

SMI REVIEW

art and technology

2

new edition



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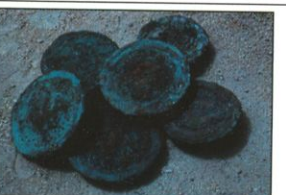


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It all started with the Islamic dynasty of the Mughals

Moradabad:

india's city of brass

**When English teapots replaced the Aftaba
American entrepreneurs reached Moradabad in 1947
200.000 workshops in a town of 800.000 inhabitants**

STEVEN GRIECO and NIHAL MATHUR

A modern industry working closely with manufacturing processes that go back several centuries? And brass the metal that fuses the old with the new? Impossible. But if it were possible, in what corner of the globe could this happen? Let's take a wild guess and say India – admittedly a country of many wonders and contrasts. For this special feature, SMI Review journeyed to the land of Bharat to see where and how brass brings together the ingredients to constitute this remarkable alloy.

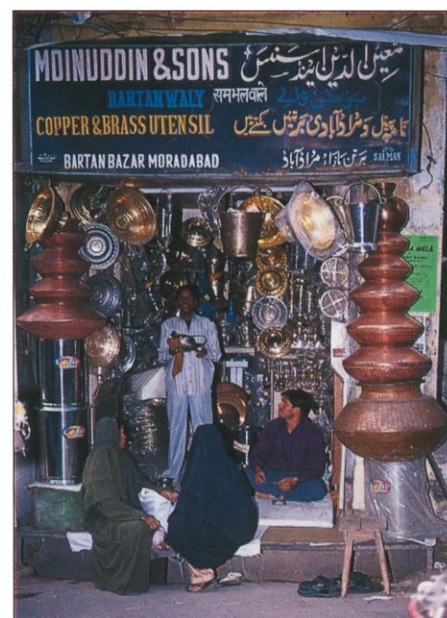
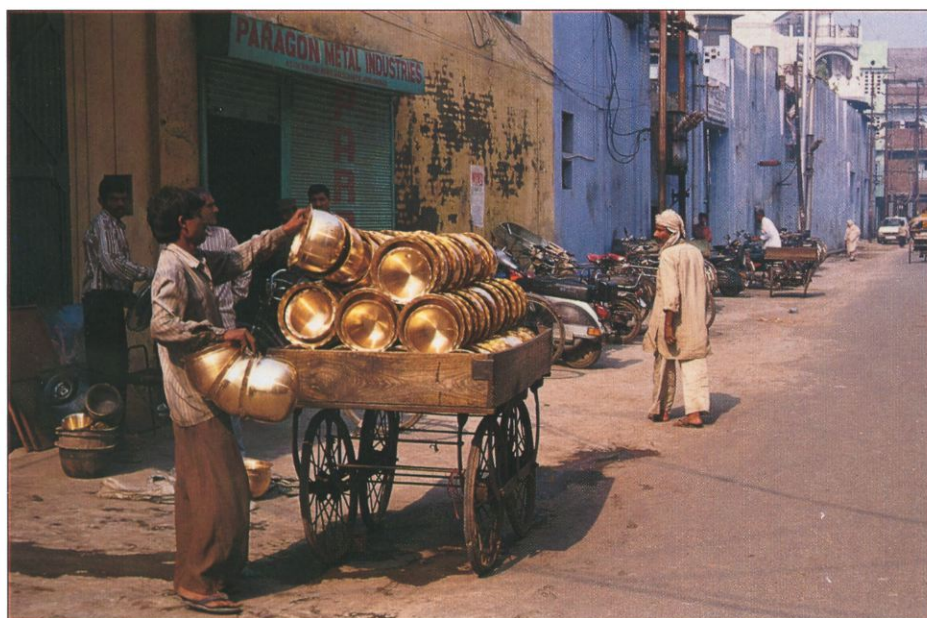
One hundred and sixty kilometres east of New Delhi, in what is known as the Indo-Gangetic plains, lies the city of Moradabad. Moradabad is known as India's city of Brass. Before the 17th century the place was little more than a village. At that time much of the subcontinent was ruled by the Mughals, the last and most splendid of the Indo-Islamic dynasties. They made the little village into a garrison and named it after Murad, a prince and one of Shah Jahan's generals.

In time, a large number of troops came to be stationed here. Now, the soldiery required not only weapons for its age-old calling, but also the items of utility we all need to carry on the business of daily life. In those times, water vessels, cooking and feeding utensils were made of brass. The Mughals energised the local profession of metal casting by bringing in craftsmen from Persia. These men were masters in the traditional Islamic techniques of etching, engraving and enamelling on metal surfaces. In the 17th and 18th centuries, Moradabad emerged as a centre of excellence in producing some of the finest specimens of Mughal art brassware to be found anywhere. The local craftsmen were famed in particular for the Bidri and Siah-Kalam engraving techniques (see box). They rendered these precious styles on sword- and dagger-hilts, plates, cups, water goglets and others. Examples of these are now preserved in leading museums of the world, including the National Museum

in Delhi, and the British Museum in London.

Under the Mughals, Moradabad's brass industry flourished not only because of royal patronage, but because brass has served the needs of the people of India from time immemorial. Brass permeates every corner of traditional Hindu society – from household items and kitchen utensils, to those of decorative value, to the ritual objects every devout Hindu uses in his daily religious ceremonies. Brass and bronze are the stuff Indian Gods and Goddesses are made of, and Hindu temples are adorned with shining brass spires that pierce the skies!

