

ICMA Master Carvers Series

A resource for discussion and information.

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19 Time to carve

John James

The capitals discussed here may be examined in larger format in vols. 3-5 of *The Ark of God*, and when completed and professionally edited these studies will be published in volumes 6 and 7.

This is number 18 of an on-going series describing Early Gothic carving masters for discussion and comments

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Bali, working stone squatting or sitting.

Time to Carve

It would be useful to obtain some reasonable assessment for the time needed to carve a capital, whether plain or decorated. It needs to be consistent and realistic, and with some relationship to the methods and attitudes of the twelfth century. The latter has little relationship to the working practices of a thousand years later.

Initial setting out and blocking in can be rapid, as Bob Branner noted when he watched a mason in the yard at Notre-Dame in Paris start a stone in a couple of hours. More recently there have been similar studies on blocking out by Danielle Johnson.

Most of us have at some time discussed the carving of capitals with masons engaged on restorations. In England I have visited cathedral workshops in Canterbury, Westminster, Lincoln and Wells, and in France at Laon, Soissons, Paris and Chartres. These episodic attempts to understand the time required to carve large and more complex works were not entirely satisfying.

To build on this information over some weeks I made a survey of the carving workshops on the island of Bali. They still use traditional carving methods, and have not had time to develop a twentieth-century attitude to work. In comparing modern workmen to the Balinese we should consider the impact of industrialisation, restrictive work practices and the current attitude to sick leave, holidays, dirt money and overtime. Most modern sculptors use power tools and work under some degree of union and governmental bureaucracy.

In my opinion Balinese practices and working conditions are likely to be similar to those in the middle ages. They worked with more attentiveness and more patience than most Westerners and applied themselves in a steady tireless manner. They spent no time in pointless conversation, but just got on with the job. They did not rush to tea breaks. They were unhurried yet



Two views of open work shed with lean-to roof and many pieces in process of completion.

purposeful, with a focussed attention to their craft that is usually absent in the West.

For example, I would cite a three-capital stone carved for one of the larger English cathedrals that took nine months (!). Admittedly it was complex, with the crockets interlocking and imposts set at different levels, and it was most beautifully finished. But the cost was so high that all further renovations on this section of the building were suspended.

No power tools are used in Bali. Everything is carved by hand. The tools are the mallet and chisel. I saw no sign of an axe. Chisels are made from flat strips of hardened iron and have no handles [r]. There is an enormous variety of shapes with narrow or wide heads, square or angled as needed [b1]. They are simple to make and easily sharpened and hardened by the smithy. Nothing could be simpler.

The chisel is lightly held in the hand, and can be delicately turned and angled with thumb and finger [b2]. The finer trimming can be completed without using the mallet, just by rubbing the chisel gently against the stone. For curves the chisel can be shaped exactly as required. The workmanship is as fine and accurate as any medieval limestone sculpture I have seen in Europe.

Balinese religious beliefs have, until the recent growth of tourism, defined the range of subjects for temples, gateways and the pavilion houses of the rich. As local basalt wears away after a generation or so, these structures have to be rebuilt again and again. In a community that intimately holds the sacred in their daily life, this has provided an uninterrupted source of work for a large industry of carvers for hundreds of years.



Chisel and mallet



Collection of chisels



Cutting a decoration with a hand-held chisel



Craftsmen using chisels for all the fine work



With the growth of tourism their work has been enlarged enormously, both to satisfy demands for a nontraditional range of sculpture such as Buddha figures, and to decorate homes and hotels. This has not affected their working methods in any significant way - at least not yet.

The workshops are no more than simple roofs leaning against an existing wall supported on thin wooden posts. These lean-to sheds are open to the air on three sides to enable the dust to settle. Sculptures are placed wherever convenient, debris lies on the ground, and the whole place has an untidy but functional air. One of the best carvers sat very comfortably on the ground with half-finished stones around him, his chisels on a piece of cloth next to him and surrounded by chips and other detritus [b1].

All of this is exactly as we see it in medieval manuscripts.

The two major types of available stone are a fine-grained pumice-like material and limestone. The former is grey and plentiful on the island. It is cheap to quarry and has for thousands of years been used as the best material where detailed designs are required. Limestone comes from Java and is more expensive than local igneous rock. It is fine-grained and white-golden in colour, not unlike the *calcaire* of northern France. It is soft to work when it comes out of the quarry and gradually hardens in contact with the air. After a couple of months the stone becomes so hard it will hold sharp edges and delicate rounded forms for centuries without significant wear.



Typical open air working site and finishing a complex headpiece by hand



Training starts at eight or ten years of age with the simplest and most repetitive tasks that will within a couple of years lead to finishing the decorative parts that need patience and care. By fifteen a man will be carving entire pieces, though the ability to lay out a block will depend on whether the carver has the capacity to visualise how the three-dimensional form can be extracted from the rectangular. Some become very adept at this and some do not. Even so, every carver could produce traditional figures such as Garudas and Barongs. Such designs are embedded in the psyche. They have not changed in centuries.

I spent considerable time in three workshops to find out how long it would take to carve pieces that resembled in size and complexity the capitals and figure sculpture being produced in twelfth-century France.

I Nyoman Likés employed about twenty men in his workshop, I Rai Putra about five and I Madé Sura nine. I asked each how long it would take to produce the sort of pieces reproduced here [r]. The last was concerned to preserve his commercial ‘secrets’ and gave fairly vague answers in weeks or months. But the others were more direct and precise about the time taken.

