

Courtyard and coincidence in prehistoric temples in Malta and Gozo (Seminar)

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June 6th 2023

Prehistoric buildings were constructed in a late neolithic and agrarian island culture in Malta and Gozo up to a sudden abandonment c.2500 BCE. The largest is Ggantija, the giant woman, dating from about 3600 BCE. Astronomical theories have involved coincidences of direction with the stars and the most southerly moonrise, something seen for a couple of years in a 'lunar standstill' every nineteen years. John Cox has explored a moonrise theory, which involved taking photographs over the most recent standstill 2005-2007 from inside three of the older temples. In this talk he will show photographs taken on that survey and discuss some of the cultural factors that might be involved.

<https://www.youtube.com/watch?v=iz7ilhWX4TQ>

Welcome everybody. We are venturing to the neolithic with some more archeoastronomy tonight with John Cox, who's been regularly attending the radical anthropology lectures and is well versed in, in our kind of an arch K astronomy background, especially Lionel SIM's work. and John is gonna be talking about his work on the prehistoric temples of Malta and Gozo. So please, John, take it away.

Okay. Well, the reason I first came along to radical anthropology was because I met Lionel Sims at, a couple of conferences, and, he was quite interested in the moon, and of course I was working on the moon, so we had that affinity.

And, something he said to me, which I'll try and get to was look at the minor standstill. Well, I think we might get to the line, the minor standstill by the end of the evening. But, let's begin with one or two basics.

Okay? I think everyone will be familiar with the idea that the sun rises north of east in the summer, and it rises south of east in the winter and here in London, latitude 52, the overall spread is quite a lot. The overall spread is about 90 degrees, June 21st, 45 degrees north December 21st, 45 degrees south.

So that whole difference between the most northerly rising point and the most southerly rising point is what you might call the amplitude, the amplitude of range in the azimuth of sunrise over the course of a year. Okay? now the other effect that you'll be, might be familiar with is the idea of the solstice. Now, at the moment we're approaching the summer solstice.

So the sun has been rising further and further north until around June the 21st. It stops, it starts rising from very much the same position. In fact, for about three weeks, four weeks, you really can't tell the difference.

small differences, I in atmospheric refraction means sometimes it rises a little bit farther north or a little bit farther south, and that's really down to whether it's been a hot day or a cold day or what have you. So this is called the solstice, that's the

standstill and the solstice isn't just one day, the solstice is a whole period. The solstice is two or three weeks.

how picky do you want to be? I say it's, it lasts about a month. I say we're virtually into it now. It's, it's June the fifth.

I don't think you're going to be able to tell any difference in the length of a day from now for the next month.

So we are already in the standstill.

Now, something similar applies to the moon.

The moon rises north, northeast at one point in the month, and it moves south and then it rises well south of east at another point and the difference between the most northerly point and the most southerly point is half of a tropic month. It's only, a tropic month is 27.3 days. So, um that's 13 days.

So it takes 13 days to get from its most northerly rising point to its most southerly rising point.

But the overall amplitude of that range changes.

It changes in an 18.61 year cycle.

It's normally called the 18.6 year cycle, rather clumsy.

But there we are, the 18.6 year cycle and at the moment, we're approaching the maximum of the cycle.

So at its most southern most rising point, the moon is rising well south of the sunrise, and its most northerly rising point, which is just half of 27 days, just 1330 and a half days later, it's rising well north.

okay, now the period from north to south and back again is 27 and a half days. And that is, two days shorter than a full month, A month full moon to full moon.

So each time it gets to the most southern rising point, it's two days younger than it was the time before.

We'll see that, that matters. That comes to matter, okay? Now, a bit like the sun, it reaches a most southerly rising point, and it rises from very much the same position, certainly for two days, maybe even three days. There's a slight difference, but is not much and the same is true, but the northern end, okay? So the moon shows a little, a little standstill once a month, and it was southerly rising point, and it also shows a standstill and as most northerly rising point, we're gonna concentrate on the southerly one.

The next thing is this amplitude.

The amplitude gets bigger for nine years, and then it comes to a maximum. And again, it, it returns to the most suddenly rising point for a couple of years.

It depends how finally you want to tune this really maybe three years.

I think we're gonna find out. It's, it's usually about three years, give or take. so that's also a standstill, and that's what's normally called the Luna standstill.

Okay? so now what we're looking at is some, prehistoric sites in mal term and there are quite a number of them.

Mostly they're terribly ruinous.

This is a map of, of the 30 or so identified so-called temple sites, and they're called temple sites because the first one to be uncovered, and this was uncovered I think in 1790, is this one gigia. I think that just translates as the giant or the giant woman, in fact, because it's a feminine form. So this is the giant woman, or maybe it was built by a giant woman.

That's another story about it. This is huge.

Running up the middle is a central aisle, so to speak, a central axis and the cells either side the repaired chambers, either side, cementable mirroring patterns, very similar to the sort of thing you get in a church thing.

You get in Central Island and you get sort of little side chapels, and very often the chapels face each other.

So this perhaps one reason why it's called temple.

The other reason why it's called the temple is because it was uncovered 1790 in the period of the esque tour. So anything like this was, it could be a palace or it was going to be a temple. So 1790, it was a temple.

So this is one temple weren't looking at in particular and here's the rear wall.

You can get the scale of this thing. This thing is gigantic and what's quite interesting here is, is you see the way it's constructed, you see there's a, what's called a header, and there's a stretcher and there's a header and there's a stretcher, and then there's a header.

Now that's exactly the same as a brick wall is constructed. This is, so this is free-standing building and the date of its construction is about 3,500, maybe 3,600 b c e.

In fact, this might be the very first freestanding building, freestanding stone building in Europe, for sure. Maybe the world, who knows? This is a second one of these temples. This one is also pretty gigantic.

it's made of a very soft limestone in this case. The other one wasn't.

The other one had a ha had a car pace of very hard limestone.

This one's a soft limestone. This got seriously eroded.

The front was reconstructed. It was reconstructed in the 1950s. so when has to be a little bit careful, you can never be quite sure what you have now is what was there originally.

But the down the central aisle, you've got a line of flags.

So that very probably is absolutely original and so we're quite interested in the line, the line of the central aisle, the central apps, the central access as it's called.

The third one I'm looking at is this one, which is tar at, which is much, much smaller, but as you can see, it's still got a, a pretty megalithic front.

It's got this rather nice dish front. It's got a line of steps. It's got this extraordinary lin, which may or may not have been the original lintel.

I think it may have may have been, there, there's a reconstruction story, which I think is about 19 30, 19 20. But I'm assuming, I think we can assume they got it right.

Okay, now, o of the sites that we saw earlier, the 30, so sites most of pretty derelict ruined.

Some have been deliberately ruined. A couple of one, one at least has been lost because they built an airport over the top of it.

So that one's gone entirely. there are about 17 where you have a central apps with mirroring, mirroring units either side, maybe the, and, and this is looking at the alignment down the central axis and when you do this, what do you discover is, this is quite interesting bunch around here. And there's three here, Gigia, which is the first one we looked at, Ji, which is the second one we looked at. Aja Rat, which is the third one we looked at.