With the decline of the Mughals and the rise of British imperial power, a whole way of life waned in the Indian subcontinent. Tea pots replaced *aftabas* (see box). While Moradabad never stopped turning out the exquisite ware of past centuries, it also found willing patrons in the new rulers, who promoted the production of non-traditional items for the



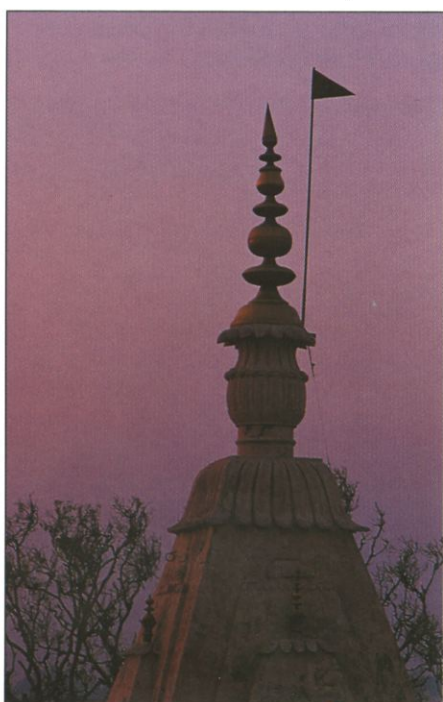
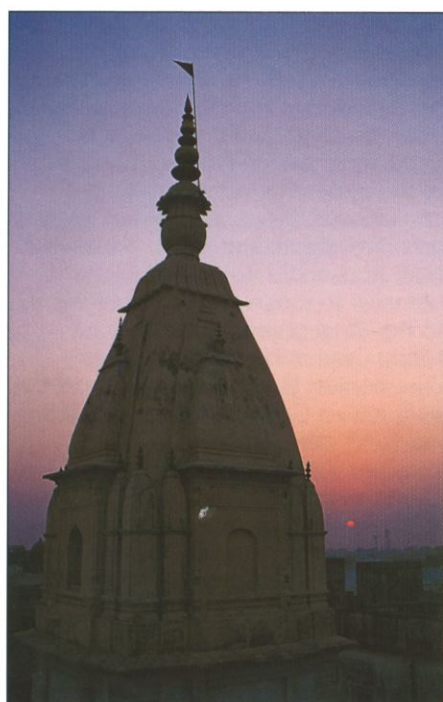
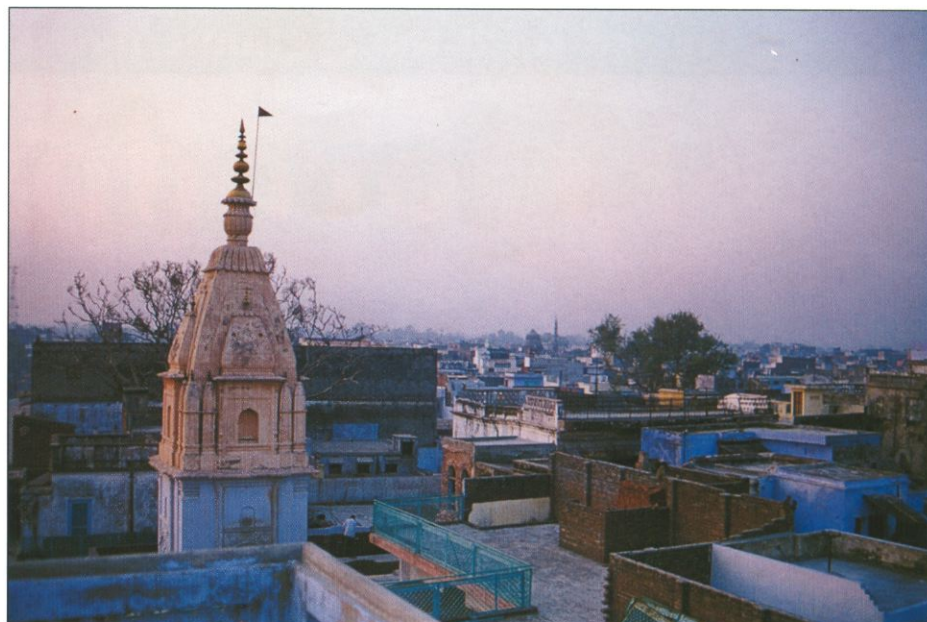
Moradabad: india's city of brass

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Left: A hand-pushed trolley full of brass products gets ready to leave the factory for the engraver's house-cum-workshop.
Right: Street view of the shops in Bartan Bazaar. Women buying brass utensils.

On this page:

Temple spiral made of Brass rises above Moradabad as the presiding deity of the city.



