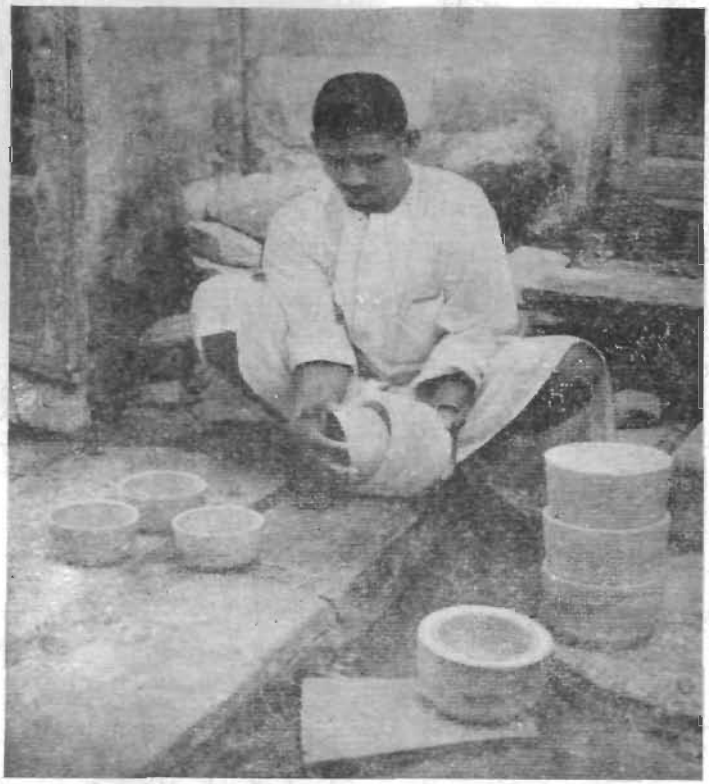
A potter is shaping a *kundi* of white pottery on a jigger jolley. The machine consists of a jigger head on which revolves the plaster mould. The upper part of the machine is known as jolley to which is attached a profile—a thick sheet of iron shaped in such a manner that it can be applied to shape the interior side of the product while the mould shapes the exterior.

Plate No. 8



A *karigar* is raising the clay on a potter's wheel for shaping a white pottery product ; a few thrown *kundies* are kept aside.

Plate No. 9



A worker is removing a *kundi* of white pottery from the plaster of Paris mould. These *kundies* were made on a jigger jolley. After a few minutes of shaping, the mould leaves the product.

Plate No. 10



Tagore image in white pottery is being finished with sand paper; finishing touches are invariably given before glazing, for correcting imperfection.

Plate No. 11



The artist is painting the white pottery products with a painting brush in ceramic colours. Painted products are kept in the foreground.

Plate No. 12



A worker is glazing a lion image of white pottery by the dipping method. The article is immersed into glaze slip. After a second, it is taken out of the glaze. A uniform layer of glaze sets on the article. Glaze gives shine and impermeability to the wares after firing.

Plate No. 13



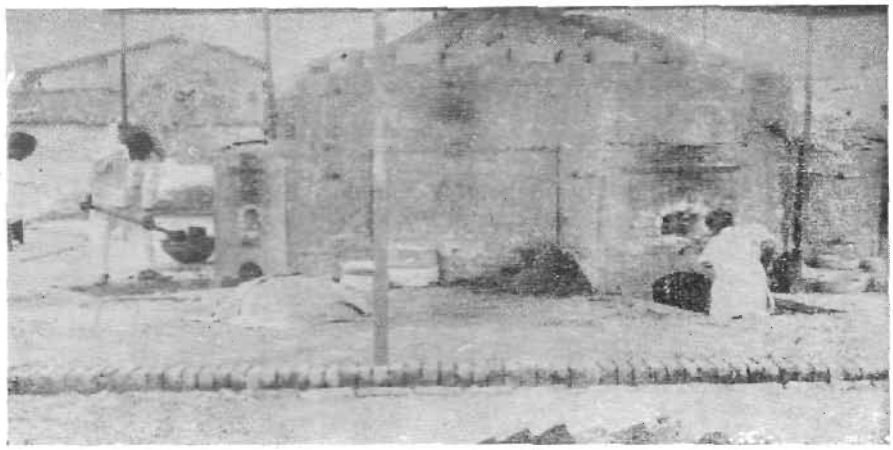
White pottery image of Venus de Milo, is being coloured by a spray machine.

Plate No. 14



A down-draught kiln is being loaded at the Centre. Articles are placed in saggars in such a way that they might not touch each other. The saggars are loaded in such a way that there must always be a difference of about one inch between the two lines of saggars.

