

# THE ARCHITECTURE OF THE MALTESE TEMPLES

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## *Introduction*

The final form a building takes will depend on a number of factors over and above the purpose it is intended to serve, whether for habitation, defence, industry, burial, worship or whatever. These include the constructional materials and manpower available to the builders, their technology and the way they think it ought to look, bluntly, fashion. Nor should we forget its later history, undergoing alterations, additions, or most commonly partial or complete destruction. The temples of Malta as we see them today illustrate all these, and in turn are themselves primary evidence on the skills, religious practices and society of the Maltese in the millennium either side of 3000BC.

Despite earlier controversy, the function of these buildings would now seem to be beyond doubt. The evidence of the first court of Tarxien South, with its more-than-life-size statue, decorated altar block, flint knife and animal bones is as near conclusive as one could hope for. These were surely temples. They illustrate also the widespread practice of human societies devoting their most ambitious constructional efforts to their gods.

## *Materia prima*

As regards building materials, the one Malta has an unlimited supply of is stone, or rather two stones - the intractable and resistant coralline limestone and the softer and more adaptable globigerina. Few places on the islands are very far from both and still fewer from one or the other, though for obvious reasons, that immediately to hand was preferred. The blue clay which appears in the Maltese geological sequence was also employed in building but not in the temples, only in humbler domestic dwellings, as at Skorba (Trump 1966) and Ghajnsielem (Malone *et al.* 1988), where it is found in the form of mudbrick. Baked brick and tile were not

developed or introduced until very much later, and never widely adopted in Malta since stone provided a better alternative.

More debatable is the availability of timber. While figs, carobs and olives hardly produce useful timber, large trees are scarce on the islands today, but there is no reason to suppose there never were any, if only in sheltered valleys. The evidence from pollen samples recovered from Bronze Age cisterns at Tal-Mejtin, Luqa (M.A.R. 1961), is inconclusive. The few grains of pine pollen show that there were at least some trees not too far off, but not how many there were over the islands as a whole. Circular arguments from the temples themselves have also been advanced. One school of thought holds that there must have been trees to provide the beams for their roofs, while a second says that they must have had roofs built of stone because there was no timber. Since neither argument is valid in itself, the issue of roofing will have to be discussed again below.

## *The labour force*

Manpower is another contentious issue (Clark 1998). It is really an aspect of population, estimates of which before official censuses were carried out, hardly before the 19th century AD, are notoriously unreliable. Of the four other possible sources of information, for prehistoric Malta only two are available to us. One of the most widely employed, based on the number and size of settlements, is ruled out by our failure to discover, let alone measure the area of, contemporary settlements in the Maltese islands. A second, relying on the number of burials, is only marginally better here. At best, it can only give a minimum figure because the number of skeletons discovered is never more than a small proportion of the corpses from a given period, and worse, we have no means of calculating what that proportion might be. As a local example, Professor Renfrew showed that the apparently vast number

of skeletons estimated for the Hypogeum of Hal-Saffieni, 7000, if spread over the 700 years that site remained in use, of itself could imply a community of no more than 300 people, probably too few to construct the Hypogeum and Tarxien and Kordin Temples.

That brings us to the third line of evidence, the number of people required to build the surviving monuments. But since that is the very figure we want the population estimate for, we have a perfect example of a circular argument.

However, with the concept of 'carrying capacity', the numbers of people a territory could support, we can at least make some progress (Renfrew 1973). Since Malta was first inhabited around 7,000 years ago, its geography will have changed only very slightly. Its area then would have been much as it is now, whatever may have happened further back in geological time. While erosion will have removed a little from some exposed shores, silting will have added a bit in more sheltered places, as at the heads of Grand Harbour and Salina Bay for example. The biggest unknown factor is illustrated by that silting, representing the stripping of soil from the heights to leave bare rock. There is plenty of evidence for this process (Evans 1971), but little for its extent and date. How much more extensive the cultivable area was in the temple period cannot now be determined anything like exactly. It is possible, indeed, that the later terracing of steeper slopes added almost as much as was lost on the tablelands. So by and large, the area available to the temple builders for cultivation can be estimated, after making allowance for the much greater area lost in recent times to housing.

