

Kuduo: lost wax casting of the Ashanti kingdom

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Why do the inhabitants of a small village in West Africa worry that Chinese industry is hoovering up the world's supply of scrap metal?

Well, when the metal in question is brass – think corroded padlocks, broken taps and salvaged car parts (Fig 2) – China's voracious appetite pushes the price of every scrap morsel ever higher. That makes China a real threat to the day-to-day livelihood of Bannor Agyemang, Kwaku Ampong and their fellow artisans in the village of Kofofrom, near Kumasi in the Ashanti region of Ghana (Fig 1).

"Sometimes, we can't buy brass," explains Bannor.

"Or, it is more expensive," adds Kwaku.

So too is their other critical material – beeswax. The only thing cheap in Kofofrom is labour. Once you appreciate what these master craftsmen do, you'll agree that's not fair at all.

That's why when we're there in Kofofrom, we make sure we pay a more than fair price for their unique products which are recycled brass beads and artefacts made using the ancient 'lost wax' or 'cire perdue' method of casting metals.



Fig 1 'The brass bead boys', Kofofrom, Ghana

Fig 2 Scrap brass and finished pendants

Fig 3 Wax model for casting and a cleaned finished product

Fig 4 Brass bead workshop, Kofofrom, Ghana



Lost wax casting – where ancient technology meets modern recycling!

African metalworkers have been melting and casting brass and other metals into objects for centuries. Archeologists think this technology originated around 1000 AD with the Mossi people of Mali, eventually spreading across West Africa.

Probably the most famous examples are the Benin bronzes, a set of 200 plaques taken from the Benin Kingdom (now Nigeria) by the British in 1897 and today held in the British Museum (right).

In the Gold Coast (modern day Ghana) the great Ashanti kingdom built its wealth on something a bit more valuable than scrap metal – gold. The paramount Ashanti chief – the Asantahene – displayed his wealth and power through textiles, especially expensive woven Kente cloth, and his vast collection of gold artefacts.

In ceremonial procession, the Asantahene was always preceded by a brass vessel called *kuduo*. Inside it were his valuables and symbols of authority, all cast in gold. The artisans who cast gold for the Asantahene lived in Bannor's village of Kofofrom. And their word for the lost wax technique was *kuduo*.

Gold weights, cast from brass

According to legend, gold traders needed a system for weighing their treasure. They started placing small gold weights on one side of a balance. Each weight – a geometric shape, a frog or a crocodile, for example – represented a quantity of gold.

These gold weights were cast out of a cheaper metal such as brass, an alloy of copper and zinc, using the lost wax technique (below). Hey presto! An artisan industry was born!



(Above) Gold weights made of cast brass (with modern coin for scale)



(Above) One of a set of 200 bronze plaques from the Benin Kingdom (now Nigeria), now in the British Museum.

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From wax into brass

The working atmosphere in Kofofrom is noisy. Banter from Bannor and the boys. Toots from passing tro-tros, the local decrepit minibuses. And on Sundays, eardrum damaging decibels from the evangelical church next door.

To understand the lost wax process, let's watch Bannor make a batch of tiny beads. It's simple and complex, all at the same time.

First, the beeswax. Take a short length of threaded pipe held in a makeshift vice. Into one end, fit a Fanta cap with a small hole in the centre. Pack the pipe with beeswax. Then, threading a plunger down the pipe, compress the wax through the Fanta cap die. Result: a tangled pile of wax spaghetti (Fig 5).

Next, the art. Bannor coils the wax strands around a small clay form (Figs 6 & 7). It's intricate, tricky work. If you tried it, think at least 20 minutes to model a single wax bead. Bannor's been doing it for years, so he can make 10 to your one!

Bannor joins a dozen wax beads together with more strands of spaghetti and dips the whole bunch into a fine slip made from powdered charcoal and clay which fills the gaps and cavities (Figs 9 & 10).

Around this, he packs a mass of heavier clay mixed with coconut fibre. Now he's got a big lump of clay (Figs 11 & 12). Inside it are his wax beads.



Fig 5 Making wax spaghetti with a pipe, a plunger and a Fanta cap with a hole in it!



Figs 6 & 7 The intricate process of aking wax bead models



Fig 8 Wax models for casting
Fig 9 Wax beads coated in charcoal and clay slip
Fig 10 Kwaku preparing wax models for casting
Fig 11 Brass bead process – clay mould containing beeswax beads



'Losing' the wax

Their 'kiln' is a U-shaped mud wall (Fig 13). To keep the charcoal fire red hot, they use a fan attached to a car battery to force air through holes around the wall's base.

As you'd expect, the fire melts the wax, which is poured out to leave a hollow clay mould. The shape of the empty cavity inside matches the bead models perfectly.

Is the wax really lost? No, it's too valuable. Bannor saves as much as he can to re-use.

Next, Bannor has to get the brass into the mould.

Fig 12 Brass bead process – clay moulds ready for the kiln

Fig 13 Brass bead process – tending the kiln



Brass casting

'This is the crucible', Bannor says, holding a rough clay vessel. He packs it with scraps of brass, then sticks it to the mould with fresh clay. Once it's dry, Bannor puts the combined mould and crucible back into the kiln. The crucible is on top, so when the brass melts it flows down, filling the cavities of the mould.

He uses long tongs to remove the red-hot crucible from the kiln. As it cools, the molten brass hardens inside.

Fig 14 Kwaku pouring brass from a crucible into moulds

Fig 15 Pouring brass from a crucible



Each piece is totally unique

Of course, there's only one way to extract the finished casting – smash the mould – making each piece totally unique.

Now Bannor has his dozen brass beads, all joined together with tendrils of brass (Fig 16). A bit of elbow grease with a wire brush and a polish with lemon juice and Bannor has a pile of shiny brass beads ready for market (Figs 17– 19).



Fig 16 Opening the mould to reveal cast brass beads. Note the sprue and flash which will be recycled, and the broken moulds on the ground.

Fig 17 Cleaning a cast brass gecko figure

Fig 18 Cleaning brass pendants with lemon juice





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Fig 19 Recycled brass beads: Dondo spiral design and Bicone mesh design. (with bottle cap for scale)

Beyond beads: history, culture and proverbs

Historically in gold and today in brass, the artisans of Kofofrom don't limit their production to beads.

Using little more than a hot blade to cut and shape the wax and and their nimble fingers to manipulate it, they fashion many other artefacts for brass casting: pendants, animals (Fig 22), birds, fish, masks and Adinkra symbols representing traditional proverbs.

When casting human figures, these makers chronical everyday life – pounding *fufu*, for example – and grand cultural ceremonies like the enstooling (i.e. the crowning) of the Asantahene (Figs 20 & 21).

The future of brass casting

How long can Bannor, Kwaku and the boys carry on making a living from their craft?

That will depend on many factors. Can they sell their products at a price local people can afford? Will overseas buyers return regularly to spend more than the locals can afford? Will the next generation abandon their craft heritage to pursue more modern careers?

And of course, will the Chinese take all their brass?

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Fig 20 Figure of mother and baby made of cast brass

Fig 21 Figures made of cast brass

Fig 22 Lion made of cast brass

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... and finally

A note about *Kofofrom*. Or is that *Kurofrom*? Or maybe *Kurufrofrom*? We've been going there for 15 years and we still don't know. It's the only brass casting village in Ghana, but it's not on any maps and everybody spells and says it differently!

Magie Relph and Bob Irwin have travelled the length and breadth of Africa for over 30 years, searching out fabulous textiles, beads and baskets for their fair trade business *The African Fabric Shop*:

www.africanfabric.co.uk

Find them at a World Textile Day near you:

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