Plate No. 15



FIRING A KILN

One fireman is charging the fire-box with coal with a shovel while the other is operating the fire-box with a strong iron bar.

"*It is essential that the glaze should 'fit' the clay, i.e.* that the clay and the glaze should expand and contract together during firing and cooling. If the glaze does not fit, it will 'craze'—tiny cracks will form all over the surface."[1]

Glazing is done by dipping the wares into glaze slip. The thickness of coating depends upon the porosity of the articles, time of immersion and the density of the glaze slip. If a ware is kept immersed in the glaze slip for more than the required time, the coating of glaze will be thick and may cause crazing. Hence special skill is required for this process. A uniform layer of glaze is applied to the articles by this method and a number of articles can be glazed easily in less time. However, in case of big articles, this method is not advisable.

The dust, that might have settled on the articles, has to be removed before glazing, otherwise it may cause 'rolling', *i.e.*, the defect resulting from the collection of glaze into beads.

Another method of glazing is by using a spray machine which consists of a spray-gun and compressor. It is preferred in case of delicately modelled figures. "The spray can be applied more thinly to some parts, such as the face, to avoid filling-in the modelling." The images of Venus de Milo are sprayed with white glaze with a spray-macine at the Gupta Pottery Works. The following types of defects can appear in the process of glazing :—

(*a*) Crazing, or the spreading of tiny cracks all over the surface, which results from the shrinkage of glaze more than that of the body.

(*b*) Scaling, or the glaze flaking off the edges of the ware, which is caused by the body shrinking more than the glaze.

(*c*) Blistering which is caused by the presence of sulphur in the body.

(*d*) Crawling or wrinkled-up glaze, which is caused either by the biscuit ware having dust or grease on it before glazing, or the glaze having remained underfired or the glaze having too high a proportion of clay or having been applied too thickly.

(*e*) Dry surface, caused either by under-firing or presence of insufficient flux in the glaze.

(*f*) Rough surface caused by too thin an application of glaze.

(*g*) Running glaze, caused by too much flux or overfiring.

VI. LOADING OF THE KILN

All pottery articles are subjected to a firing process. The firing of white wares is done in special furnaces. There are only two down-draught kilns at Chunar. The wares are kept in special refractory boxes known as saggars, having round or rectangular shape, with height to suit the wares to be fired.

First of all, the ground holes of the kiln are cleaned and every piece of saggar or dust is removed from them. Pieces of fire-bricks are kept below the saggars in such a way that holes of the kiln may not close. The saggars are loaded in the kiln in such a manner that there should be a difference of about one inch between the two lines of saggars and the loading may remain about one feet below the roof of the kiln. The lines of saggars must be straight so that they may not fall and touch the other ones during firing. For this purpose, pieces of saggars are placed between the two lines.

Loading of kilns is one of the most important operations in white pottery industry. A lacuna in the operation might damage all the articles in the kiln.

VII. FIRING

The fire boxes of the kiln are provided with grate bars. Bituminous coal is burnt in the fire boxes. The flames go from these fire places into the main chamber of the kiln where wares are loaded in the saggars, heat them and come towards the ground of the kiln and pass away through the chimney which creates the necessary draught. Different procedures of firing are adopted by different workers. In Chunar, damper is put down only when the potters begin to fire, while in Khurja it is used when the red heat begins to pass through the damper. Generally, the damper is kept one foot above the channel. Dampers are mainly used for checking the heat and lessening the draught when required.

In the beginning, the kiln is fired with one shovel of coal. The quantity of coal is raised to two shovels after five or six hours. When the coal is completely burnt in the fire boxes or sometimes a little after the smoke has stopped passing through the chimney the second charge of coal is provided to the fire boxes. From time to time coal ash is cleaned out from below the grate bars, for providing air to the fire boxes. Generally, a potter takes 16 to 18 hours for the firing of a kiln of 10 feet diameter and 12 to 14 hours for a kiln of 5 feet diameter. Two or three hours before the firing stops, test pieces from the holes are drawn out and judged by the fireman. When these samples are satisfactory, the firing is stopped. If uniformity of temperature has not been created inside the kiln, firing continues with less quantity of coal for a longer time. This period is known as the 'soaking period.' Firing is closed only when there is no smoke in the kiln. The apertures of the fire boxes are covered with grog plates and clay so that air might not enter the fire boxes. Thereafter, the damper is completely put down. Consequently, the heat of the kiln passes rapidly through the chimney and the temperature becomes uniform. To cool the kiln, the potters in Chunar raise the damper after about 10 hours while in Khurja the time allowed does not exceed 4 hours. The kiln is cooled slowly, otherwise cracks may develop by the coming in contact of the hot articles with cool air.