With figures for population density obtained from better documented times and similar terrains, in the Greek islands for example, or indeed from medieval Malta itself, always assuming a similar agricultural technology and suite of crops, we can arrive at an approximation for the population of prehistoric Malta. Using all the evidence available, a number of estimates have been made, clustering quite closely around the not unreasonable

figure of 10,000. That contrasts markedly with the present total of over 300,000, in very different economic conditions, yet agrees with that calculated from the "census" of 1241.

How many of the 10,000 would have been available for temple building? (Clark 1998) Probably few if any during the busy seasons of sowing and harvest, but all except the very old and very young in the slack seasons between. Even women and children could help by carrying baskets of dirt, as well as coping with the important task of feeding the labour force. This would not impose any great strain on society provided there was no strict time limit on the operation. Any answer has to be in rather unsatisfactory "person-days" since there are two unknowns, varying inversely - more time, fewer people; more people, less time.

Both, however, have upper and lower limits. Too large a labour force would become increasingly difficult to marshal efficiently, whilst too small a one could not shift blocks of stone of the size of those we see in the temples, up to 20 tons apiece, regardless of time available. And turning to the time factor, too long a constructional period would surely lead to a waning of enthusiasm, and too short a one to confusion and accidents. If we suggested an optimum period of some five years for any one temple, how many men would be required? Unfortunately I do not myself claim to have the skill to make the necessary calculations.

Some very useful work has been done on the labour requirements of stone masonry in a pre-industrial context in Central America (Abrams in Honduras, 1987) and its applicability has been demonstrated elsewhere (Webster on Sardinia, 1996). A recent Ph.D. thesis at Bristol by Daniel Clark has used a similar technique most interestingly on the Ggantija, and I look forward to seeing his work published. Leaving actual numbers aside, two contrasting conclusions emerge from all these. Firstly, erecting the monument is only one stage in the process, and not necessarily the one demanding the most labour. There is also the quarrying of the constructional materials, the shaping of the blocks, their transport from the

quarries to the site and their raising into position, and finally what one might call the interior decorating, the finishing touches. These all add enormously to the labour required. However, the same studies show that uninformed guesses, and even many scholarly estimates, are usually far too high. Given a labour force seasonally free from its agricultural commitments, and willingly working in the service of its gods (one thinks of parish church building in more recent times), the demands on society would not have been excessive.

### *Expertise*

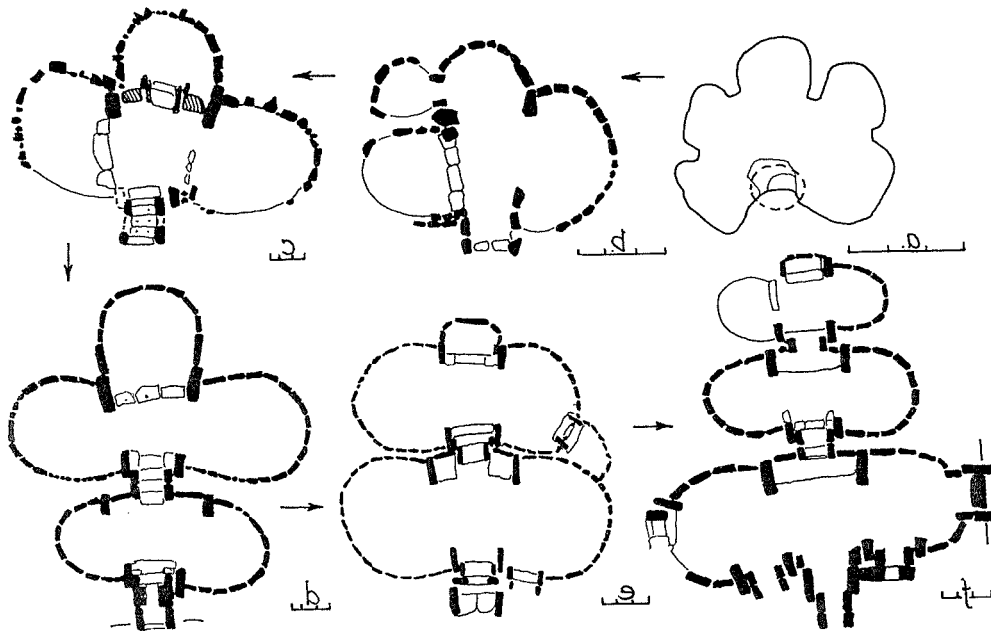
Another important factor is simply know-how. I saw an excellent example of this at Skorba (Trump 1966) many years ago. We wanted to dig in the field to the east of the temples, but were hampered by a stray block weighing perhaps a ton, fallen from the temple wall. I suggested approaching the Royal Engineers, then still active in the island, to see if they could bring round a mobile crane and make replacing our block an army 'exercise'. My three workmen pooh-pooed the idea. When I arrived on site next morning I was astounded to find the block being settled back into position on top of the wall, 1.5 metres above ground level. Using only their muscles and a plank, they had completed the job in half an hour. The secret was their lifetimes' experience of moving stones, building on an active tradition of many millennia. In other words, know-how.

