

## Scientific and Technical Study of Bidriware

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### Abstract:

Bidar district is the home of the Bidriware industry and the very name Bidri is derived from Bidar. This craft was introduced in Bidar during the rule of Bahmanis. Towards the end of the Baridi dynasty in Bidar this craft reached its zenith and a number of outstanding specimens were produced which today enrich some museums in India and abroad. The basic materials required in Bidri industry are zinc, copper, silver and a particle type of earth. The process of production may be divided into four main stages viz. casting, engraving, inlaying and oxidizing. There are five main types of inlay for ornamenting Bidriware objects.

The Bidricraft will be marketed through global media. For improving the life of Bidri artisans and for conservation as well as preservation of Bidriware scientific and technical study of Bidriware is a need of modern time. This paper will be beneficial to artists, historians, researchers, marketing agencies, government and policy makers along with scientist. Through technological help preservation and propaganda about art is also possible. Lastly, it is the work of the researcher to focus on scientific and technical thinking of art for its conservation and preservation of art.

### Key Words --Bidriware, Bahamani period, metal craft, Bidar, Bidri Artisans

**1.Introduction :** Bidar is known for its Bidriware. Bidriware brought name and fame to Karnataka. This Bidriware is an art form since Bahamani period to till today. Many Bidri artisans brought name to Bidar for demonstrating Bidri articles in India and Abroad. Many Bidri artisans have received several National and State awards given by the government. Bidri art is diminishing now-a-days because of the economic and social conditions of the artisans. Bidri art is a heritage art of Karnataka. To preserve our heritage, scientific and technical study of Bidriware is the need of the time. To prepare Bidriware a particular type of soil is used. Till date no scientific study of the soil is done. Furthermore, weight of Bidriware articles is another problem. As they are heavy, the foreigners and tourist do not buy these heavy weight articles. To make it small and beautiful and elegant these articles must be produced in a different way. Therefore, we have to study scientific methods in Bidriware for production. This paper will focus on Bidriware, its brief introduction, its methods of production and scientific importance of the study.

There are very few books available about Bidriware. As a result this, even most of the Indians also unaware of Bidriware and its beauty. Today more than 200 Bidriware are produced for tourist, foreigners and artists. Marketing of these products in modern times is also a challenge. Technical study of the same is also untouched. New technology in Bidriware production, material used, its designs, and marketing should be studied. It will benefit in marketing of Bidriware articles in India and Abroad. And artisans will also get employment opportunities. This will also be beneficial to preserve art and heritage of India with special reference to Karnataka's Bidriware.

To establish Bidri museum in Karnataka which help the tourist, artisans and government. Even a local marketing agent can sell his products in International market by means of business through internet. Government along with the help of the senior artists of Bidriware has prepared some materials for museum, which will attract one and all. Women participation is also important in this regard for preservation of art and culture of India.

If job opportunities, basic facilities and a strong marketing system are introduced to Bidriware artisans, it will help the artisans and the government to preserve our heritage. Bidriware history, production methods, designs and artisans' studies has already been done by many researchers, but its scientific and systematic study remains untouched. It is important and in this paper author primarily tries to focus on it. This paper will be beneficial to artists, historians, researchers, marketing agencies, government and policy makers along with scientist. Through technological help preservation and propaganda about art is also possible. Lastly, it is the work of the researcher to focus on scientific and technical thinking of art for its conservation and preservation of art.

**II. Historical background:** Bidar district is the home of the Bidriware industry which is a famous handicraft. The very name Bidri is derived from Bidar. The Bidri articles are well-known for their artistic elegance and beauty in India and abroad. This handicraft was introduced in Bidar some centuries ago during the rule of the Bahmanis.<sup>1</sup> Among the wide range of Indian Islamic metalware, Bidriware is an important class of work produced from early 17<sup>th</sup> century until the present day. Bidriware objects have been fashioned in different shapes and adorned with a variety of techniques. They were used by the Deccani and Mughal nobility, as well as by the princes and affluent people of Rajasthan, the Punjab Hill States, Bengal, Bihar, Madhya Pradesh and Western India.<sup>2</sup>

**Origin of Bidriware:** Over the last 900 years or so, a tradition has developed linking it with the Bahmani dynasty of the Deccan,<sup>3</sup> the story acquiring more with each retelling. As the account runs in its more complex form, the technique was introduced to the Bahmani Kingdom from Iran (in one version, via Iraq, Ajmer and Bijapur).<sup>4</sup>

**Process of Bidri art:** The basic materials required in Bidri industry are zinc, copper, silver and a particle type of earth. The process of production may be divided into 4 main stages viz. casting, engraving, inlaying and oxidizing.<sup>5</sup> A unique aspect of the Bidriware craft is the soil used to ornament the art objects. This soil, which has not received rain or sunlight for centuries, is collected by artisans from the inner areas of the Bidar fort. The soil contains ingredients that give a lustrous black colour to Bidriware. The paucity of raw materials impedes the mass production of Bidriware artifacts.