1. Drawbell, Marjorie : *Making Pottery Figures*, 1961, Pages 83-84.

B. RED CLAY POTTERY

(1) Manufacture

The red clay wares are made either on the potter's wheel or by the method of hand pressing in moulds. Sometimes one part of an article is made by "throwing" method on the wheel and another part is made by hand and the various parts are joined together. The round articles, such as flower vases, are prepared on the potter's wheel.

The hand-pressing method involves pressing of soft plastic clay in the baked clay moulds. A mould can have a number of pieces. The interior of the mould is sprinkled with sand or fire-wood ashes so that the clay might not stick to the mould. The soft workable clay is pressed into the mould with thumbs and fingers in such a manner that the thickness of the article remains uniform. After a few minutes, the clay figures are taken out of the mould and joined together with water and clay. For removing the seam and correcting any imperfections in the shape of the article, finishing touches have to be given.

(2) Firing

When dried, these articles are baked in clamps by the *karigars* to give them a biscuit burn. All articles are dusted with a thin layer of sand to protect them from the flames and dirt that may drop on them during firing. The biscuit-burnt wares are sold to the *bhattidars*, who glaze these articles and fire them in ovens at their residences. Generally, a dark brown glaze is given to the red pottery wares. The ovens are made of bricks. The articles are loaded in saggars which are placed in the ovens in such a manner that one article does not touch the other. If this precaution is not taken, the articles might get joined together. Before firing, the glaze at the top of every ware is scratched so that it might not stick to thimbles in the process of firing. Glazing at the bottom is not done so that the article might not stick to the saggar.

Fuel wood is used for firing these articles. Generally one firing takes 6 hours. Firing is stopped when the glaze begins to melt. Glaze is fired more rapidly than biscuit, because the ware has already shrunk during the process of biscuit-firing. Glaze is fired to a temperature of 950°C. During the process of firing, temperature has to be increased very slowly otherwise there would be more breakages. Similarly, there should not be great hurry for opening the kiln after a firing. The oven should be allowed to cool down slowly and gradually. If the ware is taken out hot, the glaze is likely to craze. After taking the articles out of the oven after firing, *chapra*, a preparation of lac, is applied to the top and bottom of the ware, for bringing it in conformity with the glaze colour.

Plate No. 16



RED CLAY PRODUCTS

These products are made by two methods, *viz.*, throwing and hand pressing into baked clay moulds. After joining together the various parts of an article they are baked by the *karigars* themselves in their own clamps. These baked articles are sold to the potters who glaze them by hand-spraying method with various coloured glazes. The products are then subjected to a firing process in ovens at the potter's residence.

Plate No. 17



A skilled *karigar* is shaping on a potter's wheel a flower vase of red clay pottery.

Plate No. 18



The *karigar* is pressing the plastic clay in a baked clay mould with his thumbs. The boy sitting aside is giving finishing touches with a knife. Images of Shiva, Tagore and Subhash which have been made by the same method are kept aside. Baked clay moulds are also kept in the foreground.

Plate No. 19



The male worker is joining together the two parts of red clay flower vases.

Plate No. 20



The potter's family is engaged in glazing flower vases of red clay pottery by the hand-spraying method.

CHAPTER VI

Cost of Production

Most of the potters making white pottery purchase raw material from M/s Hira Pottery Works, Chunar. They depend upon the Centre for coal and glaze only. The process of firing is carried out in the kilns of the Centre. The saggars are supplied by the Centre on payment of rent. The prices of body, glaze and coal supplied by the Centre are almost fixed and do not vary according to cost as at Khurja.

The cost of production of an article is calculated after taking into consideration the cost of raw materials, colour, labour, rent of the kiln and saggars and other expenses. If wares of different sizes and various types are fired in a kiln, it becomes quite difficult to calculate the cost of production. The potters keep no record of expenditure on a kiln and its profit.

If a potter loads a kiln 5 feet in diameter with toys, the expenditure would approximately be as follows :—

Items of Expenditure	Cost
1. Body 5 maunds @ Rs. 13	Rs. 65.00
2. Glaze 35 seers @ Rs. 22 per maund	Rs. 19.25 nP.
3. Labour	Rs. 40.00
4. Coal 26 maunds @ Re. 1.75 nP. per maund including weighing charges	Rs. 45.50 nP.
5. Rent of kiln	Rs. 5.00
6. Rent of saggars	Rs. 12.00
7. Rent of workshop	Rs. 9.00
8. Expenditure on colour	Rs. 4.25 nP.
Total Expenditure	Rs. 200.00

The sale price of the fired products would be as follows :—

Quantity	Rate per dozen	Sale Price
1. 162 pieces, first quality of Tagore image, height 9 inches	Rs. 15	Rs. 202.50 nP.
2. 108 pieces second quality	Rs. 7.50 nP.	Rs. 67.50 nP.
Total Sale Price		Rs. 270.00

Ordinarily, 300 pieces of Tagore image can be fired in a kiln of 5 feet diameter. Breakage leads to 10 per cent waste. Normally, 60 per cent of the remaining pieces come out of first quality and 40 per cent of second quality. On this assumption, the profit comes to Rs 70 (Rs. 270 minus Rs. 200 approximately). Thus on an investment of Rs. 200 the profit is approximately Rs. 70 or 35 per cent.