These have all got very similar Barry bearings.

They all face in a very similar way. so an early paper here, I think 19, 19 92, posed the question were these temples were particularly this group here and maybe this group in particular, but were this group here aligned on some astronomical marker. Because as we saw, one's in one island, one's at one end of the other island, and the other one is at the other end, the other islands. So they're all widely separated in space.

How come they're all facing the same way? So that was the question. the 1992 paper came up with two ideas.

One was that they might be aligned on the moon, and the other was that they might be aligned on the stars in the Southern cross.

And, and, and, Centura, the 1992 paper, I'm sorry, the 1992 paper didn't like the moon hypothesis because as it said, it could only really be applied to two temples.

It didn't actually go on to say which two it was, but the two reading between the lines were Taja rat and gig Anesia were see why in a bit.

So here's one [unknown], that's the huge one, aji. This is also pretty big down here and the third one here, Taja at very nice spread.

Is there any sort of, material evidence of an interest in stars? Not much. There is this particular, little limestone shard. it's got a moon on it.

It's got some stars on it, and it's got these strange radial lines.

Okay. That's really the only, Perhaps the only indication in, in, in, in material remains and there's not a lot of material remains. Artifact remains from the temples.

Okay, now we're looking at the star group, which Sirio, Hoskin and Ventura thought might have been used to orientate the southeast facing temples. the top here is a red giant star in Starr, and that's going to be actually red to the naked eye. If you look at that, you're going see the color. people are always a bit surprised by the idea that stars are colored, but the red, bright red stars are very easy to see color.

There's about a dozen. You can see colored and guard one of them here. I got them labeled. Here's Rigel Kent, here's how, how. Hey, these two turn up on the Australian flag. And here's the southern cross, which is normally there, there.

Now, whether the historic man saw crosses as the southern cross, who knows? Maybe they saw it as a triangular, a sort of lozenge, a diamond shape.

Or maybe they didn't see them as a star group at all.

Maybe they just saw the individual stars. Anyway, this is the grouping.

Now, move that out the way Close that pick up this one.

Okay.

In the period 2005 to 2007, I, a group of people visited each of the three temples on a number of occasions in order to photograph or to observe or to photograph the moon rise.

Because whatever reason, I thought the moon hypothesis was rather a good one, and I wanted to test it with practical observations.

So my approach here is just, let's do it.

Let's see how it works. Is it real? And I think the answer is yes, if I can move that across.

ah, okay.

So that was the first observation that was made from G Anesia, which is that big, the big, the big running goza.

And, that was done in May, May, 2005.

Now this is a year short of the maximum of the temple, of the maximum of the lunar cycle and we can see already the moon is rising pretty well down in line with the main axis of the temple.

So came back in the spring of next year.

This was taken in January. This is a shot by, mark Jenk took this one. It's very difficult to see the moon low down any kind of cloud, blots it out. I've never been able to observe a last crescent in this case.

It's a last crescent rising at the level of horizon.

We pick it up when it's a degree or two rhythm.

So that's January, and that's an observation from Gigia.

Okay? Now, this is an observation made in February from another of the temples is from regime. And, we're not very good at night photography at this stage, so it is not a very clear picture. And I've worked it up a little bit, but there's the moon there, so it's well to the left of the frame. This is a, this is from gig in March. So you can say the moon now has gained a bit.

So it, it is a bit bigger. And again, it's rising, probably rising about there pretty much in line with, with the acc, the main axis of the temple. And this is the same shot, same nu I'm not sure it's the same night or not. Let's go back. Yes, it's the same night. So, so another one of the ideas was to have somebody in one temple and somebody in another temple, and they were both photographed the same moon and then we could compare the view from the two temples.

So this is the first try from Taja rat. And again, it, there's an elevated horizon at Taja rat, but we can see it's rising pretty much in line with the main axis of the temple back in Taja rat next month. Fourth, it's April.

So the moon is a bit fuller now. It is last quarter.

That's 2006. Okay.

All right. Okay, that's the next night.

So we've got a shot here. This is one night, and then this is the night afterwards and we can see it's moved along a little bit. Not a lot, but a bit.

So essentially speaking, you get two or maybe even three shots at a southern southerly, moon rise, one's slightly more southerly than the others in this case.

That one's more southerly.

That one's come north a little bit the next day because it's moving back.

This is may actually here, it's setting just, it's rising just a little bit to the right.

There's a line of houses here.

Maybe the original horizon was this kind of escarpment here and we got a bunch, I visited these houses afterwards. They're three stories, some of them. And this is Aji. Let me see. So that's 15th of, 15th of May.

So that's 15th of May.

So this is one of the cases when we've got an observation from one temple and an observation from the other temple.

So now we can compare the two temples, assuming our observation point is right, and I've tried to standardize the observation point.

I'll just cover that in a minute or two. But, so here we can see in Giganto is rising a little bit right to the right of the frame. Same, same moon rise observed from regime, and it's well to the left. And the rising point is down here, it's very difficult to see the rising point, in fact, because there's a wall here, a line of trees. And then very strangely, there's something called the southern building here now restoring trying to work out what the original landscape was like. It's quite tricky.

But there might have been just a little glimpse of a sea horizon.

On the other hand, the southern building is getting in the way.

So we can assume the rising point is about here, and it's coming up on this line. So it's pretty much left of field in, in, in, in, in. Let me see, let's compare. So, okay, second night.

So that's a night later. Again, it's may. And here, this is one of the occasions when the moon rises at much the same point.

One night it's approaching the maximum point south, but we didn't quite get it.

We saw it just before it got there.

But the next night it's coming away from the maximum point south.

So it's exhibiting a little standstill. A little standstill is about quarter of a degree, something like that. The moon itself, of course, is diameter half a degree.

So the next thing to consider is that in the prehistoric period, the tilt of the earth was slightly different and the moon would've set about, one would've risen, sorry, the moon would've risen about one diameter further south than it is rising now.

So what we're trying to do is by making practical observations, now we're trying to work out what it would've, whether this, let me just check. Is that the same night? Yep, same night.

Okay, rising point slightly to the right of the frame. Well, central to slightly right? Difficult to see. Here's the edge.

Here's the other edge. It's about in the middle, I think.

So the rising point's about here.

So maybe pretty much smack middle taja at, okay, now we, that was the first year.

So I think what we saw here also was the fact that what you get is you get a series of moon rises and the strange thing is it's running backwards through the phases.

The first one was the last crescent, two months later, it's the last quarter. May, June is a full moon.

You can't get the one in July, August and so on, not on the horizon, because this, the moon is, looks bright at night, but it is not very bright really compared to something like the sun and if the sun's up, there's too much light in the atmosphere for you to make out the shape of the moon.

When it's very low down, you can't actually see it. If the, if the sun, sun is still above the horizon, you can't see it, you can't see a moon rise at the level of the horizon.

So this is just a spring, it just happens in the spring.