But know-how has to start somewhere. Though building in stone was introduced to Malta by the first settlers, as was shown at Skorba, the use of huge blocks, so-called megalithic architecture, is not known before the temple period. The skills must have been built up slowly over time. This is most clearly apparent in the planning of the buildings, where ever since John Evans's pioneering work in the early 1950s (Evans 1953, 1959, 1971), it is recognised that the temples fall into a typological series. This correlates quite well with a parallel sequence he recognised in the stylistic development of the pottery, the validity of which has been confirmed by excavation.

### *Structural layout*

Temples consist basically of a number of oval rooms each enclosed by a single skin of stone. These are grouped in various ways, first irregularly, then as three apses opening off a central court in clover-leaf plan, then five, two opposed pairs with a central terminal one, then four as the end apse is reduced to a small altar niche, and finally, in the single case of Tarxien Central, a third pair of apses was added to make six in all. It should be remembered too that there are a number of sites, including Kuncizzjoni, Borg li Mramma and Hal Ginwi amongst others, where similar oval rooms were grouped irregularly, not to any of these 'standard' patterns. The main block at Hagar Qim shows a baffling mixture of both. Since the central element is certainly a temple, and two others are closely related, the oval chambers which form an integral part of the complex probably are too.

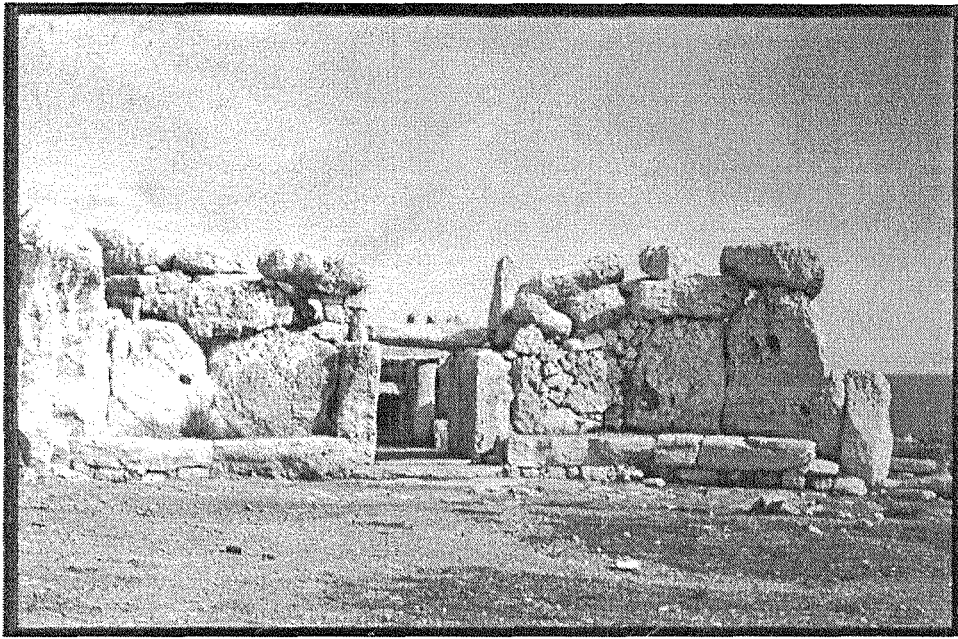
Whatever their shape and arrangement, these chambers are then enclosed in an outer wall, again one block thick, only slightly related to the plan of the chambers inside, the space between being simply packed with soil and rubble. This looks decidedly primitive, and indeed it is, but several points can be made on the other side. Building with great blocks of stone is both much more impressive and much more difficult than using smaller and more manageable ones. Some techniques displayed in the building are surprisingly well thought out. To mention only two, the practice of placing the upright slabs in the external wall line alternately face out and radially, bedded into the structure, gives the whole much greater stability. The presence of notches in the bottom of upright slabs, best seen in Tarxien East Temple, demonstrates the use of levers for the final adjustment into position, a clever device. Incidentally, it also provides proof of the availability of timber on the island. Above all, however, it should be stressed that at this date, 3500BC by the latest estimates, nowhere else in the world was free-standing architecture in stone being erected at all. Though megalithic tombs had already appeared in Atlantic Europe, they were all buried under mounds of earth or stones. The pyramids of Egypt were a thousand years off in the future.