**Techniques of Ornamentation:** There are five main types of inlay for ornamenting Bidriware objects. According to the process used for the inlay, the work is known as Tarkashi (if only wire is inlaid), Tehnishaan (if the inlay looks flush with the surface of the object); Mahtabi or Aftabi (if the design looks black against the overlaid metal sheet); Zarnishaan (if the inlaid pieces are in low relief); and Zarbuland (if the inlaid pieces are in high relief).<sup>6</sup>

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<sup>1</sup> See for detail Hasoon Khan Sherwani, *The Bahmanis of the Deccan*, Munshiram Manoharlal Publishers Ltd, New Delhi, 1985, pp.34-52.

<sup>2</sup> Jagdish Mittal, *Bidriware and Damascene work in Jagdish and Kamla Mittal Museum of Indian Art*, Jagdish and Kamla Mittal Museum of Indian Art, Hyderabad, 2011, p.11.

<sup>3</sup> See for detail, *The Bahmani of the Deccan*, Krishnavas International Printers, Hyderabad-Deccan, India, 1953, pp.48-76.

<sup>4</sup> Susan Stronge, *Bidriware Inlaid Metalwork from India*, Victoria and Albert Museum, London, 1985, p.15.

<sup>5</sup> *Handicrafts Bidriware of Bidar*, Karnataka Indian Handicrafts Continuing Tradition sponsored by the office of the development Commissioner, Ministry of Textiles, Government of India, West Block, Puran, New Delhi. Pp.1-5.

<sup>6</sup> See for detail Jagdish Mittal, *Bidriware and Damascene work in Jagdish and Kamla Mittal Museum of Indian Art*, Jagdish and Kamla Mittal Museum of Indian Art, Hyderabad, 2011, pp.16-19.

**Raw Material:** The chief material in the preparation of a Bidri article is Zinc, copper, Red clay, Resin<sup>7</sup>, Caster oil, Sangzeera (white stone powder), Coal, Wax, Copper sulphate, Silver, Gold, Sandpaper, Clay of old fort having saltpeter, Lead, Sal ammoniac, Tin, Groundnut oil, Charcoal.<sup>8</sup>

**Bidriware Designs:** The Bidri articles traditionally used by the nobility in the former Hyderabad State were water jugs, wash basins flagons, hookas, candle sticks, spice and cosmetic boxes, dishes and flower vases. Now –a-days as many as 200 types of articles are being manufactured in these units.<sup>9</sup>

**Marketing:** In order to suit the modern tastes, to promote the sale of articles, new designs are being introduced. The Bidri articles are marketed locally and also sent to big cities like Bangalore, Delhi, Calcutta, Madras, Pune, Nagpur, Hariyana, Mumbai, Bhuvaneshwar etc.<sup>10</sup> Bidri articles also exported to 93 countries of the world like America, Italy, Singapore, England etc.

**Unique feature:** A unique aspect of the Bidriware craft is the soil used to ornament the art objects. This soil, which has not received rain or sunlight for centuries, is collected by artisans from the inner areas of the Bidar fort. The soil contains ingredients that give a lustrous black colour to Bidriware. The Bidriware is solid. It does not dent or break unless struck or hurled with great force. It does not rust either. The entire process of manufacture of Bidriware is carried on with great expertise and celerity by different sections of the people.<sup>11</sup>

**Bidri Artisans :** As in case of many other arts and crafts of India, the technique was usually handed down from generation to generation and strict secrecy was maintained. We find majority of Muslim artists involved in this art since it was established. The reason behind this is that the Hyderabad Karanataka region in South India was ruled by Mohammedans for about five hundred years.<sup>12</sup> A Bidri artisan's job is tough, and even some of them suffer from eyesight problems after spending endless hours etching intricate designs.

About 350 artisans in Bidar and more than 100 of them in Hyderabad are involved in preparing Bidriware articles including female and children. Bidri colony and chowbara road are the attractive areas of Bidri productions having showrooms and Karkhanas. Some artisans are working with self-help group, some with self investment and some are working on daily wage on government projects.<sup>13</sup>

**Scientific analysis of Bidar Fort Soil scholars:** In Bidar, a paste which is composed of salt ammoniac and saltpeter ground up with blackish water.<sup>14</sup> The earth used in Bidar to blacken the surface was collected and analysed by T.R.Gairola<sup>15</sup> and it consisted of: Soluble constituents -14 percent( Nitrate and chloride present but sulphate and ammoniac absent)The insoluble portion contains calcium carbonate and sufficient quantity of iron as digested with 6 NHCl.