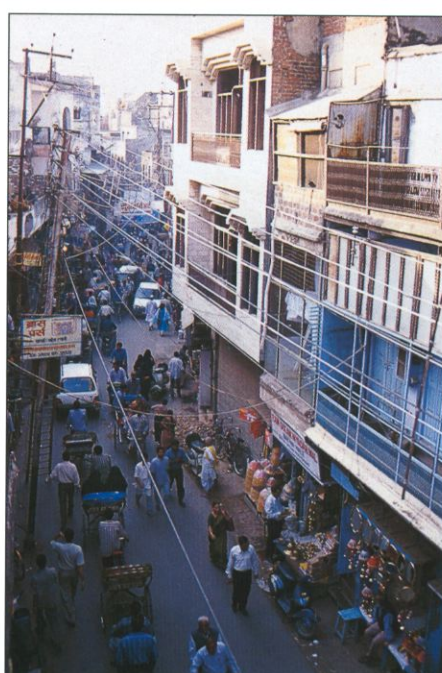
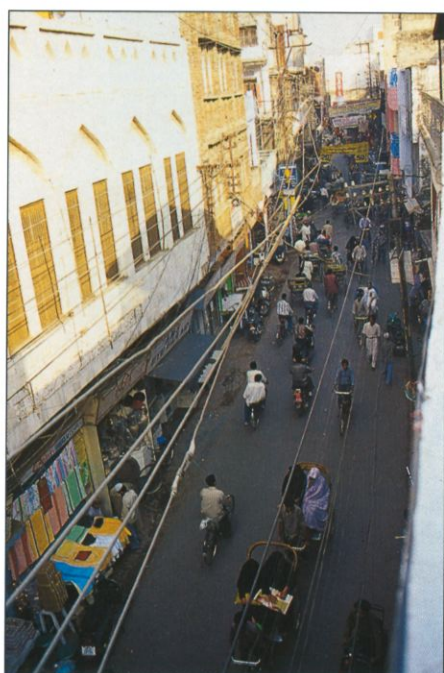
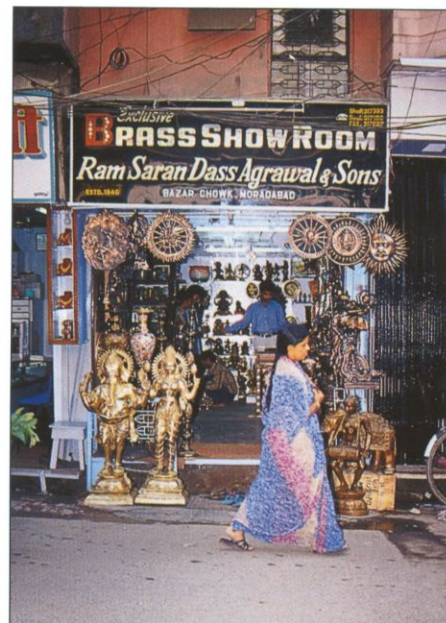
European market. Tea sets – to give just one example – were bought up in bulk by the businessmen of Calcutta and exported to Britain, where they were silver-plated, polished and re-sold throughout Europe to grace the homes of the aristocracy. Shortly after the birth of the Indian Republic in 1947, it was adventurous American entrepreneurs who discovered the potential of the old brass town of Moradabad, now fast becoming a sleepy backwater. Mr. Ajai Gupta, of CL Gupta & Sons, one of Moradabad's leading exporters of art

brassware, still recalls one Mildred Mottadeh, of New York City, who brought brass designs of Western inspiration and gave them to the local craftsmen to duplicate. The 50s marked the beginning of a fresh phase in the city's industrial development, with new brass shapes being produced alongside the traditional ones. After that, the city quickly rose to the challenge of an ever-rising demand the world over for such decorative objects... If it was made of brass, you could trust the master craftsmen of Moradabad to



Moradabad: india's city of brass

Views of Bartan Bazaar, or Brass Market, in the crowded streets and alleyways of the old city of Moradabad.



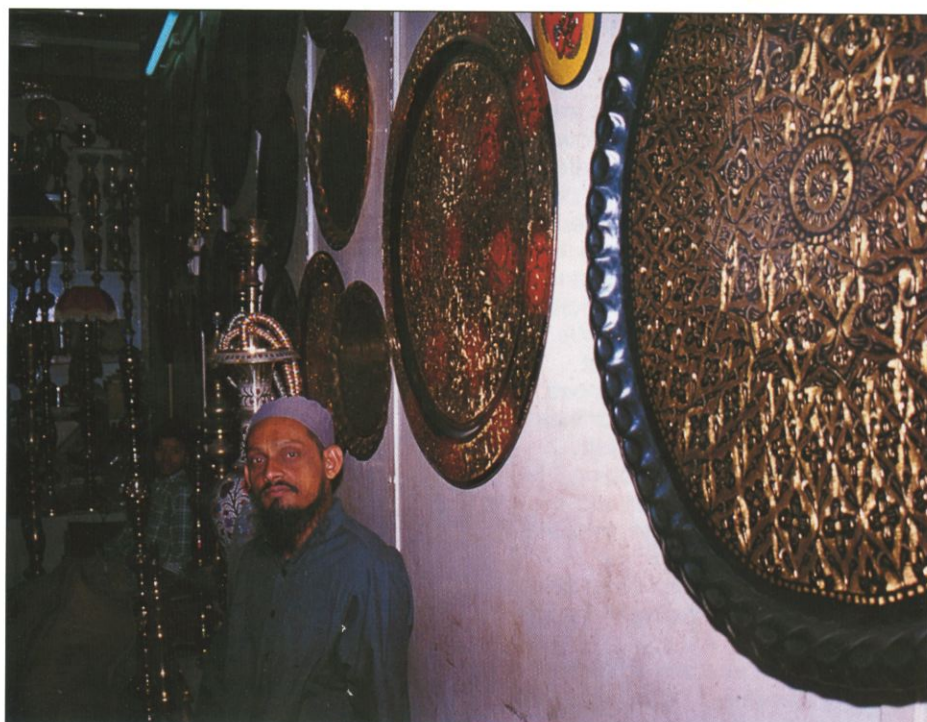
produce it! Between the 50's and 80's production increased in leaps and bounds and transformed this town into a major exporting centre. 1990-96 are remembered as the boom years. The extraordinarily large range of brass and bronze products now made here go principally to the U.S.A., the European Union, the Middle East, Australia and Japan.