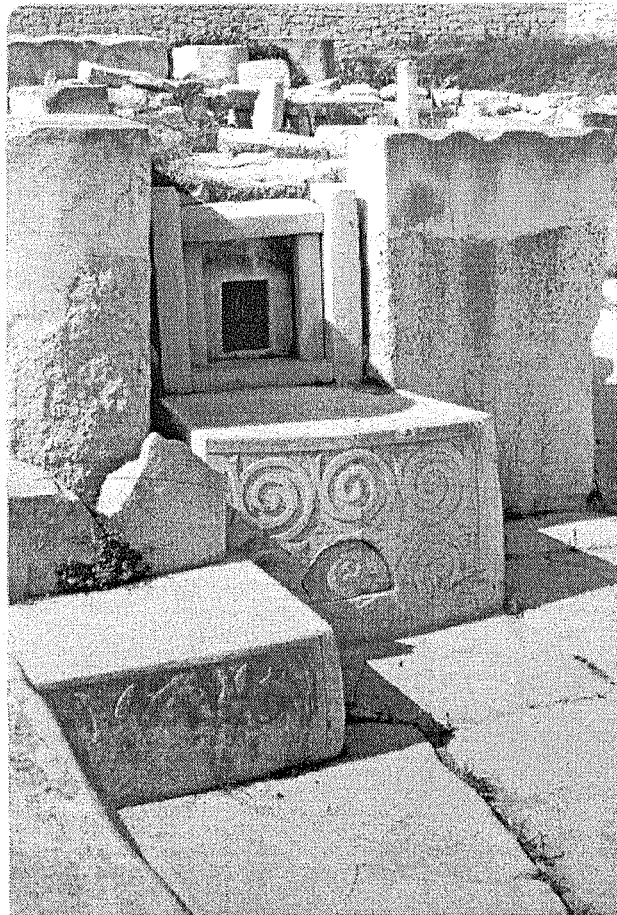
The development of the temple plans

- a. rock-cut tomb – Xemxija 5, St Paul's Bay
- b. lobed temple – Ta' Hagra East, Mgarr
- c. clover-leaf, with closure of inner apse – Skorba East, Zebbieh
- d. 5-apse – Ggantija South, Xaghra
- e. 4-apse – Mnajdra Central, Qrendi
- f. 6-apse – Tarxien Central, Tarxien

The scale in each case is 3m long



*The façade of the lower temple, Mnajdra*



*Decorated altar for sacrifices,  
Tarxien, South Temple*

### **Roofing**

One detail of this precocious development is even more startling. There has been considerable, and largely unnecessary, controversy over the original roofing of the temples. While all are agreed that roofs there must have been, to protect the decoratively carved stone altars and wall plaster from erosion by weather if nothing else, there are two schools of thought on how this was done. One, led by Carlo Ceschi in the 1930s (1939), argues for corbelled vaults, stone built throughout, with each horizontal course of stone projecting slightly over the one below. The other, propounded by John Evans in the 1950s (1959), rejects this in favour of a flat roof supported on timber rafters. Without going into all the details of the dispute, how does the issue look today?

What needs emphasising is that not all temple roofs had to be the same, since some have to span large spaces, some small. Even more importantly, some supporting walls are of irregular coralline blocks, some of neatly cut and bedded globigerina. Where an inner chamber at Tarxien has a diameter of 3.6m and wall already insloping, a stone roof is both possible and likely, it would be quite impossible over those in the Ggantija, up to 8m across above rough walling, already 6m high and still strictly vertical. To close this in stone would need at least another 12m in height, with a weight of stone well beyond what that masonry could support. A timber raftered roof is the only possible answer here. So it looks as if both parties were right, as far as they went.