The cost of production of 350 *kundi* sets (each set having 6 *kundies* of various sizes) in a kiln of 5 feet diameter is as follows :—

Items of Expenditure	Cost
1. Body 12 maunds @ Rs. 3.50 nP.	Rs. 42.00
2. Glaze 25 seers @ Rs. 22 per maund	Rs. 14.75 nP.
3. Coal 25 maunds @ Rs. 1.75 nP. per maund	Rs. 43.75 nP.
4. Expenditure on *kundi* making, 350 sets @ Rs. 6.25 nP. per 100 sets, including other labour charges	Rs. 23.50 nP.
5. Rent of kiln	Rs. 5.00
6. Rent of saggars	Rs. 12.00
7. Rent of workshop	Rs. 9.00
Total Expenditure	Rs. 150.00

The sale price of 330 sets, allowing a breakage of 20 sets, would be as follows :—

Quantity	Rate per set	Sale Price
230 sets	69 nP.	Rs. 158.70 nP.
100 sets	31 nP.	Rs. 31.00

Total Sale Price = Rs. 189.70 nP. or Rs. 190 approximately.

The profit per kiln would be Rs. 50 (Rs. 190 minus Rs. 140) or about 35.7 per cent.

The cost of production of footed bowls manufactured by M/s Babu Pottery, fired in a kiln of 5 feet diameter, is as follows :—

Items of Expenditure	Cost
1. 10 maunds body @ Rs. 3.50 nP. per md.	Rs. 35.00
2. 25 seer glaze @ Rs. 22 per maund	Rs. 14.75 nP.
3. Labour charges	Rs. 15.00
4. 25 maunds coal @ Re. 1.75 nP.	Rs. 43.75 nP.
5. Rent of kiln	Rs. 5.00
6. Saggar charges	Rs. 12.00
7. Rent of workshop	Rs. 1.50 nP.
Total Cost	Rs. 127.00

At one time, 780 pieces (4 inch diameter and $3\frac{1}{2}$ inch height) are fired. After allowing breakage, 700 saleable pieces come out. The sale price of these pieces can be calculated as follows :—

Number	Rate per article	Sale Price
420 bowls (60 per cent I quality)	31 nP.	Rs. 130.20 nP.
280 bowls (40 per cent II quality)	15 nP.	Rs. 42.00
	Total Sale Price =	Rs. 172.20 nP.

The profit earned comes to Rs. 45.20 nP. (Rs. 172.20 nP. minus Rs. 127) or approximately 35.5 per cent.

In view of the shortage of kilns, every proprietor is able to carry out about 7 firings of a kiln of 10 feet diameter every year. If a kiln of 100 feet diameter can be available to each of them every month, the industry would be more profitable.

The process of firing is quite erratic ; there is no certainty of the quality of the product. On one occasion all the articles may turn out to be of the first quality but on the next all the articles may be defective. The kilns are fired with coal and hence there is always an unevenness of temperature resulting in products of varying qualitites. Skill n firing plays an important role in this matter. An extra charge of coal to the fire boxes may cause the whole product to become overfired while the products may not be properly fired in the absence of one more charge.