We went to see Mr. Praveen Kumar Garg, head of Garg Brass Corporation and General Secretary of Moradabad's Brass Artware Manufacturers' (Exporters) Association. This body has 213 registered members, including most of the biggest players in the industry.

"The first thing you must know," said Mr Garg, "is that the whole production process – from importing brass scrap, to casting the raw materials from that scrap, to crafting the finished product – takes place here."

Brass scrap, we asked?

"Yes. Ironically, while India is a



Moradabad:

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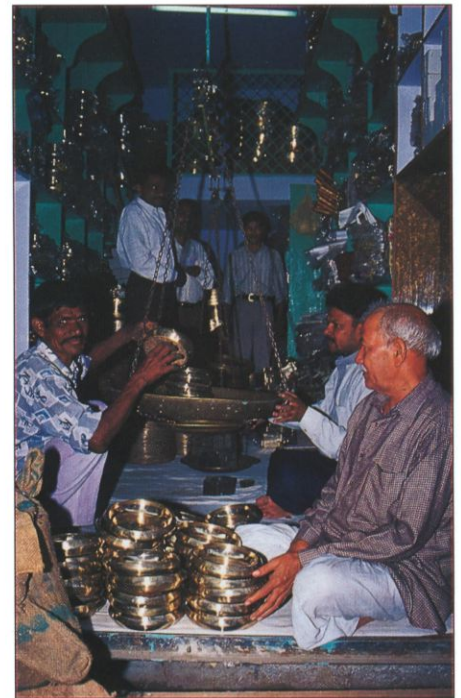
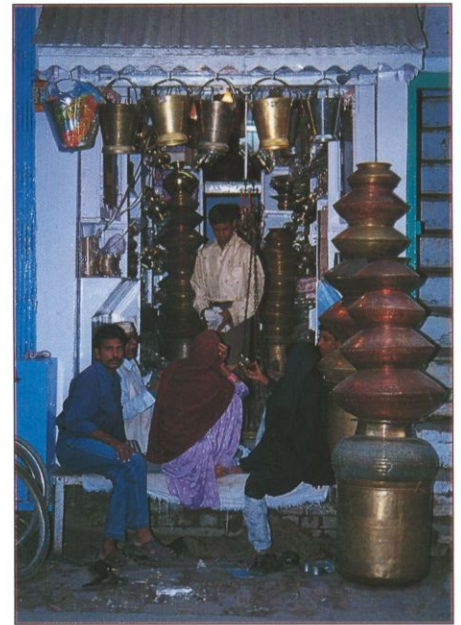
Shops in Bartan Bazaar, bursting with brass products.

Bottom: Two magnificent ahtabas.

copper- and zinc-producing country, it still has to import 70% of its requirement of both these metals. Moradabad gets the biggest share of its raw materials – about 95% – from the U.S.A. Entirely in the form of scrap.”

C.L. Gupta & Sons is an excellent example of a modern plant in which all phases of production take place under one roof. The process begins with the casting of the object, followed by turning, scrapping (and welding when the item consists of different sections). Next the object is engraved, polished and plated, or given different patina treatments. It is then controlled for quality and finally packed for shipping. We saw brass trays, brass candle-holders, brass planters, flower vases, wine coolers, animal and human figures, lamps and door knobs and other fittings. And, like most of the big production units in and around Moradabad, this one also has its own treatment plant for effluents.

Two basic forms of brass are processed in this town: ingots and sheet. Ingots are generally of lower quality alloy and go into the making of purely decorative items. Prime quality scrap, on the other hand, is used to cast a type of square ingot which is rolled into sheets and then hammered and shaped into trays, wine coolers and all manner of table ware. We witnessed the latter process at Omsons India Handicrafts, whose products are distinguished for their classic lines and delicate finish. “By the Association’s reckoning,” Mr Garg remarked, “in Moradabad roughly 200 metric tons of scrap are processed daily to make raw material.” This prompted us to ask him for a further sprinkling of figures and statistics. He hesitated. “I’m afraid there are not too many more hard facts I can give



Moradabad:

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Top right: Mr. Rajesh Lohia shows the high-grade scrap he imports from the U.S.A.

Below: The silli – a typical ingot of Moradabad.

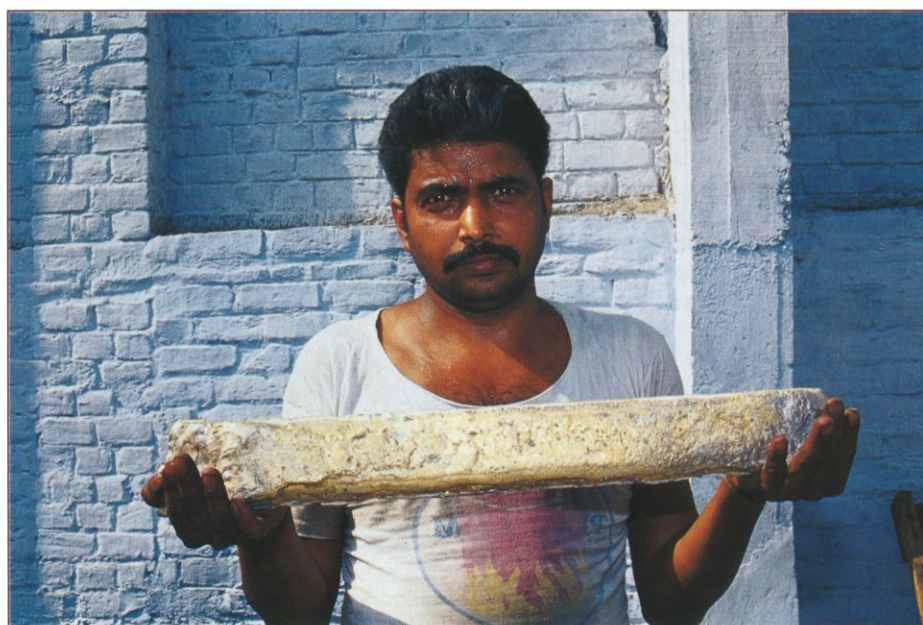


you.” How so? “The main reason is that only about 30% of Moradabad’s production actually comes out of the big plants. And it is difficult to quantify the rest.”

