It’s 4 o’clock in the morning on the 21st June 2017. The summer solstice. The sun is rising over the Marlborough downs, illuminating the ancient landscape at Avebury in Wiltshire. It will be busy there this morning – not as busy as Stonehenge, but it’s a beautifully clear day and the experience of midsummer sunrise at an ancient monument is always a big draw for visitors. I’m here at Virtual Avebury, a simulation of the Avebury henge monument that I constructed in a virtual world called Kitely, and today I’ve set the environment here to be midsummer sunrise. That’s one of the benefits of virtual technologies; you can experiment with landscapes, objects and the environment to try out ideas about how an ancient, and partly lost, place may have looked in the past. But I would stress MAY have looked. This simulation is just that – a simulation. It isn’t a reconstruction. It can’t be. We don’t know how Avebury looked in the past, and as it is estimated to have been constructed between 2,800 to 2,000 BCE and there is no written record, we probably never will know.

So, this simulation is my interpretation of archaeological evidence, and the interpretations of archaeologists and historians, of how Avebury may have looked around 2,200 BCE. I’ve tried to stick to the evidence as far as I can, but the evidence is inevitably overlaid by my own interpretation. Avebury henge is a large, approximately circular, earthwork with a ditch on the inside and a bank on the outside. That’s what makes it a henge. It contained at least 3 stone circles; one that lined the inside of the ditch, and 2 more that stood inside the henge and surrounded further stone settings. Today the henge has a village inside it, roads leading into and out of the original 4 entrances, and few of the original stones remain standing. So, experimenting with how the henge and circles may have looked at certain points in its history, might help us to understand possible sequences and uses of the monument.

One aspect of Neolithic monuments that attracts significant attention is their alignment to sun and moon positions through the year. The apparent midwinter sunset and midsummer sunrise alignments at Stonehenge are famous, but solar alignments at Avebury are less clear. However, it has been commented upon in the archaeological literature that the back stone of the 3-stone setting in the centre of the Northern circle faces the midsummer sunrise. So I thought it would be interesting to see what that might have looked like when some of the original stones were in their positions. But, again, this is a simulation, because some of these stones are now missing and we have no record of their height at the time they were in situ.

The most striking effect in the simulated sunrise at simulated Avebury (!) for me is the shadows that the stones cast; you’ve just seen how the tip of the shadow from the stone in front of the Cove hits the back stone. So I wondered what effect the sunrise might have on the stone setting in the Southern inner circle. The megalith in front of me is known as The Obelisk, but it no longer stands at Avebury today. At the time that William Stukely was writing in the 1740’s, The Obleisk had fallen, but was still there. He recorded it as being approximately 18 feet tall, so that is the height I have used here, less 3 feet or so for its setting in the ground.

The small stones to the right of The Obelisk are known as the z-stones, and are redder in colour than the predominantly grey sarsen megaliths of the circles. You can see how the midsummer sunrise shadow hits one of the stones, known as stone 105 in the inner circle, and how the Obelisk shadow cuts the 8th z-stone. This may, of course, be a coincidence, but the similarity between the shadow strike on the Cove back stone and stone 105 is quite striking.

Of course, all of this may mean nothing! I may have got the sizes and places wrong, or misinterpreted some of the evidence. But in a sense, that’s OK! The point about trying out ideas in virtual environments is not to get it right, particularly when there is no way of defining right, but to learn from experimentation!