You get the moon rise at the southernly rising point, January, February, March, April, may, June, and that's it. July, of course it, of course it does rise, but now it's rising in daylight.

You see it maybe when it's risen a few degrees, but you don't see it at the level of the horizon.

So now we're in our third year of observations. This is now 2007.

We're getting better at taking the photographs. Like photographs are getting they're improving. so this is march a little bit left, but you can actually see the rest of the moon here at a diameter and that's the position in the prehistoric period.

This is one from a, now as we can see, a is is the point of moon rise is well left of, is left of the frame.

But actually it's really rather nice once it's risen a bit.

It's straight down the middle.

We've got wooden boards here. Imagine if they were, if the original flags were exposed, put some water down them and you would've, you would've got glitter path.

So there's a lot of room for theatrics, theatric displays from inside the temple. Okay, so the year 2007 we're just tidying up. Oh, and occasionally having a bit of fun.

This is an observation from the back of now because has made of this very soft limestone. And because the rain now is very acidic, being eating away at the structure like nobody's business and now it's being tented. They put a tent over the top to protect it.

So this is not a particular brilliant photograph, but it's not bad. there's a one of, Michael's photograph that's, that's Jupiter. This is, scorpions. Not much color there, slight bit of color.

That's ris. And there's the main apps.

We're a bit off center because there other, these supplementary temples to this one. It's a really complicated structure, but I think it's quite a fun shot. But, just slip that in.

One of the problems with observing from, regime was the fact that there was a restaurant with some lights on this wall.

There's a bunch of trees. And here's the southern, the southern building. So again, we can see how a far southerly moon, moon rise only just escapes. In fact, now it probably doesn't escape.

If we could see right the way down to the true horizon, it probably doesn't escape the southern building. But I think in period, cause it, it rose one diameter further south, it would've just squeezed up.

This is quite an interesting feature. That's just a shot.

Hey, well the nice, say hello to the moon. You're sitting in the temple, you are waiting for the moon. Is the moon going to appear? And then it appears to some extent, this moves you into the sort of frame of the inhabitants of these temples.

The moon is a visitor. You're privileged to have her on board, right? This is 2007.

So then this is now two years after the original shot.

Perhaps the position of the moon right is beginning to move a little bit left.

But I think what this series of observations did demonstrate was that for two or possibly three years, you consistently got a moon rise, certainly down the center of gig, Anisia temple once and sometimes twice a night.

So this wasn't just a single one-off observation.

The number of possible observations is, well, I know six times two, that's 12 times three, that's 36.

You might get 36 shots at seeing it.

One of the objections to the moon rise theory was that this was a rather a rare event. Well, here we've demonstrated that it's not a rare event. It has a pulse.

It's coming in, in an 18.6, coming in, in a 19 year pulse.

It hits the maximum. It's there for a couple of years, three years, maybe.

That's the standstill and then it moves gradually outta frame.

There we go. So that's the rise and here's the sequence. Mid-winter, don't see it. First month, last crescent, next month, bit more of it.

Spring last quarter.

Waning Gibb, waning Gibb, us midsummer, full moon. So there's a magical trick here, which, which lion was very keen on.

The moon is running backwards.

Normally when you see the moon rise each night, there's a little bit less of it.

But when you start picking out this particular observation, suddenly you've reversed time. It's quite magical, really. And the moon is quite good like that.

You can run lots of things in reverse for the moon and this is one of the ways in which the moon runs rids.

It runs things backwards.

Okay, let's shut that one down context, bit of context.

Just so . Where are, they're in the Mediterranean, they're about 50 miles south of Sicily.

you can't actually see them. We might be able to see them from Mount Etna, but otherwise speaking, they're outta sight of land and goes uninhabited until about 5,000. B c.

It's normally first occupation is put at 5,200.

His thought. Some people came across from Sicily and they might have bought a full neolithic kit with them, bought some sage early. That's to say they bought Bali, they bought Emma, they bought lentils, they might have bought goats. it's really quite science fiction, really moving onto another planet, these uninhabited islands first occupied. And for about a thousand years, that first settlement seemed to have just got on with it.

Nobody might have visited.

They might have had a little bit of contact with Sicily. they had obsidian, which they didn't have on the island.

They have a bit of flint, which they didn't have on the island.

They have church, which is kind of Flint ish, but it's not so hard as flint.

no metal of course. Cause we're in the neolithic at this point here, so-called Zibo period. I not sure what I'm pronouncing it that correctly.

There's some sort of change in these periods are named after pottery styles. We got, we've got a gray, we've got, we've got a gray clay here. And then at this period here, it was suddenly changed to a red, a red style.

But it's much the same pottery style. And at this point here, 4,000 bc there is some sort of change in style.

Suddenly we got oka painted pottery.

So maybe there was a second group arrived, or maybe there's some renewed contact with the outside world, because essentially speaking, there won't have been much contact.

There's very little exotic material discovered from this period and certainly true. Now, the prevailing winds, the prevailing currents carry you from Sicily down to mortar and gozo quite easily.

But those same prevailing conditions make it really rather difficult to get away. Or we don't know about navigation in the period, but maybe the boats weren't that advanced. So getting there would be fairly easy. Getting away was tricky.

So there's, there was a clearly a bit of trade with Sicily, but not a lot.

As I understand it from reading the standard accounts Temple building begins here, and it's named after gig anisia, which is that huge one that we saw and that's normally dated at about 3,600.

So now Temple building comes in two phases.

It's a gig anesia phase, and then there's a late stage called the Tark phase and then at the end of the Tark, about 2,500, that was it. The temples were abandoned, not quite abandoned, perhaps because another group seemingly with very different habits took over in top gene temple itself.

But essentially speaking, there was a period of temple building that went on from here, from 3,600 and the temples then were continually used for a thousand years.

More temples were added in this period here, and then the whole thing stopped. It's a bit of a mystery.

This is dated to about 3,800, okay? Collected, buried the dead. Were buried in underground in caves to begin with.

well always, in fact, at about 3,800, the people got quite good at cutting them out. So he, here's a standard.

He, he, he, here's an underground mortuary and bone store, if you like chamber two, the rock's quite soft. So what do you do? You, you begin by cutting a central chamber and then you cut a supplementary cell and, and you leave a bit of the walls standing to hold the roof up.

If you don't do that, the roof might collapse.

So we've got a central chamber here, and then we've got a little cell cut out, and then another one cut out, and then another one. And we've got an intervening wall.

So when we look at a three apps type temple like Taja rat, we've got the same format.

We've got a central chamber here, which is flagged and then we've got a supplementary chamber here, supplementary one and supplementary one here. And this is very like an underground burial chamber, except now it's being constructed above ground. Now the, the, there was, there was stone walled building to some height or other, right the way through.

I'm proceeding the temple building period.

But the feature about the temples is you suddenly get a, a complex of cells in a single unified structure and again, you can see little traces of stretcher header, perhaps not so much in this one. And in the middle you've got a kind of courtyard.

Now was this courtyard roofed or was it open to the sky? Well, opinion is divided.