So where is the rest of the production? We had come here thinking we would deal only with a lot of big producers and exporters... Mr. Garg added that in Moradabad the importers of brass scrap are not necessarily the manufacturers of raw materials. While those who manufacture the finished product may or may not produce the raw materials they require for their work.

“It is all very much interlinked, you see,” he concluded mysteriously. That’s when we decided to take a closer look at things. Let’s start off by visiting a brass scrap processing plant. First things first!

Next morning we set off for the Lohia Works, on the outskirts of town. On the way we saw an apparently endless stream of rickshaws going in every direction transporting everything from big bales bursting with brass shavings to stacks of freshly polished brass planters shining gloriously in the sunlight. This got us thinking. At the Lohia plant – a huge godown open on two sides – work was well under way. Here is cast one of Moradabad’s most basic raw materials – the *silli*. This is a thin, metre-long ingot. Inside a coal-burning furnace black-faced workmen placed crucibles filled with brass scrap – wire, screws, bits of pipe, artillery shells, fine turnings and shavings, you name it. (In Moradabad everything that contains brass gets recycled. Car radiators being no exception!) The molten metal was then poured into moulds made from metre-long sections of rail lines placed sideways on the bare ground. From here sillis are transported by truck, donkey cart or bicycle rickshaw to the producers of finished products.



Sillis are easy to carry and are often used as currency between the big boys in the business and the small craftsmen.

But if this plant and others like it produce only ingots, where on earth are all the other production processes?

Our quest took us next to the old Moradabad, a strip of tightly packed houses and narrow alleys, sandwiched in between the railway lines and the river Ramganga. This is where many of the big exporters and their families live and work, within compounds shielded from the outside by high walls and solid iron gates. The security guards eyed us suspiciously. We spoke to Abdul Jabbar of Metal Products of India, and Mohammad Iqbal Shamsi of Iqbal Paramount Metal Industries. In both plants we saw dozens of men intent on polishing brass objects, and others inspecting and packaging them. But virtually no trace of other production phases. The hidden reality was finally emerging.

“You must know that Moradabad’s brass industry, today as in the past, still largely depends on the thousands of small producers based in traditional workshops in the old town,” Mr Iqbal Shamsi explained patiently. “Most of us [i.e., the big players in the industry] farm out the production phases to these men, who are masters in their craft. They are the backbone of Moradabad’s brass industry.”

So it is here, in the old town, where the other 70% of production takes place... an industry broken up into more than 200,000 tiny units, yet producing on a mass scale! A study of Indian handicrafts dating from 1888 later informed us that in towns like Moradabad, “the [brass] trade is in the hands of Muslims, who employ the braziers to cast the mould and artisans to perform the rest of the work.” Just another example of traditional social realities in India surviving relatively unscathed into the modern era!

Moradabad: india's city of brass



Casting of ingots.

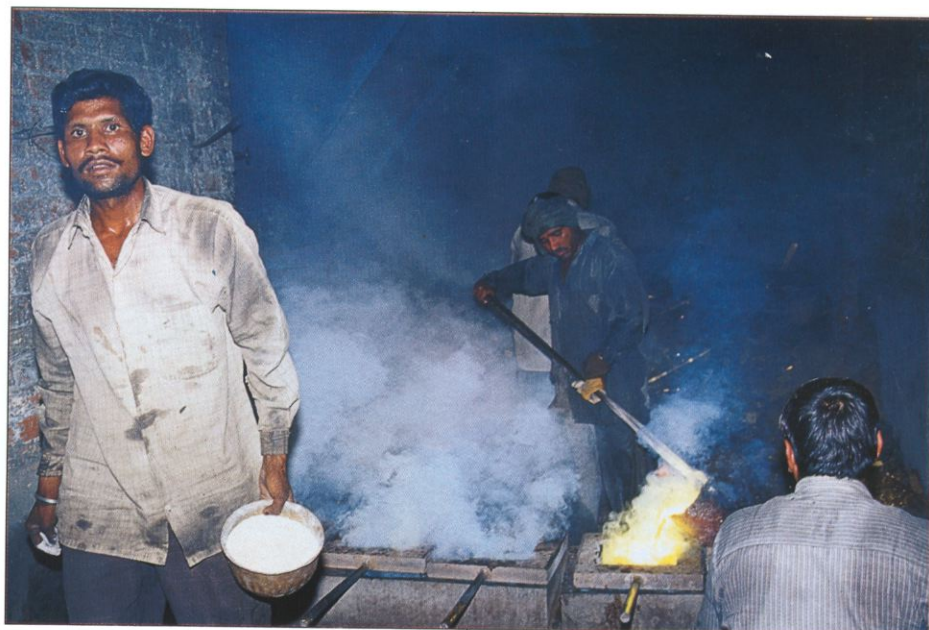
Now it was also clear why it is so difficult to gather statistical information on the industry. Nevertheless, the Manufacturers' and Exporters' Association calculates that a staggering 800,000 inhabitants from the city (whose total population is 1.5 million) and surrounding area are involved in one way or another in the brassware industry, and this includes everything from the humble gatherer of scrap and the caster of ingots, to the small craftsman and the big producer. The Association further estimates that the total annual turnover resulting from this activity is a little less than 2,500 crore rupees, or 555 million dollars, a high figure indeed for a town whose poor live on less than a dollar a day.