In fact, the Italian school did not go far enough. At Tarxien again, and also at Mnajdra, it can be seen that the uppermost surviving courses of stone, as well as projecting, tilt slightly inwards. That implies an arch, where the inward slope locks the blocks into a more stable structure, not a corbel, where any slope should be outwards, to carry the thrust out into the walls. How higher courses of stone would have been set we cannot know. There are two possibilities: that the inward slope was increased until a keystone could be placed and supporting framework dismantled, to make a true dome, or that each course retained the

same slope, self-supporting because of the locking of the shaped blocks. These horizontal arches would reduce the opening until it could be spanned by one or more stone slabs. The true vertical arch did not appear until after 2500BC at Ur in Mesopotamia, and its derivative, the dome, even later. The horizontal arch was hardly ever employed elsewhere, and certainly never anything like as early as this. Personally I think it the more likely here, because the temples consist not of circular chambers but of semicircular apses, separated by the central passages. The great lintels spanning these would have been needed to hold the two half-arches apart, for their inward thrusts to cancel each other out. While not conclusive, the carved ceiling of Hal Saflieni fits this pattern better than any other. Either way, the builders of these temples were recognising, and solving, problems far earlier than their colleagues elsewhere.

### **Architects and Masons**

This would seem to imply specialist experts, and the well-known contemporary models provide some evidence to support this. While the little three-dimensional one from Mgarr, suggesting a roof of long stone slabs over a small chamber, could be a representation of a complete single-cell temple, even a child's toy, the meticulously carved façade from Tarxien looks much more like an architectural elevation, though there is nothing to prove it was produced before the temple was built, rather than copied afterwards. More intriguing is the terracotta model from Hagar Qim. The two fragments surviving are enough to show the wall stumps of a five-apsed temple. At no point, before, during or after construction, would the building have looked like this. It is an abstract plan, presumably produced by someone designing a temple, bluntly an architect (Trump 1979). The argument is reinforced by the even stranger piece from Tarxien showing a complex of rectilinear rooms on a podium. This apparently never was built, perhaps because it was too far ahead of its time.

The specialists would be unlikely to be full time of course, though in view of the

object of their efforts, one suspects that they doubled as priests rather than as farmers. One other group were probably also specialists, though they could have been part time farmers. The skills shown by the craftsmen who carved the stone statues and the relief decoration on the altar blocks are of such a high order that they also were probably shared by few. The time and effort required to shape any one stone or block was not very great, however, thanks to the sculptor-friendly nature of the globigerina limestone. Much higher levels of skill and effort are shown in the shaping of the amazingly close-fitting wall slabs in, for example, Tarxien East Temple.

#### *Later history*

Turning to the later history of these buildings, one can distinguish four phases. Firstly, some early temples had drastic alterations made to them. This was first shown at Skorba, where a cross wall and doorway was added separating the innermost of its three apses from the central court and outer pair. The same can be recognised at Mgarr and Kordin III. We shall look for an explanation of this shortly.

Secondly, at many sites, whole new temple units were raised alongside pre-existing ones. At Skorba and the Ggantija this meant taking down part of the outer wall of the earlier temple to nestle the new one close up against it. At Tarxien and Mnajdra they were juxtaposed. At Hagar Qim two temples were built several metres apart, and the second had elements of temple and additional non-standard oval chambers later conjoined to it.

Thirdly, there followed a long period of largely natural decay and ruination, beginning almost immediately (flakes had been removed from a door jamb at Skorba even before an interior wall was added in the Bronze Age) and continuing down to the present. The main agents were probably weather and perhaps the occasional earthquake.

Fourthly, deliberate destruction by man becomes apparent. Tas-Silg seems to belong in this category, where only the temple's foundations were incorporated

into the Phoenician temple on the site, any surviving superstructure having apparently been swept away. At Skorba and Tarxien, half wedge-slots can be seen, where farmers had split blocks to facilitate their removal. Those were almost certainly in modern times. At the Xaghra Circle, admittedly not a temple in the strict sense, far more of its structure can be seen in Charles Brochtorff's watercolour of c.1826 than survives today.