My part, I'm inclined to think that most of this was open because you've got these little structures here, it's much easier to roof each one individually and then if the sexual section here is free, you can get at the roof and you're gonna maintain these things for a thousand years. You want to be able to get on the roof to keep the thing going and also in some of the bigger ones, you have fires.

Maybe this is a fire pit, maybe this is a fire pit.

So unless you've got a central area to let the smoke out, it's gonna be rather gastly inside.

Here you can see the head of stretcher structure around the edge of cheek anesia. And the thing you notice here is there's a pair of temples, there's two of them. Here's the big one. And here so to speak, is the daughter.

I thought this one Hedrick, Anesia was the main temple was the earlier one and this one is a little bit later.

It's a slightly different format and it's facing in a slightly different direction. Now, for the observations, we were just interested in the main temple, so to speak, the big

one and we tried to choose a simple position to take photographs from, which was easy to, to find, easy to return to, and had some sort of, ceremonial feeling. You invite somebody into your house, you might receive them in the hall. In here is the, the inner zone.

So here's the point at which you receive them.

So when you're inviting the moon into the temple, this so to speak, is where you stand to greeter, the vertical orthos here, vertical orthos here, there's a terrific threshold, beautiful stone here and we take a central position at the waist of the building. And the same is had for the observations from our team. Same thing. Again, we've got this pair of ortho stats at the waste of the building. So we can have, we can reproduce the same observation position in this temple as well and indeed the same observation position in ta taja act. So this has two effects. It's standardized, so to speak, the point of observation.

So you can compare one temple with the other. And the other thing is, it's quite an easy position to find in the dark. You've got the two, two ultra stats.

You can just measure off the center and where to put your camera.

So upshot is you can then start, you've got a standard position in each of the three temples, and you can start comparing how things look. So this is from Gant, three different observations made from Gant. And you can see Gigia is slightly writer center, center, slightly left of center. Soia, for whatever reason, is on target for a far southerly moon rise.

Taja isn't, sorry, I'm getting No, sorry.

No, no, no. We're, we're in, we're in our, we're in Ahe. Yeah, ahe is, well, well off center.

It's at least two or three degrees away from the central position.

Taja at not bad. Adi had to give us the pre-historic period, pretty central, maybe, maybe very slightly left a center, maybe pretty much smack on, okay, halfway through the temple building period, there was some sort of change. That's the most extraordinary structure. there's a series of natural caves, and these have been opened up and they get better and better opening up and suddenly at about 3,800, no, 3,200. So it's estimated, you've got this extraordinary mimicking of the surface style in the underground burial chamber. An ossy. This is one of the, this is the middle level of a whole collection of rooms constructed underground. This one's about five meters underground.

It's estimated that this complex was in use for the whole temple period, maybe starting even before temple building, reaching this extraordinary peak at about 3200 The thought that this complex contained the bones of about, so it was estimated 7,000 individuals, which was shuffled around. We're not quite sure how it worked in this one, unfortunately, because it was, it was cleared, I think in 1,902 and for whatever reason, the clearance record was lost.

So the locations can be guessed at and have been fairly well worked out, but they're not quite certain what was, where, which faces were kept empty and which ones had bones stored. Now, there were some sort of process of re resorting.

there's another one of these underground, hyper GM discovered in Gozo and that was excavated, well, fairly, roughly at one point.

Bits fell in, and then it was the bits which hadn't yet fallen in.

Well, the bits that had been fallen in and were safe, were safely covered, were then uncovered, I think in an excavation.

I'm not quite sure the date of it, but maybe it was about 19 18 90, 19 90.

and so a lot of what one knows about what went on in these underground, bone stores is based on what was discovered opening up this other one in, Gozo.

But this one here in Malta at Hals, has got this extraordinary rock cut architectural feature.

So what the suggests really is, is at this point, the world of the underworld has in some sense collided with the overworld.

The world of the temples is becoming metaphoric for this underworld. Or maybe this underworld is metaphoric, who knows? But there's some sort of collision between the two worlds.

The world of the dead and the world of the living and the architecture of the dead, and the architecture of the living of, at this point, fused in some way. Everyone now possibly is lost in metaphor.

Now here's a quite an interesting feature.

We're looking into this chamber in here is another chamber, and then in here is yet another chamber.

So this is three chambers in, we're not looking smack into the center of this innermost chamber.

We're slightly offset. There's, there's some sort of a, maybe shelter arrangement here to the left. You can't see it.

This is, I think maybe this is a feature of quite a lot of the temples that the direct line of sight is averted. There's an aversion, there's a, there's a hiding, there's a slight displacement of the view and that is rather like what we saw in Jeim where the moon could only just come clear of the southern building.

Only at the very extreme point of the range was it allowed in otherwise the southern building would've excluded it.

So there are our three temples that we're looking at one, the huge one. This is the hyper gm, which is the one, the underground one we were just looking at. And here's Zara, which is, another one of these hyper gel.

Not so fully worked as Hal s but in the case of Jar, the case of Jar's circle Megas were bought down and put in. And so some temple structures, structures of, of shells and s and triathlons and all the furniture of the surfaced surface temperature, all the, the furniture of the surface temple was imported into the burial chambers underground. So again, we had this kind of collision of the world above and the world below.

One of the major finds from Ajara mortuary complex was this figure here thought to be two women, not necessarily the case.

This one on the left probably is a woman. She's got a little child here, was a figure on the right. Got a bowl, which is probably an ochre bowl and then here we can see the red ochre staining of the feet because the bones in Jarah were sort of buried in earth, but there was a lot of ochre in there as well.

They were buried in a red earth.

Okay? that's that lot.

Okay? Now, the theory I'm working on is that these, these three temples at least were aligned on the moon.

But there is, is it were another strand in this particular study, which was the strand that Sirio, Hoskin and Ventura kind of went for in 1992, although they did hedge their bits a bit, a bit.

One of the great things about, the same Taurus crux theory is that it always a bit vague. Which one were you looking at? Which of these stars we were were, was it Rael Kent? Was it haar? Was it gar trucks? And these, I've got slightly different points that they rise. So, provided you don't plump for one, you're okay.

You're not gonna get caught. So I'm done context.

So now I'm just gonna take a brief look at the star theory. Now, this is not my theory. as I say, it was the one put up by, sir Hoskin and Ventura and then, Dori Lom Darlin has plunked for this one a couple of years ago. Very strongly.

Okay? So this is a star theory.

Now, the orientation of the earth respect with respect of the fixed stars is not stable.

It's doing this little cycle over 26,000 years.

So now we're looking about how were things 7,000 years ago. Okay, well, the axis of the earth didn't point this way.

The axis of the earth sort of pointed that way kind of thing.

This is called possession. And, and the effect is that some stars were much higher in the sky and other stars were much lower. I mean, the constellations would've been much the same.

Not we necessarily know that the this group of people in more to saw the same constellations that we do.

But the groupings would've been the, the, the mutual arrangements between the fixed stars is stable over this kind of period. But how they appear from mortar, okay, here is was very different in say 3,600 bc which is the period we're looking at. So this is the march sky midnight, that's the June sky midnight, that's the September sky.