Our next visit was to a middle-sized workshop entirely engaged in the venerable art of sand casting. The technique harks straight back to the itinerant caster of images and implements whom you might still spot today, going from village to village in the more remote areas of the subcontinent, plying his trade. In this workshop groups of three men work as a team. One fills the crucible with brass scrap and lowers it into the coal-burning furnace, which is set below floor level. The other two place the brass objects in the boxes – two in the upper part of the box and two in the lower – and pack them down with a mixture of sand and sugar cane molasses.

The boxes are opened and the four models taken out without disturbing the imprint in the sand. Now the molten metal is poured into each box through a slot. The brass sets in a matter of seconds, after which the box is opened and the images removed. It is amazing to see how briskly the men accomplish this delicate operation. These middling industries are geared to churning out several thousands of identical pieces



Moradabad: india's city of brass



Top and middle: Casting and rolling sheets.

Bottom: Quality control of the finished product.

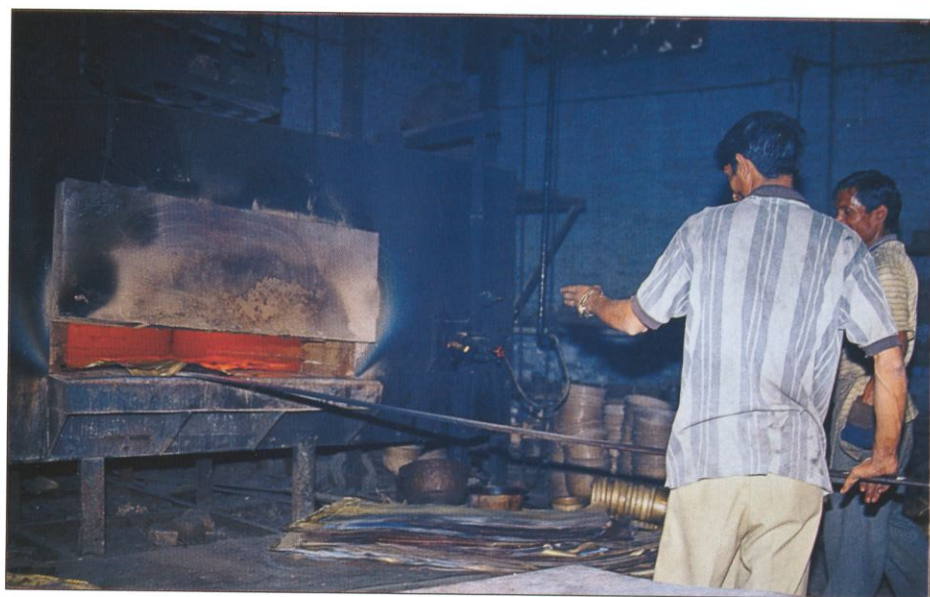
every day. From here the objects will go to other workshops which specialise in the final stages of production – turning, polishing and applying patina finishes.

At least one good reason why such a rudimentary casting process is still used here is because of India's chronic shortage of electrical energy, which results in constant power failures and cuts throughout the country. Moradabad's polluting coke-burning furnaces are the only way to ensure that work goes on.

Through more winding streets of the old town we came to the workshop of Mohammad Shafeek, master engraver. The art of engraving brass is locally called Nakkashi. We watched admiringly as the aged craftsman – the carver – engraved a tiny plate of brass with the words "SMI REVIEW – Art and Technology - Firenze". He handed the disc to his son – the inlayer – who alternately filled the grooves with green, red and blue lac which he had previously melted over a gas flame. Then the father gave it a final shine with a soft cloth, and voilà! it was ready.

In answer to our query regarding the social realities of this giant workshop named Moradabad, Mr Garg stressed the fact that here all parties need each other. "A brass object is neither Hindu nor Muslim. Both communities contribute their traditional skills and culture to create it. Only a determined, co-operative effort by all those involved can bring prosperity to Moradabad and help it to develop in the future."