While the first two can tell us a lot more about the temples and their use, the third and fourth are evidence only that that use had ceased, whatever new ones - for squatting occupation (Skorba), burial (Tarxien) or merely as quarries for recycled stone - were later introduced, not to mention as tourist attractions, calling for a certain amount of restoration, protective flooring, enclosure fence and ticket office.

#### *The cart ruts*

Does the intriguing problem of the Maltese cart-ruts tie in with the process of temple building? (Ventura & Tanti 1996; Trump 1998) It would indeed be satisfactory if the two could be linked, each throwing light on the other. It has been suggested that the heavy wear implied by the ruts could be explained as produced by waggons transporting from the quarry sites the great blocks needed for the temples. Unfortunately the evidence does not support this.

Quite apart from the difficulty of envisaging waggons capable of carrying such heavy loads at this remote period, no ruts run directly to either temples or quarries, though they can be found quite near to both. For example, there are ruts and a megalithic site on Qala il-Pellegrin above Gnejna Bay, but while the latter is near the centre of the plateau, the former circle the lip. More conclusive, the builders would surely have used the closest possible outcrops of rock, to reduce the immense labour of transport, yet some ruts run for miles. Again, the multiplication of ruts in some groups, notably near Buskett, implies use over a very long period of time, whereas temples, as we have seen, are likely to have been completed within five years or so at most.

Whatever the function of the ruts, a controversial issue it would be inappropriate to tackle at length here, it seems not to have had anything to do with the temples.

### ***Architecture and religion***

To say that we can learn about the religious beliefs and practices of the temple builders from their architecture is an exaggeration. For those, the statuary, relief carvings, offering bowls and the like provide much better evidence, while still leaving many unanswered questions. The effort the temples' construction called for, however, indicates clearly that those beliefs were powerful, and the architecture does give a number of clues on the organisation of religion, if only by implication.

For a start, the concave monumental façades, particularly where there is structural evidence of an oval forecourt as at Mnajdra and the Ggantija, Borg in Nadur and Borg li Mramma, strongly suggest ceremonies in the open air in front of the temple entrance, with presumably large numbers of people, perhaps the whole community, taking part. We can only guess what those ceremonies may have been. A second zone includes the central court and first pair of apses. Here space is more constricted, but the concentration of decorated stonework suggests that the public, or some of it, had access. In clover-leaf temples, the central apse formed part of this general area too, but the two developments - walling off the inner apse or adding another pair - both had the same purpose of demarcating a third and even more restricted zone, which could be cut off by screens, represented by V-perforations and bar-holes in the jambs, or the double-spiralled sill slab at Tarxien Central. Presumably fewer people were allowed into this zone. The so-called oracle holes, whatever passed through them, served the same purpose of connecting public, zone 2, and private, zone 3, parts of the site, though in an even more restricted manner. Are we going too far beyond the observable facts in suggesting that access to zone 3 was confined to the officiating priesthood? The conclusion is hard to avoid.

### ***Priesthood and chiefdoms***

Yet the construction of the temples was only possible through the combined efforts of the community as a whole. The postulated priesthood would have initiated the enterprise and provided the architectural planning. It may also have organised the necessary logistical support and overseen the work since there is no hint of secular leaders. The general populace would have supplied the labour, not only for the building itself but also for the food production which underpinned the society as a whole. All would then have benefited, or so they believed, from the blessing of the grateful deity.

We can deduce a little more about the communities, though much more would be possible if we were able to discover and study their settlements. The distribution of the temples, forming six groups of two or three, the groups dispersed more or less uniformly through the islands, suggested to Professor Renfrew (1973) six separate communities, each with its own agriculturally productive territory. Each group probably had its own monumental underground cemetery, though only those at Hal Saflieni and Xaghra have yet come to light. There is no hint of conflict between the groups nor of cultural or religious divergence between them. The duplication of temples might suggest an element of secular competition rather than religious fervour. The political organisation of these communities is quite unknown, beyond the fact that it was capable of mobilising the quite considerable labour force necessary to build the temples.

### ***Conclusion***

Yet again, we see that the temples themselves are able to offer circumstantial evidence on wider aspects of contemporary society, a society able to produce an architecture we still find astonishing, and far in advance of anything being raised anywhere else in the world at that remote period, five and a half to four and a half thousand years ago. That precocious achievement alone fully justifies their being given World Heritage status.



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