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<sup>7</sup> The fine screened red clay with resin and caster oil mixed in it is used to get smooth surface and secondly to avoid cracks which may form if only dry clay is used.

<sup>8</sup> Krishna Lal, National Museum Collection Bidriware, National Museum, new Delhi, 1990, pp.2-3.

<sup>9</sup> H.Shehbaz, Safrani,. Deccani Drawings Reflections on life, p.11.

<sup>10</sup> Gazetteer of Bidar District, Karnataka Government, op.cit. p.188.

<sup>11</sup> For detail, Sujit Narayan Sen, Catalogue on Damascene And Bidri Art in the Indian Museum, Indian Museum, Calcutta, 1983, pp.8-10.

<sup>12</sup> Dr. Rehman Patel, Bidri Art, Karnataka Historical Research Society, Dharwad, 2017, p.58

<sup>13</sup> Ibid, p.59.

<sup>14</sup> .E.Speight, Bidriware, a pamphlet issued by the Commerce and Industry Department of H.E.H,theNizams's Government , 1933, p.9.

<sup>15</sup>T.R.Gairola, " Bidriware", Ancient India, No.12, 1956, pp.116-118.

In Bidar, the local manufacturers collect earth from the bottom of the old walls inside the Bidarfort , and after mixing it with ammonium chloride and water, they rub it on the fresh surface of the alloy. The change is sudden and lasting. In Bidar earth, the active agent for producing the black surface is an alkali nitrate, which, when mixed with excess ammonium chloride and rubbed with water on the alloy, gives the required black tint.<sup>16</sup> La.Niece. S.and G.Martin, The Technical examination of Bidriware was the first person who done scientific analysis of soil , which used for product the Bidri articles.<sup>17</sup>

### III-Below is the proposed of the paper and objectives, methods, outcome and conclusion :

**1.1. Description of Problem:** Bidriware is a heritage metal craft of Bidar, which is as old as Bahamani period. Its production may be divided into four main stages casting, engraving, inlaying and oxidizing. It is made from a type of soil found in Bidar. However the traditional method is today undergoing many changes. Next, recently many Bidri Artisans are living their artistic work as it does not pay well. There socio-economic condition is very poor. Thus new scientific and technological techniques may help the artisans to improve their economic status and preserve the dying Bidriware.

Research will focus on studying the challenges of Bidricraft Artisans, providing new scientific techniques for the production and preservation of Bidriware.

### 1.2. Review of literature

- M.Zebrowski's in *Bidri Metalware from Islamic Courts of India* has described historical importance of Bidriware.
- Susan Stronge,s book *Bidriware inlaid metal from India* has described collected Bidriware articles in detailed manner.
- Krishna Lal in his book *National Museum Collection Bidriware*, written Bidriware, its origin, material, tools and implements, and process of manufacture .
- Jagdish Mittal's book *Bidriware and Damascene work in Jagdish and Kamla Mittal Museum of Indian Art*, gives an updated history of Bidri craft in Bidar and Hyderabad.
- Rajendra Yarnal's book, "*Vishwavigha Bidrikale (written in Kannada)* focuses on Bidriware, its history, process, techniques and importance.
- M.M.Boralkar's, *Vishwa Prasiddha Bidrikale, (written in Kannada)*. Is useful for understanding Bidriware origin, techniques, marketing Artisans information.
- Dr. Rehman Patel in, "*Karnataka Bidri Kale Vandu Adhyana, (written in Kannada)*", describes history of Bidar and Bidriware, its techniques, designs, marketing system.
- A article by S.La.Niece and G.Martin , *The Technical examination of Bidriware*, studies in conservation, 1987. Explains the process of Bidriware and how a Bidriware converting in a black .This article describes scientific methods in brief.
- The article that appeared in *The Hindu (26.04.2012) Thinks are looking up for Bidri Artisans*. is helpful for the study of other agencies like EXIM Bank, VITC and KSHDCL who are promoted the Bidri Artisans.

<sup>16</sup> Krishna Lal, National Museum Collection Bidriware, National Museum, New Delhi, 1990, pp 6-8.

<sup>17</sup> La.Niece. S.and G.Martin, The Technical examination of Bidriware, studies in conservation, 1987.p.80.