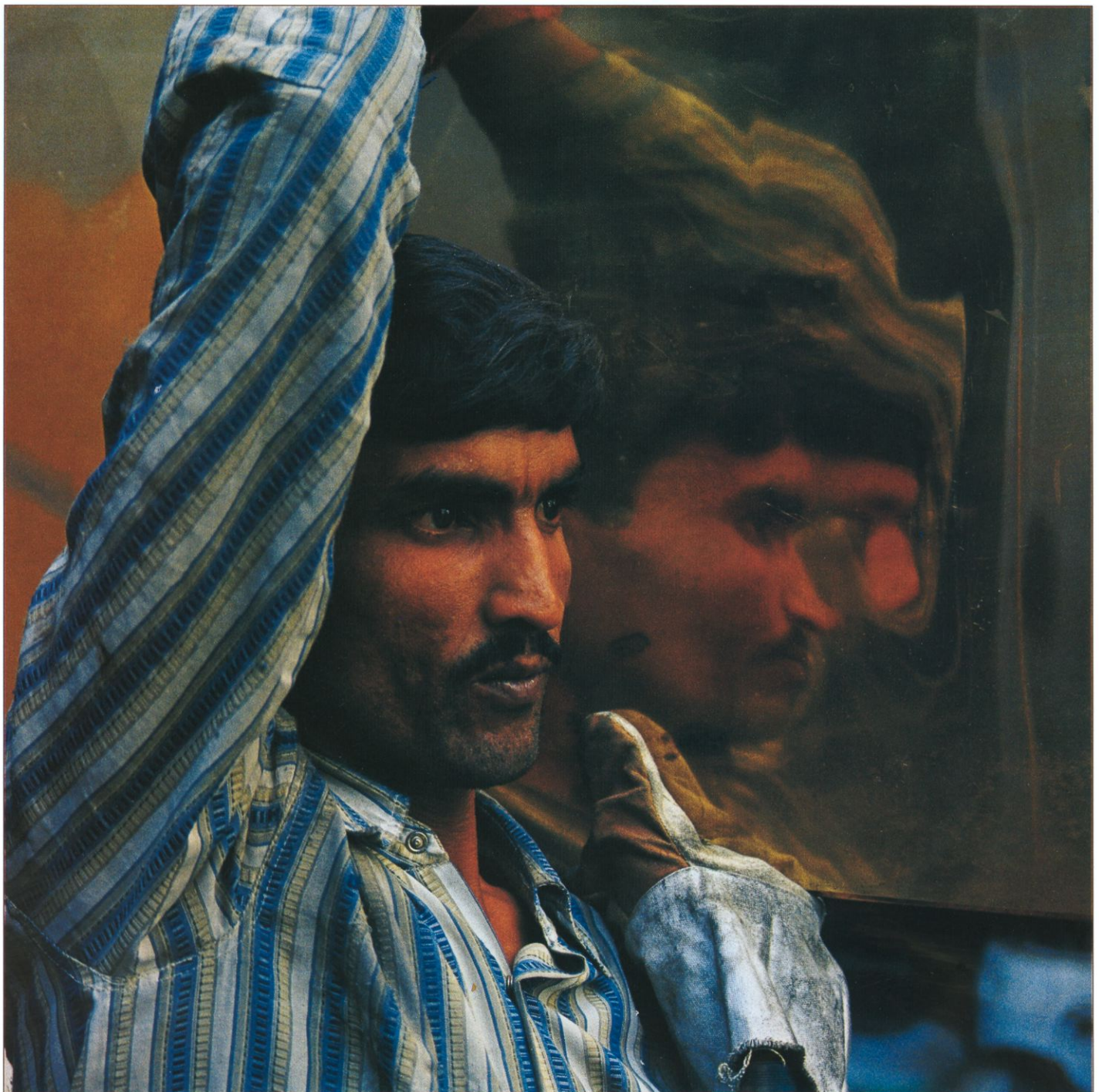
If this tightly-knit structure binding together all workers in times good and bad were to unravel, Moradabad could easily fall prey to the communal strife which afflicts other parts of India. The brass industry as a body has intervened time and again to resolve disputes and minimise the mischief which, alas, is often stirred



Moradabad: india's city of brass

Top left: A manufacturer shows his sample room full of thousands of different brass products.

Top right: Finished products ready for packing and shipment.

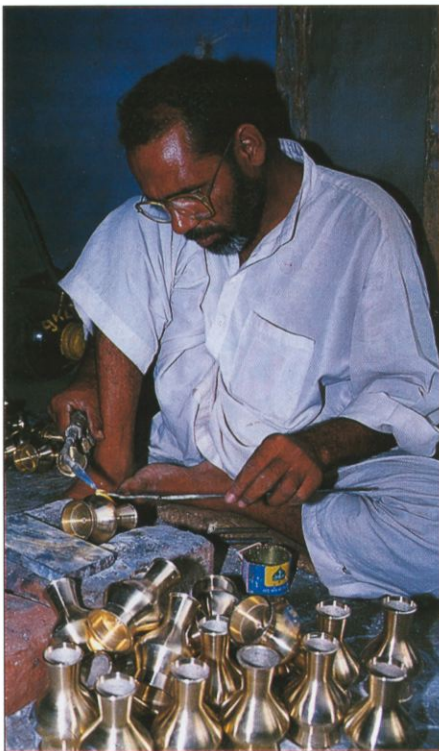


Moradabad: india's city of brass

Top right: Laeek-ud-din shows a handful of "chooras", or brass and copper waste in powder form.

Below: Polishing and finishing a cast product.

Bottom left and right: Engravers at work.



up by those less than scrupulous politicians who thrive on social unrest. The industry's strength lies in its capacity to absorb so many of the town's inhabitants into its work force. And of course, the town also harbours a number of shameful secrets, such as the low wages paid to unskilled labour (and often to skilled craftsmen as well), the numerous cases of tuberculosis due to the city's many coke-burning furnaces, and the city's poor. The latter are known for gathering the sand discarded after casting and sifting it by the river for the minute bits of brass it contains. On the market, a kilogram of this material fetches 80 rupees, or about \$ 1.50!

Mr. Garg added that Moradabad's manufacturers and exporters have their own problems, too. Largely conservative in outlook, they stick together in the old town, fearful that local or foreign competitors will steal their designs. The strong and constant growth which started in the 1950s and

reached its peak in 1996, has now levelled off. The international market grows daily more capricious and diversified, and Moradabad will have to do its best to cope. "We are increasingly subjected to changing fashions," Mr. Anwar, President of East Coast Industries, had told us a few days earlier; "it has become like producing shirts and trousers! Nowadays they are asking everything from us – traditional items redesigned, and shaped and coloured in novel ways; and brass combined with glass, wood... even aluminium!" he added, with some distaste.