SUGGESTIONS FOR LOWERING COST OF PRODUCTION

Chunar potters purchase quartz and felspar powders @ Rs. 10 per maund while the rate at Khurja is Rs. 4.58 nP. per maund. The charges at Chunar and Khurja for grinding the raw material are @ Rs. 6.50 nP. and Rs. 2.24 nP. per maund respectively. It is evident from the above statement that the rates at Chunar Centre are comparatively higher. The reason for this high cost is that there is no electricity in the city and the grinding cylinders are rotated by an oil engine. Costing is done at the Centre from time to time. It has fixed the rates of selling raw materials, colours and other articles. Consequently, most of the potters purchase most of the raw materials from Hira Pottery Works. At the time of survey, there were two kilns at the Centre, having diameters of 5 feet and 10 feet respectively. The capacity of a kiln of 10 feet diameter is four times that of the kiln of 5 feet diameter. If a potter fires a kiln of 12 feet diameter, he may minimize the cost of production in comparison to one who fires a kiln of 5 feet diameter. The capacity of a kiln of 12 feet diameter is about eight times that of the kiln of 5 feet diameter. The quantity of coal consumed in a kiln of 12 feet diameter is about 100 maunds and in a kiln of 5 feet diameter it is about 26 maunds. Thus, in a kiln of 12 feet diameter the quantity of goods that can be fired is 8 times that which can be fired in a kiln of 5 feet diameter. The coal consumption in one firing in a kiln of 12 feet diameter is 100 maunds and the coal required for firing a kiln of 5 feet diameter 8 times is 208 maunds. Thus, a potter can save Rs. 189 on coal alone, if he fires a 12 feet diameter kiln. The firing charges on a kiln of 5 feet diameter are Rs. 5 while those on a kiln of 12 feet diameter the charges are about Rs. 18. For firing the same number of articles in a kiln of 12 feet diameter, a potter has to fire the kiln of 5 feet diameter 8 times and thus pay Rs. 40 in place of Rs. 18. There is an alround saving of expenditure on coal, kiln, labour, workshop etc., thereby drastically cutting down the cost of production. In view of the principle that larger the plant, cheaper and better are the products, the capacity of the plant is being raised.

The Centre can contribute to lowering down the cost of production, but the potters are not somehow convinced of the Centre's earnestness in the matter.

COST OF PRODUCTION OF RED CLAY POTTERY

The potters engaged in production of red clay pottery purchase biscuit-burnt articles from the *karigars* at a fixed price. They have nothing to do except glazing and firing the products again. In these processes, they have to spend on coloured glaze materials and fuel an amount equivalant to the purchase price of biscuit ware. They sell these articles at a price three times the amount paid by them to the *karigars*. Thus an equal amount goes into the pockets of the potters and *karigars*, by way of profit.

The following table shows the price of various articles paid to *karigars* by the *bhattidars* and the price charged by the latter from the retailers :—

	Name of Article	Price charged by *Karigars*	Sale Price
1.	Flower vase 6" height	Re. 0.4 nP.	Re. 0.12 nP.
2.	Table lamp 2' height	Re. 0.75 nP.	Rs. 2.25 nP.
3.	Inkstand 8" height	Re. 0.19 nP.	Re. 0.57 nP.
4.	Image of Ganeshji 6" height	Re. 0.25 nP.	Re. 0.75 nP.
5.	Image of Shanker Parvati 2' height	Rs. 1.26 nP.	Rs. 3.75 nP.
6.	Elephant 6"×6"	Re. 0.09 nP.	Re. 0.27 nP.
7.	Lion 3"×8"	Re. 0.19 nP.	Re. 0.57 nP.

Evidently, the margin of profit to the *bhattidars* is quite high.

CHAPTER VII

MARKETING

Marketing plays an important role in the development of an industry. On account of their limited financial resources, the potters of Chunar cannot keep their capital locked up for a long time, especially when credit facilities are almost non-existent. They cannot, therefore, wait for long for obtaining better prices for their products.

The main markets for the products of Chunar pottery are Varanasi, Tatanagar, Vindhyachal, Mughalsarai, Patna, Birbhumi in Assam, Nalhati, Bombay, Kanpur, Lucknow, Jhansi, Mirzapur, Meerut, Sasni, Calcutta, Jabalpur and Delhi. Dealers from these places visit Chunar, contact the potters, purchase the goods, get them packed and transported, sometimes by goods trains but generally by trucks. Almost every potter has permanent customers who also sometimes place orders without visiting the place. Thus, most of the products are sold away direct to the dealers. The products are also displayed for sale at the stalls of the potters. Sometime in October, a number of Bengalees visit Chunar and make purchases from these stalls. Clay images of Sri Krishna, Ganesh, Shiva, Parvati, Lakshmi etc. have their ritual importance in a Hindu household. The Bengalees have a fancy for such images. Since they are cheaper than similar brass products, they find a ready market throughout the year in general and on the occasion of festivals in particular.

The annual production of Chunar pottery is quite limited but the demand for the products is adequate. Hence, there is no difficulty in the quick disposal of the products, especially when they are quite cheap. In the matter of prices, the local potters do not indulge in cut-throat competition. They sit together, discuss their problems and fix the approximate price for various types of products. Generally, they would stick to these prices while entering into a deal with the merchants. Since the prices fixed by them are reasonable, in fact quite low, there is a good margin of profit for the dealers who do not, therefore, take any steps for creating unhealthy competition among the producers.

The potters have not organized themselves into a co-operative society, either for credit or for marketing facilities. At Khurja, the National Small Industries Corporation Delhi used to provide facilities for marketing some of the products of the pottery industry for five years. No such facility exists at Chunar. In fact, the annual production of Chunar pottery is considered to be too low to warrant such an establishment.