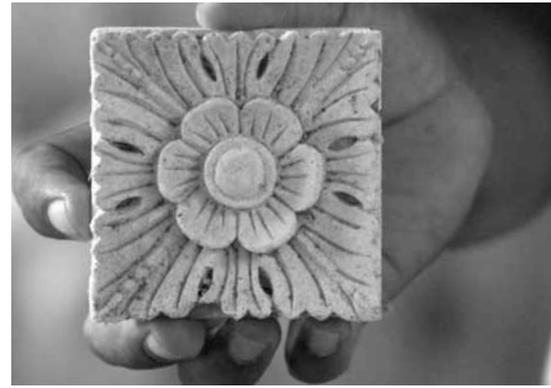
The small square flower held in the hand, measuring about 80mm each side, was the work of two hours [r1]. It was a standardised unit carved by the dozen. It was a good indication of the time needed to measure a piece, set out the pattern and then carve and decorate the central flower and the fine lines that brought life to the surrounding petals.

The larger rosette would have taken half a day [r2].

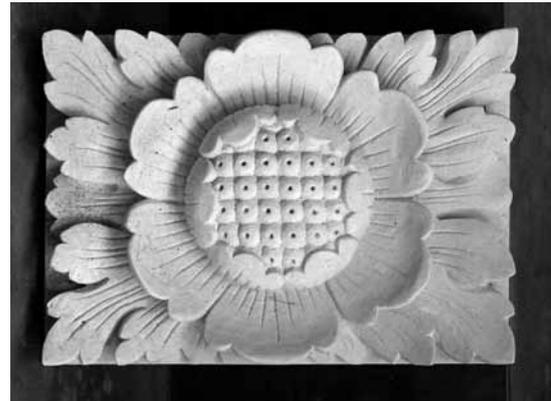
The base for a vase had vigorous unfolding leaves on the corners [r3]. It was hollowed out on the inside. If turned upside down and left with a flat top it would be in other respects similar to a small four-sided capital with some decoration. It measured 850mm across the top and 800mm high. It took about 3 days to carve from the solid block, and this would have been a little more if they had made the effort to ensure that all four sides were identical. Undercutting and intricacy could stretch it further.



Garuda bird - 6 days.



Small square - two hours.



Rosette - half a day.



Base for vase. It is Time to Carve Time to Carve

None of these pieces required a template. All designs were created by eye and from memory. Naturally, repetitive work is a help in this regard, and is more akin to European capitals carved after 1200 that often followed the same layout rather than to the uniquely individual carvings made before that.

The Garuda bird [left] is no more than 400mm high. It had intricate three-dimensional detailing, and was completed in six days. A simpler piece of the same size with more plain surfaces would have been carved in three days, or perhaps a bit more.

A complex panel over a door, not unlike a tympanum, may have needed a further couple of weeks. The detailing is intricate and skilled [r1].

The *bas relief* [b1] is a hollow cylinder surrounded by swirling animals and trees. It is about 350mm high [b1]. It would be the work of 3 days.

The tall figure of Arjuna is just over a meter high [r2]. It was the work of twelve days. Were this a full-height figure in startling detail it would have been completed in less than a month. This is comparable to French column figures.

Accepting that these were off-the-cuff estimates and that I did not stay for a long time in the workshops watching how they worked, and nor did I time them myself, and knowing there would be differences in the quality and hardness of the stone from one shop to another, there was nevertheless a pretty consistent pattern.



Hollow cylinder bas relief - 3 days.

Working in the soft local stone, the *grossier*, without using machine tools, I have assessed that sculptors would have needed the times on the next page to carve a capital. It was assessed by size and the number of sides, and whether the finished detailing was simple or complex. These rates have been applied to the analysis in the next chapter of the gallery capitals in the Laon cathedral choir. I took no notice of the seasons, though they may have taken a little longer to carve in winter when hands and body were colder. Nor have I taken any account of the regulations of that period that increasingly came to control how long men could work and under what conditions. For example, in the Paris *Live des metiers* sculptors were not permitted to work at night as “the brightness of night is not sufficient to conduct their trade”²⁹. Sears, 2006, 229.



Typical panel over a door, part of



Arjuna figure - 12 days.



Laon choir gallery NE2nne(g)

The capitals in the following list are from the Laon gallery. The times will be used in the discussion of the next chapter.

- A small corner capital with two sides in three and a half days, requiring considerable skill and care in the vertical planes, undercutting the terminals and time in finishing the surface to a uniform smooth texture,



Laon choir gallery ES1nnw(g)

- while the more elaborate were assessed as taking up to half as much again to set out and carve the intricate foliage and the care needed in undercutting the terminals.



Laon choir gallery ES2sw(g)

- A small three-sided capital was assessed at six or more days,



Laon choir gallery ES2s(g)

- and a larger one with three sides at eight days, if left undecorated. Though the final texture on the smoothed surface may have taken longer.



Laon choir gallery ES5s(g)

- When delicately formed, with considerable undercutting and complex curves, and requiring care in the finishing if the tips were not to be damaged, the time was increased to a maximum of 12 days. If there is additional surface decoration, such as herringbone hatching, then extra time would be needed.



Laon choir gallery ES6+(g)

- Ten days were required for a four-sided capital of the simpler sort. Where the crocket terminal projects beyond the astragal more time would be required,



- while the more complex needed more than fifteen days, especially where there is considerable undercutting, projecting terminals and intricate weaving of elements..