This is a fairly kind of familiar kind of sky, except now we get it in the winter. But we've got, we've got Iran here and we've got a bright start down here. Rigel, lighties, that's the September sky. And then December sky, there's a whole bunch of stars now which have moved well south.

So this is Haar Rael Kent hasn't risen yet.

This is December midnight and there's Gar Crux and there's this whole arrangement here. Now.

Now these particular maps, these are maps are produced on, Richard Monkhouse program, starry Eight.

many people now days use a different program called Solarium, but I don't like solarium so much. I, I like this program.

So this is the one I'm using, I'm using Brexit's program now. I put in all the stars. This is the autumn sky, and this is all the stars down to 6.5, which is magnitude 6.5, which is thought to be about the limit of human sight and we can see there's quite a long, there's, there's a line of stars running out here, the, king, major Iran highs plys running up to Perseus. There's a bright band and then this one is quite extraordinary.

This is the midnight sky mid-winter and you've got this great line of stars running along parallel to the ocean looking south. here's the southern cross here, there's gar there.

Here's Haar Miel. Kent hasn't risen yet.

So this essentially speaking is the line of the Milky Way.

Now the Milky Way is a dark sky phenomenon. a dark adapted eye cones. Rods, rods what you see with under very low light conditions and if you give them half an hour to maximize, then 10,000 plus times more sensitive than day vision, you've gotta keep the light down that gets swamped.

You lose that ability if you expose yourself to bright lights.

But in the prehistoric period, there probably weren't any bright lights.

So the Milky Way would've been much more visible.

It won't have been this visible because this is what the camera sees.

This is a view of the Milky Way taken by Mike Tread gold.

It's taken actually in Auckland, New Zealand. But here we have Roger Kent Heydar, two bright stars of Centura. Let's just zoom in a little bit.

There's Garr there.

Here's a wonderful gas cloud. The sack, that's the head of the head of head of the black Lama.

If you, doing and Dan astronomy. And it might be the head of the, is it the e in the Australian Milky Way version, because most cultures from a time weren't artificial lights, tractors saw the Milky Way, perhaps not quite so amped up.

We get it in some long exposure photograph.

Nevertheless, it was seen as maybe a god, maybe a goddess, maybe an animal, maybe is a river of light and I think a river of light is quite interesting because where does it get refreshed? It gets refreshed when it drops into the ocean.

So now we're just gonna take a little tour down the monkey way.

This one off.

Where are we? Toine Compare Professional.

No, we're not gonna take a little desktop.

Excuse me for a moment. Ah, right, found it.

This is a nice paper by Iris Tofa Now she's quite keen on the Cent Taurus Crux hypothesis and her point is that if you watch the Monkey way, and I've ant up the Milky Way a little bit on this map, I've cheated a bit.

What I've done is I've taken faint bee types, which tend to line up down the plane of the monkey way because that's where they're made, they're made within the, galactic arms.

So I've amped up the bees and they're gonna stand in for the way.

Okay? So that's the view from mortar in.

Let wind back a little bit.

Here's the Southern Cross. There's Gar Crux and Nao Christopher's theory is that crux was of interest in the period because it's quite close to the pivot point.

It's coming up outta the ocean, it's going back in again and the Southern cross is close to the central action.

There it is. Setting is the Southern cross. There's PEDDA.

Here's Rajel Kent.

Okay? So that's one reason perhaps why The Milky Way was a great interest.

So now we're looking at the Star theory.

Now the star theory rather relies on the three temples having exactly the, having very, very similar fields of view. And if they were aligned pretty much on Ama one 30 as this example is, then the theory is that Gar CROs, gamma Cruces, Gar CROs first becomes visible critical altitude, which is about three degrees below three degrees.

You can't see it cause the atmosphere just wipes it up.

But at about three or four degrees, it's a bit tricky.

Three degrees to my mind is a bit low. But, there are arguments in favor. There are arguments against.

But suppose guard crus became visible at three degrees above and suppose these three temples all pointed towards the same asmus of 130, then Gar Crux, which might have been of interest perhaps for the reason that a Lao Chris Farro put forward as of its relation to the rest of the Milky Way would've appeared as it were at about here and this would've been sufficiently interesting to have aligned the temples on it. Now, difficulty with this theory is that the three temples we're looking at Don't have precisely the same frame.

We've seen that this frame here is probably pretty good rising trap declination 30, well, the moon is actually rising.

The Far Southernly moon rise is rising very close to Declar Declination 30.

It's rising at Declar Declination 29. So it's about this kind of path here.

So we can see that, that that pretty much matches what we saw in aj. Yes, pretty much matches Agen.

The rising point was well to the left and so by the time it got up to sort of middle of the view, it was appearing pretty much in the middle of the temple. And that conforms to where gall crux would've been seen in period.

But the fact is that Gia, for example, is well to the left, quite how much difficult to say. But, I'm supposing it's at least two degrees further left, maybe two and a half.

This same theory that has aligned on to my mind doesn't really work and I think that Taja also has a similar sort of frame. So I don't think it really works for Taja either.

In period 3,600 another star was rising smack in the middle and that was Rigel photo rhyme. Again, we're still just looking at, regime here. And here's Rigel rising in the middle of the field.

So here's Ri, here's Rigel here, rising in the doorway and If we've got an open courtyard, then we've got all these stars appearing overhead. In fact, we've got the Milky Ways lining up with the main axis of the temple.

Put Cru in the doorway. This doesn't happen.

Put crux in the doorway and the sky overhead is pretty empty.

So this is an autumn.

The first time you actually see Garr rising above the horizon is sometime around the Autumns, which by coincidence is the same time as the head rising of Gar Crux. But, there we are, there's a lot of coincidences going on here.

I quite like this one.

I'm kind of working up the star theory to see how it looks.

So I couldn't resist trying to apply it to Tok. This is to temple.

and Temple is facing Southwest rather than Southeast.

I tried to get, Rigel Ken in the doorway. Well, I can get it in the doorway at about 10 degrees up, but I can't get it any more central than that and down here is Gar Crux.

Tain consists of two temples. This is the South temple looking for looking out and it's got a main doorway, but there's also a second temple, the se the Central Temples are called. And we'll click to that. Now, John, have we got my another five minutes or so or Yeah, about that. I think that's right. I think I'm gonna, I think I'm gonna finish in 15 minutes.

Oh, 15 is quite, quite long. 10 Minutes. 10. Okay, so this is talk sheet talk was pretty much reconstructed the front, but you can tell which bits were reconstructed. there's a lot of ambiguity, there's a lot of courtyard here, and we're quite interested in this temple here.

That's the one struck me. Okay? the trouble with this temple is it doesn't actually have a door looks into this temple. This is, this is, the south temple just to show you some of the, decorative stone work.

It's really quite lovely. And here's, it was this extraordinary figure, which is about maybe two meters high. Could have lost the top.

so this is a single figure.

This is the temple we're interested in. This one here, it's got a big, let's go back a bit. This stone here, which is a replacement, got melted away by acid, acid rain.