### 1.3 -Objectives of the study:

1. To study the heritage of Bidriware metalcraft.
2. To preserve the dying and declining art of Bidri metalcraft in Bidar district.
3. To promote R & D activities and to promote technological advancement of Bidri art for value addition.
4. To protect and train the Bidri Artisans for achieving excellence in production.
5. To study scientifically various Bidriware designs, techniques and Processes.
6. To promote scientifically technological analysis of “Bidar Soil” of Bidriware products.
7. To identify international marketing potential for Bidriware.
8. To identify traditional and modern production of Bidriware.
9. To introduce Bidriware among young generation.
10. To formulate action plan for preservation and conservation of Bidriware.

### 1.4. Research Methodology:

#### State One:

- All the writings and documents in various languages books reading and field interviews.
- Field work and survey as well as Video interviews of experts.

#### Stage two:

- Creation of Albums of Photos
- Digital photography of Bidricraft
- Beginning of Video data

#### Stage three:

- Production of symbol of Bidricraft based on research.

### 1.5.-Relevance to Heritage Science:

- The Bidricraft can bring money and glory to India because in the Bahamani and Nizam period was highly dominated by metal craft of Bidriware. It was patronized by many rulers. The beauty and elegance of Bidriware has brought name and fame to nation. This can be revived on the basis of new technology.
- The craft of Bidriware is has involves scientific methods.
- Scientific R& D will help in for conserving the heritage of Bidriware. This includes presentation techniques, intervention technologies, new materials; process for restoration can improve quality of Bidri metal craft.
- There is a need to safeguard the use and application of old symbols and designs into innovative forms.
- Bidriware is a fusion of major religions and culture of India, as rulers have patronized it from time to time. Thus every culture had its influence on the craft. One can call it a fusion of cultures and it requires a chance for global exposure.
- The traditional knowledge and techniques can be clubbed with modern technology to involve local communities, artist groups, and some master artists in the wide production.

- Bidriware articles museum can be established to conserve old quality Bidriware and new quality productions can be arranged in Museum to attract Indian and foreign tourist. Such museum can be established in Bidri colony in Bidar district.
- Traditional techniques and methods must be supported by modern scientific research and a new production method should be utilized. This will retain the cultural heritage and expertise of senior artisans.

### 1.6. Output of the paper:

- The 90% up-gradation of Bidricraft art will be possible through this scientific process.
- Bidriware artisans get more benefit, creating awareness among artisans about scientific and technical knowledge.
- The Bidricraft units will be trained to get ISO Certificate in order to launch the product in foreign markets.
- More employability opportunities to artisans.
- Plan of Bidriware Museum in Karnataka. To create awareness heritage of Bidriware.
- Conducting of Bidriware workshop for artisans by expert people.

### V--1.7--Conclusion:

- The Bidricraft will be marketed through global media.
- The government agencies will be requested to preserve and promote Bidriware.
- 100% new branding will create every year 2000 employment which can be multiplied in the 3 years period.
- National and International Bidriware business is likely to increase.
- This world famous artistic meallie work is on the revival path after the introduction of innovative designs and a variety of new patterns. Innovative designs are developed by the National Institute of Fashion Technology (NIFT) and Karnataka State Handicrafts Development Corporation Limited is keen on promoting the Bidri art form. Still more government and Non-Government organisations come forward to promote Bidri art.
- Bidriware Museum will help the researchers and scholars. Awareness of Bidriware among common people.
- Bidri artisans also use the modern science and technology for producing Bidri craft. If artisan used modern new designs, methods, more profit and money can be earned by artisan in his life. For web marketing using net benefit the artisans.
- For improving the life of Bidri artisans and for conservation as well as preservation of Bidriware scientific and technical study of Bidriware is a need of modern time.
- This paper will be beneficial to artists, historians, researchers, marketing agencies, government and policy makers along with scientist. Through technological help preservation and propaganda about art is also possible. Lastly, it is the work of the researcher to focus on scientific and technical thinking of art for its conservation and preservation of art.

**Acknowledgements :** I am heartily thankful to the Indian Council of Historical Research, New Delhi for giving me an opportunity to do Research project through the grant of the grant –in-aid project on Bidriware. Tilak Maharashtra Vidyapeeth, Pune Library staff members for their excellent help and co-operation for collecting books on Bidriware. I also thankful to Mohammad Saleemuddin president of Bidar Bidri Youth Mandal, Bidar for collecting material on Bidriware. I am thankful to Dr. Rehman Patel, President Indian Royal Academy of Art and Culture, Gulbarga for encouraging me to do research work on Bidriware.

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