And yet, many of the delicately wrought pieces Mr Anwar showed us in his showroom were as modernistic as they were beautiful. Thus, while a traditional Moradabad craftsman might at first consider these innovations somewhat unorthodox, we all trust he will be versatile enough to embrace them in exactly the same way as he embraced new styles so many times in the past.



Moradabad: india's city of brass

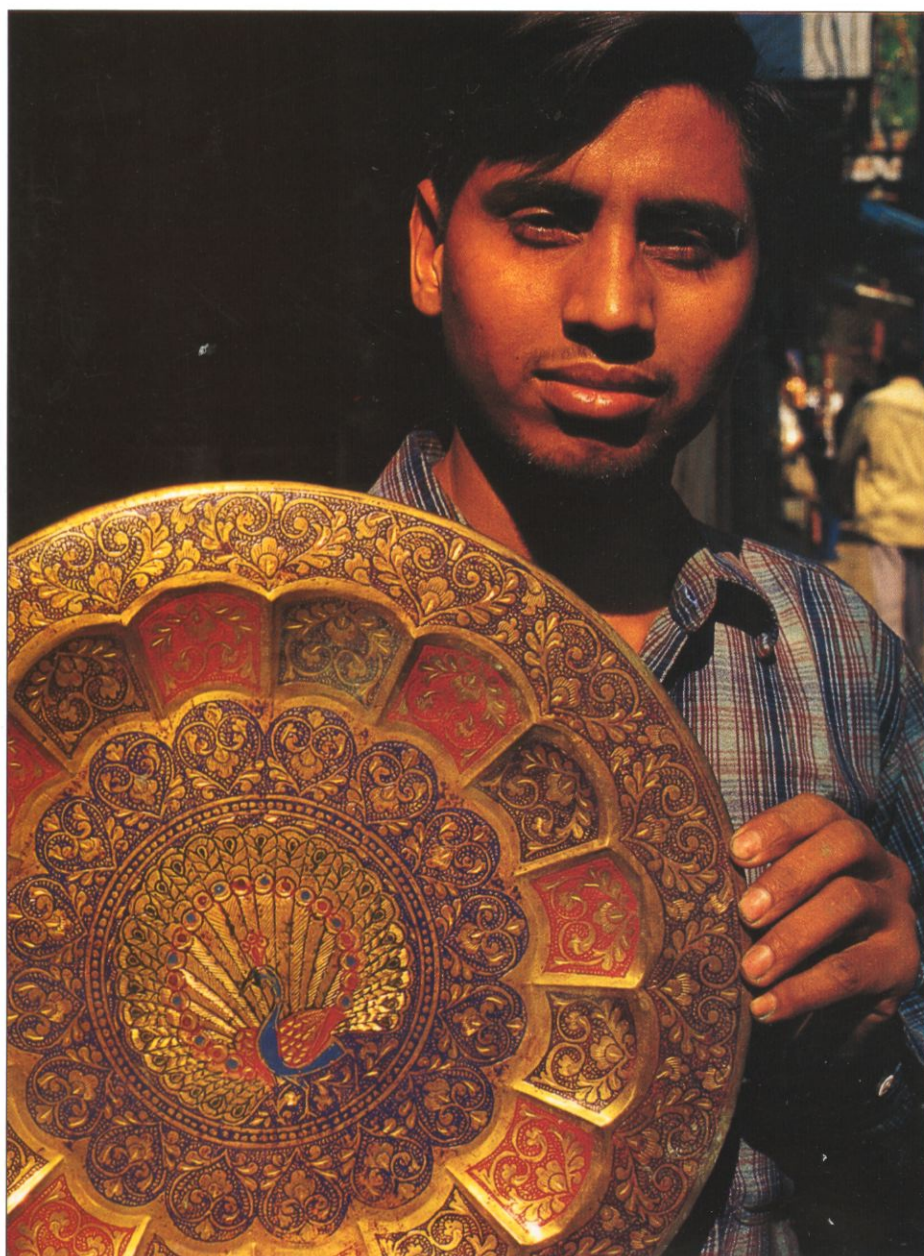


Having said goodbye to Mr Garg and thanked him for his assistance, we made our way to the railway station. On the road, jammed with all manner of vehicles and milling crowds, we

spotted one rickshaw carrying car radiators in one direction, even as another rickshaw, piled high with brilliant flower vases, was heading in the opposite direction.

It was like seeing birth, death and rebirth in one instant of time! And the medium was – brass, of course.

Steven Grieco and Nihal Mathur



While the local industry continues to export traditional brassware all around the world – notably to the Middle East, England and Italy – it is in the narrow streets of Moradabad's Barta Bazaar that you will get an eyeful of the traditional objects which the people of India have always favoured for their homes, kitchens and religious ritual. Shop after shop displays the glorious shapes of the past, which here are still an everyday reality. Items with exotic names such as aftaras (water ewers) and surahis (water goglets), paandaans (betel boxes), pikdaans (spittoons), lotas (a sacrificial vessel for the Hindu religious ritual), and katoras, thalis, parats, abkhoras! Some items, such as the big water vessels for villagers, are simply hammered into their age-old shapes. But the objects meant for a more decorative purpose are delicately finished in the variety of styles Moradabad is famous for – the best known being the Bidri, a style of damascened ware, and the Siah Kalam. In the latter, the ground of the vessel is scooped out, leaving the patterns in relief. The hollowed-out sections are filled in with lac, making a striking contrast with the golden-hued floral patterns. The streets are packed with Muslim women in burqa and Hindu women in colourful dress closely inspecting the ware on display before deciding what to buy. There is no end to the choice!