This is the original which was taken up into, into, into the museum. And the letter says, an oculus.

That's to stop you going in. Well, we've gone in and we're looking out and now we've got an artificial horizon here and this is our viewpoint again. We're at the waist of the temple, center of the waist. Looking out in this direction here.

Now, I wasn't able to do a moon set because now we're looking southwest and we're looking at the moon set. But I was able to get a star photograph. So we've got, a couple of stars and Capricorns here. We've got Jupiter here, we've got Venus, we've got a few other stars. And we can use this to line up a star map.

We line up a star map, we get setting path for an object at declination minus 29, which is the setting declination for the moon set in the far southerly moon set. So, hey, we had to Jean, we've got a double group.

We've got the southeast group giving us this backward sequence in the spring and we've got this autumn group giving us this sequence all the time. Getting younger time reversed down to dark moon at midwinter. Hmm.

As we can see, doesn't line up for tar chi central, but the moon does.

Okay, so that's pretty much complete, but we just got a final point here.

So this is returning to Lionel's original point. Mm-hmm.

Just look for the minor standstill.

Now here at the major standstill, the moon is rising very far south and here at the minor is inside the sun.

The sunrise point is halfway between the two cycles.

There's a maximum cycle and there's a minimum cycle for, so for nine years in the cycle, the moon is rising somewhere south of the, of the moon, of the sun point.

Mm-hmm. And for the other nine years in the minor end of the cycle, it's rising inside at the Sun Point.

Well, all of these temples, well, not all of them, but most of the south ones have also got a, an offset line to the midwinter sunrise.

This anesia.

Now the capstone's gone. So the light is penetrating right to the back.

But we can just see the shadow of the ortho step here.

So if there had been a line over the top, the sunlight wouldn't have got any further in than this.

The sunlight is stopped here. This is a midwinter sunrise.

But you've got a position here and you can tell they're measuring the midwinter sunrise and at the temple next door north, you've also got a way of measuring the midwinter sun sunrise it, it, it lights up. This ortho stat here really does rather nicely.

This is a very good, so this is a midwinter sunrise is lighting up this offset.

It's an offset. Or here at Taja, this is a mid-winter sunrise and it's lighting up these apps here, it's offset. It doesn't get to the back of the temple, but it gets to this bit here offset. So you've got a way of spotting the mid-winter sunrise. And again, lastly, ji, this is a mid-winter sunrise. This is the little shadowing. It, it doesn't get to the back,

it's offset, as the sun gets higher. So it comes down here so it never actually penetrates, but you do have a way of spotting where the mid-winter sunrise is. because you've got a way of spotting where the mid-winter sunrise is.

You've got a way of spotting where the moon goes inside of the sun for the minor half of the cycle. So from each of these temples, you've gotta line out to the maximum of the cycle and you would line to the minimum end of the cycle.

Now, I spent a lot of time trying to work out, well what utility was this moon observation in period? And the only one I can think of is that this was an incest taboo thing. If you were born at the major end of the cycle, you could go with somebody who was born at the minor end because they'd be nine years older than you, or they'd be nine years younger than you.

Hmm.

So you'd be always be safe if you were a, a major standstill native and you could always go with somebody who was a minor standstill native and it wouldn't be your mom, it wouldn't be your dad.

There is a chance, of course, it might be your brother, it might be your sister.

So maybe you could have a rule which says that you mustn't go with somebody who's also a minor standstill or a major standstill.

So this is a way really of dividing the population to two halves and putting a, a remove of nine years between them and this is, I think, outside of the magical properties of an alignment on the moon rise and the fact that you are running time backwards and all that sort of thing.

There's possibly an incest to blue utility within the early population. I don't know, that's just a speculation, but that's for Lionel. Thanks Lionel. That's the best I can do.

Okay. So, in conclusion, I'm suggesting that three, three temples will certainly, these, these two gigia and taja at are aligned on the moon. And I think Aje might be as well.

It's a little bit off in the case of Aje, but I think it might be.

Now there's another whole group here, as far as I'm concerned. Well maybe these, these were aligned on the salon group of stars and certainly the salon group of stars that those stars would've been a much better fit for. This group here, this group here are all early.

These are all gig anesia phase, first phase temples.

These ones down here are all later. These are all to phase.

Hmm.

See what happens in the middle is this, well, you got two groupings, really. so maybe the early phase temples were aligned here on the moon and that was okay.

Everyone then was happy enough to go off with different orientations.

We've seen that within the group that we drew up from, from Zara, the twin goddess, assuming they were both goddesses.

We got a twin goddess thing.

So there's no reason why you shouldn't have two stellar alignments or at least one stellar and one lunar. It was perfectly okay.

I would've thought, I would've thought going for a single rules all type theory was a way of casting our own present day.

Monolithic present day where only one God kind of thing onto the prehistoric mind and I don't see why we should do that. Okay. And that's me finished.

I hope that wasn't too confusing.

There we go. Thanks John. Can we end the screen share? Fantastic.

There we go. I'm gonna stop sharing.

Fantastic. Thanks John.

That, that, that took us through some amazingly, complex astronomy and some extraordinary sites. absolutely fascinating. Cause I I've hardly known anything about, about this culture. and brilliant suggestions.

does anybody wanna come up with some comments and response? We've got some experts here.

Anybody like to come back from some of these ideas? I, I'd like to hear from Frank, Ventura.

Me too.

Frank was gonna say something.

Frank, you there? Oh, no, no response at the moment.

Maybe Frank's so, so annoyed with you that he is, he's vanished.

anybody else? It, I mean, just be, just to push on more questions. It, it, it has the sense that all these different temples offer so many kind of different aspects on the skies, the, the directions they're looking in, that you've got some sort of collective ober community, observatory community, going on. I mean that, that's what it immediately the sense of it is. with, with these particular groups that you've picked on, focused exactly on these, these Luna standstill or, or potentially the, the, Milky Way pivots. well, Well, well the three I focused on are in a sense the big early ones.

Two of them are the two big early ones.

I see these as being the mother temples Yeah. At the beginning of the period.

Yep. So I see that there was a moar, there was a lunar attachment at the beginning of the period. Yep and that shifted and Subsequently it got shifted.

Yep and a second line came in. Yep and this might have attended some sort of shift in the power arrangement anyway.

You might have. Malone, who is it? It's, Malone who were two archeologists, quite well known. I think. they got very keen on the idea that, that a priesthood emerged within the tar gene.

Mm-hmm.

So some kind of appropriate appropriation.

Yeah. There's an appropriation process. Yeah.

There's a lot of collectivization early on. We have, we have collective burial.

In fact, collective burial continues right through. So that suggests a very, the origin is terrifically egalitarian. Everyone gets buried together.

Mm.

But then as you move into the tark, the space is become increasingly secretive.

Yes.

So there's some sort of process of appropriation and there might have even been some sort of gender shift or some, maybe there's, I mean, I mean, you've got a thousand years to do it. Yeah.

A thousand years is enough time.

Mm-hmm.

For this gender shift to come on.