The quality of Chunar products is just ordinary. A better market can be created if the quality of the products is improved. This would perhaps be possible if and when the Government Pottery Development Centre would supply better and cheaper raw materials and better and bigger furnaces. Facilities for training in the techniques of production, finishing and painting would also help in this direction.

CHAPTER VIII

Conclusion

According to Dobbs, in 1895 Chunar exported brown glazed pottery of the annual value of Rs. 3,000 to Calcutta, Lucknow, Delhi and Meerut. It was obviously the most flourshing pottery centre in the State. In 1961, the value of red clay pottery was Rs. 86,820 which, even after taking into account the fall in the value of money, shows that the industry has prospered and not languished.

In 1954, the State Government established a Pottery Development Centre at Chunar for encouraging white pottery units. In 1955, three white pottery units came into existence, the number subsequently multiplying to six units in 1956. Production has increased and the industry has prospered. A number of more persons are keen to enter into this industry which would be possible when proper facilities are provided to new entrants in the field.

There is a vast scope for the encouragement and expansion of this industry. The Government Pottery Development Centre can be an effective instrument of its development, as at Khurja. The size of the Centre should be expanded for provision of more facilities to the units. For example, at present there is no filter press to dewater the slip, nor is there a pug mill to make the body homogeneous. For improvement in quality the slip should pass through these machines and the ferro-filter which is necessary for separating the iron particles which often get mixed up with the clay slip during the grinding in ball mills. If these iron particles are not separated from the clay, brown unpleasant patches appear on the products after firing.

Secondly, old and dirty moulds should not be used for manufacture of articles. They can produce only poor quality articles.

Thirdly, for improvement in quality, products should be fired either in tunnel kilns or oil furnaces. Also articles fired in a big furnance are superior in quality and cheaper in cost than those fired in a smaller furnace. Bigger furnaces should be provided at the Centre.

Fourthly, raw materials should be supplied at cheaper rates by the Centre. The Centre should charge only its actual costs plus some overhead charges, as is done at Khurja.

Lastly, better credit and marketing facilities should be available to the potters—either through the Centre or through co-operative credit and marketing societies. The Centre should also give more active guidance to the potters in adopting improved techniques.

The future of the pottery industry at Chunar is no doubt bright. The rate of its progress will, however, be determined mainly by the interest and activities of the Centre.

TABLES

TABLE I

Number of Units and Number of Persons Employed

Handicraft	Number of Units Surveyed	Number of Persons employed in Production			
		Total	Adult Males	Adult Females	Children
1. White Pottery	6	29	28	—	1
2. Red Clay Pottery	13	80	23	40	17

N. B.—Besides the above, 20 households of *karigars* comprising about 100 men, women and children are engaged in the manufacturing process. They sell the baked articles to the 13 *bhattidar* households who subject them to a second firing after glazing and sell to the customers.

TABLE II

Distribution of Artisan Communities

(1) White Pottery

Name of Community	Number of Units Surveyed	Number of Adult Workers			Number of Families working under Co-operation	Number of Adult Workers working in			
		Persons	Males	Females		Own Units		Employers' Workshops	
						Male	Female	Male	Female
1. Hindu	5	26	26	—	—	6	—	20	—
2 Muslim	1	2	2	—	—	2	—	—	—

(2) Red Clay Pottery

1. Hindu	9	50	16	34	—	14	16	2	18
2. Muslim	4	13	7	6	—	7	6	—	—

N.B.—*In addition,* 14 *Hindu and* 3 *Mohammedan children* work in own units.
The 20 *karigar* households work in their own production units.

TABLE III

Distribution of Articles by Material Used

(1) White Pottery

Name of Article	Main Raw Material		Subsidiary Raw Material		Raw Material Imported		
	Material	Number of Units engaged in its Manufacture	Material	Number of Units engaged in its Manufacture	Raw Material	Place from where imported	Names of Units engaged in Manufacture
1. Clay images 2. *Kundies* 3. Footed bowl	Stoneware Body	—	Glaze	—	1. Quartz 2. Felspar	Uttar Pradesh and Rajasthan	1. M/s Sahni & Co., Khurja, Uttar Pradesh 2. M/s Bharat Mineral Supply Corporation, Ajmer, Rajasthan
					3. Clays	West Bengal and Madhya Pradesh	1. M/s Indian Mineral Associated Industries, Calcutta 2. M/s Oriental Potteries, Chandia Road, Madhya Pradesh

N. B.—The body is prepared in the Centre's ball mill though its raw materials, such as quartz, felspar and clay are imported by M/s Hira Pottery Works. Subsidiary material mentioned in col. 4 and coal supplied by the Government Pottery Development Centre, Chunar are purchased by the potters.