It's, it's funded. There wouldn't have been hunting. This would've been, agriculture with pastoralist a bit pretty, pretty well The way through. Yeah. there've been various studies done on this. but I, I think the argument is that they moved into full-time agriculture very early on, the population gradually grew.

So more temples got built in the Tark as all the available agricultural land was taken. Right. By the end of the Tark. That was it.

It had reached, as it were, maximum population, which was something, maybe it's between 10,000 and 20,000, right and most odds are was about 12,000. That kind of, that kind of point point.

You've got 30 temple complex, 30 temple sites Mm-hmm.

To share between 12,000 people. I'm not quite sure how that works out, but, that gives you some notion of local communities, Five, 600 people or something. Yeah. But The big complexes have got several temples in them. Right.

So, With, so in that case of kind of land shortage, you, you might expect an emergence of something quite patrilineal in those circumstances.

You'd think that that could be associated with gender shift. Yeah.

You need to, you need to establish your land claims and hang onto it and, and yeah.

All that sort of thing. Yes. And, and, and this is another reason why the temples have perhaps why they have slightly different orientations, because you don't want to have the same orientation as the temple next door to you.

No. You Wanna be different.

Yep. This gives, This gives you a scatter.

There could be all kinds of stories associated to ancestry represented in the sky of some sort of something, All that sort of thing. So, so we're gonna go for Kent. Hey, we're gonna go for Regina. Hey, we're gonna go for and so on.

Yep.

I, I think Tori has a question.

Great.

Okay. Okay. Thank you. Thank you, John. That was, very interesting and, very detailed, what you present in there.

Excuse me. And, what, what, what, what you mentioned, what, why, what could have been the reasoning for its temporary orientations? You, you keep to three temples, but there are other temples as well that has these alignments in them, which I discovered during my, my research, which I, my PhD research, which I submitted last year. But the, the, the big question in all these is, why were they oriented the way they were? You mentioned, obviously the got CROs, the star, which, which could have been, you may, the, the, they could have been in the major lunar standstill or as well the, the, the event is sunrise, which has more temples than the three you mentioned, which have this offset elimination. And, and I just want to, to to, obviously we'll never know the, the exact answer in this, but, and we have to be careful, not let our modern mine influence the way the prehistoric, people thought or, or, or constructed things.

But the thing is that if you think about the, the major learner standstill that happens every 18, 18, 19 years, and you have the, the winter solstice sunrise happens every year. And, you have also that that stars the God crooks.

That happens also every year. It, it has, its he rising around the, the, the, the, the, the autumn equinox. And it disappears again around the spring at, so you would, at which you would see every day.

So wouldn't it be more, more potential is that they would align templates to what they would see more often that bought something that would happen only every 19 years.

Okay. the argument is that prehistoric societies were ruled by the moon.

The moon determined when you could go out at night or when you couldn't, simply that. so you follow the moon.

The moon is the primary, the moon is the primary timekeeper.

The moon gives you the middle of the winter. The moon gives you the spring, the moon gives you the summer, the fu the southerly moon rise.

The fu southerly full moon is mid-summer.

The northerly full of moon is mid-winter.

So all those measures, the measures for the solar year can be perfectly easily measured by taking notice of the moon. And you, in the prehistoric period, you took more notice of the moon because you didn't have artificial lighting.

The moon was your main light source and then there are other arguments for following the moon. And, and, and these are, are, are, are, are, are, are to do with the cycles of women, the menstrual cycle and so forth, which are also moon lunar aligned.

So if you have a society in which women are strong, and you have a society in which timekeeping is regulated by the moon, then the moon gets to be primary perhaps in a way that stars aren't, stars are interesting if you are navigating a boat.

But we can see that these temples were built in the period when there wasn't much navigation. There was a bit of navigation as we know, but not much.

There hardly any exotic materials discovered on these islands in the temple period.

These islands were pretty well cut off just a little bit of trade, maybe a little bit of the city, and maybe a bit of ochre, although it's beginning to look as if okra was

produced locally as well, to some large extent. Anyway, so that's my answer to that, to that objection is that the moon is primary and the business of time telling and looking at stars is really rather secondary. The other point, I think, was to do with the main alignment.

We're trying to keep it simple.

We're just looking at the main axial alignment of the temple.

The moment you start looking at offset alignments, what happens if the light comes into the slant this way or to slant that way? And you've doubled and troubled the number of alignments you can look at.

So in favor of keeping the argument simple, sticking just to the main axis.

No, of course, John. The, the moon, moon was important. I, I don't, absolutely. But the first calendar is, we know about Mesopotamia, they were moon based, but, so, but later they, they changed it out to sun, sun movement's calendar because the moon calendar is out of sync because it's only, so, so it, it turns the season outta sync and that's why they turn into sun based calendars.

Okay, come back on that one. You're quoting Mest.

You can also probably quote Egypt. These are states, these are vast, huge societies, hierarchical societies with cities and rulers engaging in warfare with laboring states or into modern, you sure. Once you move into big states, then everyone switches into the sun because that's the arrangement.

But when you are in small scale egalitarian societies, you don't move into the sun.

You move into the sun once you want to get taxation. So meag Yeah.

Tax. The people gotta be solar.

Yes.

But we're in a pre-tax society here. We're in legal society, so we're still okay with the moon.

Yeah. But, but the, the, the problem with the moon on the calendar is that you have 13, 13 lunar cycles in a solar year. And so that's why that, that comes out of sync eventually. And that's, that's why I, I said, I don't say Chris, did you, Did you wanna say something Chris? Just, just obviously the, the, the question there is outta sync with what, I mean, clearly the moon is outta sync with the sun in the sense that you can't, you, you can't have, you can only get it. You can, you can only get the months synchronizing with a, with a, with a, with a, with a year. But having artificial months and, and just a some, some bishop as obviously in Europe ends up deciding that there's 31 days or 30 days or 28 days and all that stuff. But, critical, surely about the switch over from the, the moon to the sun, you can organize a hunting expedition once a month and, and hopefully be able to fit, catch the animals by full moon and it's safest to be out, out at night. But what you can't is, when as soon as you get, a agriculture, you can't, you can't sow the season and reap the harvest. You need a whole year and so obviously the seasonal calendar is, the solar calendar begins to take priority and of course connected with that.

As, as I think John's point pointing out, you then begin to get, not immediately states of course, but you certainly begin to get mu in increasing intensification of patriarchal power at the expense of a, of a system which was much more egalitarian and much more hum women's monthly cycles. So, I mean, sure, sure, the moon's outta sync, but why would that be a problem? I mean, it was originally not a problem, but it becomes a problem when when the seasonal Canada begins to take priority because you're into, you're agriculture.

But, I, I'd like to come back on the agriculture and the moon because I know people here in Norfolk who do all their planting by the moon and, in a beef for instance, there's a lunar calendar published every year, and that's what the farmers go on.

Mm.

So they're farmers, but they're still running it on a lunar calendar. Right.