TABLE III (Continued)

Distribution of Articles by Material Used

(2) Red Clay Pottery

Name of Article	Main Raw Material		Subsidiary Raw Material		Raw Material Imported
	Material	Number of Units engaged in its Manufacture	Material	Number of Units engaged in its Manufacture	
1. Flower vase 2. Inkpot Stand 3. Table Lamp 4. Images of lion, elephant, Ganesh, Krishna and Shankar Parvati	Red Clay or Common Clay	—	Coloured glaze	13	No raw material is imported from outside. Clay is available from the deposits of river Ganga and the pond of village Sarraya which is about 1½ miles from Chunar. Borax and copper are obtained from Mirzapur, lead from Varanasi and cobalt and manganese from Government Pottery Development Centre, Chunar.

TABLE IV

Designs

(1) White Pottery Units

Name of Article	Sources of Designs			Number of Units engaged in its Manufacture	Colours Used	
	Traditional	Self-designed	Other sources		Name	Number of Units engaged in its Manufacture
1. Images	—	Self-designed	Figures in Art books and imitation of the designs of plastic toys	Images of camel, cat, dog, horse, deer, bird, elephant, Shiva Parvati, Lakshmi, etc. in various sizes	Blue, brown, green and black, for painting purposes	2 Units and Government Pottery Development Centre, Chunar
2. *Kundies*	Traditional	—	Imitation of the market design	—	5	—
3. Footed bowl	,,	—	,,	1	6	
					Blue, brown, black and green for colouring/painting	

(2) Red Clay Pottery

1. Flower Vase	Traditional	Self-designed	—		Brown, black, green, blue and yellow and coloured glazes	13
2. Inkpot Stand	,,	,,	—			
3. Table Lamp	,,	—	—			
4. Images of elephant, lion, Shankar, Parvati, Laskhmi, Rama, Ganesh etc.	,,	—	Imitation from Art books and plastic toys	13		

N. B.—M/s Hira Pottery Works and M/s Gupta Pottery Works prepare their own colours. Rest of the potters purchase these colours either from Hira Pottery Works or the Government Pottery Development Centre.

TABLE V

Consumption and Sale

(1) White Pottery

Name of Article	Number of Units which sell through Medium of Stalls	Other Sources
1. Images and toys	5	Direct to the dealers who purchase the wares already manufactured or place orders for manufacture
2. *Kundies*	6	
3. Footed bowl	1	

(2) Red Clay Pottery

1. Flower Vase 2. Inkpot Stand 3. Table Lamp 4. Images of lion, deer, elephant, Ganesh, Shiva, Sita, Lakshmi, Parvati, etc.	13	Direct to the dealers who purchase the wares already manufactured or place orders for manufacture

TABLE VI

Cost of Production Sales of Some Articles and Price

(1) White Pottery

Name of Article	Number of Units producing these Articles	Cost per md. of main Raw Material (Body)	Cost of Conversion (per md.) into Finished Product	Average Sale Price per Article	Average Monthly Earning per Proprietor-Worker
1. Image (4" height)	5	Rs. 13.00	Rs. 27.00	Rs. 0.94 nP.	
2. *Kundi* set (6 pieces)	6	Rs. 3.50 nP.	Rs. 9.00	Rs. 0.54 nP.	Rs. 152.50 nP.
3. Footed bowl ($4\frac{1}{2}$" height, 4" diameter)	1	Rs. 0.50 nP.	Rs. 9.05 nP.	Rs. 0.22 nP.	

(2) Red Clay Pottery

Name of Article	Number of Units producing these Articles	Cost of Baked Articles	Approximate cost of conversion into finished Article	Average Sale Price per article	Average Earnings per Worker for each Article
		Rs. nP.	Rs. nP.	Rs. nP.	Rs. nP.
1. Flower Vase (6" height)	13	0.04	0.12	0.04	0.04
2. Flower Vase (18" height)		0.75	2.25	0.75	0.75
3. Table Lamp (2" height)		0.75	0.75	2.25	0.75
4. Inkpot Stand (8" height)		0.19	0.19	0.57	0·19
5. Lion (3" height 8" length)		0.09	0.09	0.27	0.09
6. Elephant (6" height 8" length)		0.15	0.15	0.45	0.15
7. Ganesh (6" height)		0.25	0.25	0.75	0.25
8. Krishna (6" height)		0.12	0.12	0.37	0.13
9. Shanker Parvati (2" height)		1.12	1.25	3.75	1.25

TABLE VII

List of Master Craftsmen

(1) White Pottery

1. Shri Ganga Prasad, M/s Ganga Pottery Works
2. Shri Hira Lal, M/s Hira Pottery Works
3. Shri Jagrupan, M/s Hira Pottery Works
4. Shri Purshottam, M/s Gupta Pottery Works
5. Shri Ram Raj Gupta, M/s Gupta Pottery Works

(2) Red Clay Pottery

1. Shri Bhaggal
2. Shri Jaggu
3. Shri Baichen
4. Shri Baldeo
5. Shri Sita Ram
6. Shri Hira Lal
7. Shri Mithai Lal
8. Shri Raghu Nath
9. Shri Ram Sumer
10. Shri Chhedi Lal

CENSUS OF INDIA 1961

HANDICRAFT SURVEY SCHEME

Village Schedule of Industries and Crafts

District | Sub-division

Tahsil | N. E. S. Block (*if any*)

Village | Census Code Number

PART A — GENERAL DESCRIPTION OF VILLAGE

Describe briefly

(*i*) Area of village in acres	(*i*)	
(*ii*) Population	(*ii*)	
(*iii*) Approximate number of families	(*iii*)	
(*iv*) Various sections in the village corresponding to communities and their names	(*iv*) Name community a.	Name of community e.
	b.	f.
	c.	g.
	d.	h.
(*v*) Distance from nearest railway station (*miles*)	(*v*)	
(*vi*) Distance from nearest main road	(*vi*)	
(*vii*) Distance from P. S./Tahsil headquarters	(*vii*)	

PART B — ARTISAN COMMUNITIES IN THE VILLAGE (*Tribal & Non-Tribal*)

1. Name of caste or community	2. Approximate number of families	3. Total number of adult workers		4. Number of families working under co-operation	5. Number of families working in own houses or in workshops set up by their employers	
		Males	Females		In own houses	In employers workshops
1.						
2.						
3.						
4.						
5.						

6. Names of articles produced. Describe the articles and mention approximate sizes and heights.	7. Main material used	8. Subsidiary material used	9. Whether raw material is imported and if so, from where? What are the main ingredients?
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

10. Who gives the designs ?	11. Give the names of the designs.	12. Describe colours used. How are the colours obtained ?
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

13. Tools used (*Describe tools. Give pencil sketches and photographs separately.*)	14. Who makes these tools and from where are they imported ?	15. General description of workshop (*Use separate sheet of paper if necessary.*)
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

16. When did the community come to this village ? Who were the patrons? How old is this craft in this village?	17. Describe legends or myths current on the origin of the community.
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	

18. Are there any villages in the neighbourhood where branches of these communities live? If so, give name of village (s) and community.

19. Do the communities produce for their own use entirely? Describe whether for domestic or ceremonial purposes.

20. Whether they produce entirely for others in exchange for money or kind. If so, who are the customers and to which communities do they belong ?

    (*i*) Are they for domestic use?

    (*ii*) Are they for ceremonial or ritualistic purposes ? If so, for which ceremony or ritual?

21. Whether the communities produce for themselves and for sale ?

    (*i*) Describe types of objects for own domestic or ceremonial use Mention heights of objects.

    (*ii*) Describe types of objects for sale. Mention heights of objects.

22. Do the communities produce for sale in open markets, *hats* and *melas*? Mention the markets, *hats* or *melas* and the occasions.

    (*i*) Do they make to the order of middlemen who advance money and undertake marketing facilities ?

23. If there is a co-operative society, are there members in it who belong to different castes ?

24. Give the names of the designs and myths or stories behind the names, *i.e.*, explanation of what the design stands for and the shape or decoration of objects.

25. Describe Production.

(Please describe stage by stage and take photographs wherever possible. Photographs should be supplemented by pencil sketches of surface, forms, designs, shapes, colours and processes of paper if necessary for sketches of stages.)

(*i*) First stage

(*ii*) Second stage

(*iii*) Third stage

(*iv*) Final and finishing stage

25. (A) Cost of production, sale price and earnings

(*i*) Price at which raw material is available ;

(*ii*) Cost of conversion into finished products ;

(*iii*) The usual sale price of finished goods; and

(*iv*) Wages earned.

26. Give a list of very skilled craftsmen of each community.

PART C FOR TRIBAL COMMUNITIES SPECIALLY

27. Is this a tribe where every household produces things for its own use or the use of the community?

28. Is this a tribe of which only particular sections produce particular things? If so, which sections produce which things? Mention names.

Name of section of Tribe	Name of articles produced

29. Is this a semi-tribal community and does it produce articles for neighbouring tribes? If so, mention the names of the tribes for which they produce and the names of articles.

Name of neighbouring Tribes	Name of articles produced for them

30. Does this tribe produce articles for non-tribal or advanced communities? If so, mention names of these communities and the names of articles.

Names of non-tribal or advanced communities	Name of articles produced for them