You can do that, you can do that, John. But there's, there's no absolute, there's nothing obligatory about following the moon. I mean, I can understand why people like to following the moon, but I mean, it's I'm not sure it's got quite the same coercive necessity as it, But listen, that we're, we're talking about something that's a transitional state, isn't it? Between where John's identifying that there's still a very strong focus on the moon by, on a, on a large scale time cycle with these temples clearly of great importance before it shifts. And, and it's sort of a background of subsistence agriculture, which isn't really to do with hunting next week.

We are going to hear from Bernie Taylor on the Luna Timekeeping of the Upper Paleolithic, but it is an intersection of Luna calendar with a solar seasonal calendar because it's a northerly latitude of upper paralytic. so these, all of these cultures are working at how to reconcile the moon with the seasons, but there are many mechanisms for just letting slip the just you can just slip through the winter months to, to bring up the spring moons and the observations that, that, that, that, John was focused on, for instance and we'll hear about it, in respect to ethnographic calendars next week as well. so, so I, I think it's, we, we, we can't just say it's just hunting, just farming. It's, there's, there's a kind of transitional state between the two for quite a, Can I just say that the, the, the, the little, possibly bit of imaginative reconstruction that I'm, I most enjoyed from your talk. John was the idea of receiving the moon as a, as a guest, as a visitor. of course that immediately takes me back to this idea that so many hunter gallsers have. Wh which is that the, the moon is women's other husband and that while the moon's not visible in the sky while, while it's dark, the moon has been welcomed by, by women as their other husband. and of course the, the, the, the sign of that visit from the moon is, is, is, is menstruation. And it's just lovely how you, how you sort of picture the architecture of those, those, those temples as, as in support of that, that here is where the visitor arrives. It's welcomed.

It was really lovely. Really lovely, lovely touch There. There's some very nice stuff in the chat. Audrey, did you wanna say anything about some of the background stories that associate, and also Ivan, you had something there on the snakes might be worth saying something. I dunno if Audrey can speak.

Ivan, do you wanna talk about the snakes just a bit? Just mention it? Yes. I can't remember in, in complete detail. but we were, me and Brian Campbell were out there. We took some students on a field trip, this year to Malta, and we actually managed to visit the hyper gym as well and when we were on tours of other archeological sites, and Malteses man was telling us Brian's Maltese as well, so he'd know the story, but I don't think he's here anymore. I'm not sure. Anyway, it was a kind of very much like a St.

Patrick story of someone clearing or getting rid of all the snakes from the island. And I mean, I've got a feeling there's quite a few stories like that across the world, but I interpret it as probably kind of an ending of, female associations with serpents or something like that. I don't know.

That's just my interpretation. That's Still solidarity pretty well.

Yeah, exactly. Yeah. So, and I thought it, I thought it was really interesting. Cause like you say, I think what's interesting here is with these kind of temple complexes, you shouldn't really think that they're probably some kind of, egalitarian society.

It's more likely that they're appropriating symbols from earlier, egalitarian, gender egalitarian, gr groups, ? So take the moon obviously would be clearly a, a super important symbol and it, and it has to perhaps be invited into houses as a way of kind of preserving, maintaining that power, or what's the word I'm looking for? appropriating that power for a different kind of social organization.

That's what I would assume. And those places, and when the, the, likewise with, with the underworld stuff, when I was in the hyper gm, that's kind of what I was thinking of. This is a way of perhaps appropriating, a different kind of symbolic order that, that that was mapped onto a different social order into this new, more patriarchal order. That, but I could be talking nonsense.

I don't know.

Is is the mortuary behavior also shifting from a collective treatment to something that's more individualistic or what, or do we have any idea about that? I don't know. I, I think what we have to go go on is the Dara ex excavation, which of course, Wasilla.

So it may be that Gozo was slightly more old fashioned, Right? In Tar Gene. There might have been a distinction between the two islands, and between those two gro groupings, I mean, all the stuff at Toxi is much later, it seems to me that the colonization, the initial colonization was gozo.

Yep.

Mm-hmm. And it, it spread gradually into water, but the tox gene is, is the later period, and then it reaches saturation, and then we get to the point at which the whole thing dies, dies out anyway and we're not quite sure why. sorry, I've lost the question.

just if the, if the mortuary practice shifted from collective to individual, because of course that is right, is a characteristic of some of the, neolithic barrels in, in this country, isn't it, it Within Zara, within the Zara circle, it seems to have been collective throughout, but this isn't necessarily true of the house.

Sure. sure. Watery complex, but we don't really quite know about the house A because the excavation record 19 two has all been lost, Right? Yeah. Ah, what's Sacri what ridiculous.

Just one other thing. We were talking with Marcel here, yeah.

On, on the idea of the incest to Bill and we would think in terms of those nine year intervals marking the nine years inside the sun, the nine years outside the sun in terms of age sets put quite significantly. And of course you could work, do you remember Chris about Wendy James? I Do, Yeah.

So the age sets could indeed work in terms of marriage prohibitions to Aja. Well, you could marry adjacent age sets.

You could never marry within age sets or, or double age sets. Yeah and it, it would make, you'd have a sort of collective and synchronized initiation rituals, which wouldn't be every year they, they they'd be much more, much more widely separated in years and, and linked to these, Nine, nine year, these Nine year cycles. Yeah. Would, Would make it quite, that would, fit patterns that quite, characteristic for pastoralists, potentially, if there was a lot.

Yeah.

Just one more little point, which is just that, the ob an obvious connection between the moon and the stars and a possible way of sort of reconciling different theories. It's just that, you, you can only see the stars really properly when the moon isn't in the sky and of course, to see the maximum number of stars and to see the milky wave brightest, you want the darkest, darkest, darkest and longest night you'll ever get. Of course, as Lionels pointed out if some, um some statement ask the engineers, can they bill me something so that we can have the longest, longest night and ha and make sure that our settlement is are happening then, I mean, that will be, when the, when the winter solstice exactly.

Coincides with a, with a, with a, with a new, with a dark moon. So, I mean, and that would just give you you couldn't ask for more stars visible in the sky and given that hunter gatherers almost their motto, and we know that from the heads, but so many other groups, I mean, their motto is something like, let there be darkness.

Because without the darkness you can't see the stars and you can't really, you Right. Can't really communicate with them, with them as some kind of ancestral spirits in some sense. Then you, we, we can see why darkness was so important and why why all these temples seem to be oriented in that direction.

But anyway, I thought that was a, a really very, very, very brilliant, presentation, John. Very, very interesting and just interesting, isn't it? How, how actually, how, how closely your interpretations mirrors Lionel's interpretation of Stonehenge and Avery Stone circle with the moon running through its phases, sort of 'reversing time', all those things. It's wonderful to see that what Lionel was finding isn't just confined to Wiltshire. It's so much, so much more widespread.

That was a really great exploration, opening up all kinds of things there, John.

It's, it's helped me get some idea of some sort of grip on this extraordinary culture in these extraordinary, archeology and skyscape archeology is without any question key in interpretation.

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John Cox

Courtyard and coincidence in prehistoric temples in Malta and Gozo (Seminar)

June 6th 2023

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