

## Upheavals in the third century B.C.

J. R. Hoyle

Aubrey Burl in his book on Avebury, describes how after well over a hundred years of monumental effort, the great ring of Avebury was complete, as were the Avenue and Silbury Hill, the greatest manmade mound in Western Europe. This ring, with an average diameter of just under four hundred yards and whose surrounding ditch is three quarters of a mile long, was not to remain in use for very long. Whilst the great sarson rings of Stonehenge were being built, Avebury was being deserted and overgrown. The exact dates for the start of these changes is uncertain, but it was perhaps as early as the middle of the third millennium B.C.

Recently, my son Robert, had a holiday on the Isle of North Uist. There he found stones, of a size suitable for use in large stone rings, which were in the process of being quarried. Large slabs, the largest was over 23 feet long, had been raised at one end, probably with long levers, and then stones had been placed underneath to stop them falling back. Some of the stones had been raised sufficiently to have had small cairn like piles under them. This was in an area where there were several megalithic standing stones, alignments and rings. The work on these stones must have stopped very abruptly. It seems that they ended work one day and then never went back. Photographs taken by Robert show the extent of the work done and indicate how quickly the work stopped.







The top two photographs show a portion of the 23ft. foot long stone. It has been levered up sufficiently to place stones underneath, so that it is easier to move. It is probable that this stone was intended to be stood vertically, to act as a foresight that could be seen from a considerable distance, perhaps from a standing stone.

The three other photographs well illustrate the method of breaking off a large slab of rock. Levers would be used to lift one end and then smaller stones would be forced into the small gap thus produced. In Egypt, dry wooden wedges were driven into cracks and water was poured over. This caused the wood to swell and eventually the rock would split. The method was probably used here to initiate the crack.

It should not be too difficult to extract a second slab of rock after the top one has been removed.



This is a closeup of one of the supporting stones. (The map at top right is there to give scale, not to support the rock!)

The question that arises is why, perhaps four and a half thousand years ago, the workers one day left their work half finished and never went back. Something must have changed very quickly. Was the change so profound that it removed the need for the rock slabs that they were producing?

Photographs by Robert T. Hoyle

The recent discovery of very impressive Neolithic Remains on the Ness of Brodgar on Orkney was not only unexpected, but showed that the Orkney islands were a centre of power and influence from perhaps well before 3000 B.C. to about 2400 B.C. The power and influence of the area declined in these later years. However, around 2400 B.C. there was a great feast around what is now known as structure 10, in which at least 400 cattle were slaughtered and eaten. As the wealth of people largely lay in their cattle, the slaughter of such numbers must have bankrupted the powerful in Orkney. If it was a celebration, then it was a celebration of the victory of the Stonehenge people over the people of Orkney and the areas over which they ruled. Structure 10 was then destroyed, covered over and forgotten for over 4000 years.

Following the end of the ice age, it seems that people reoccupied Britain from two main directions. Some moved northwest through Central Europe and crossed the land bridge into southern and eastern Britain, whilst others moved, mainly by sea, from Spain and the west coast of France, into the west and north of the British Isles. I have argued that they had very similar religious views, but had different units of measurement. In the west and north they used a unit of 2.97 modern feet, which could be divided into three units of 0.99 modern feet. As these are only 1 percent less than our modern foot, I have called these units "The Old Foot" and "The Old Yard". My analysis indicates that The old foot was also used in groups of 5 to give a unit of 4.95 modern feet, which I have called the "*old five foot unit*", or the "*ffu*". In the south and east they used a unit of 2.72 feet, which is Thom's "Megalithic Yard". There must have been other differences in their beliefs as well, but it is not easy to determine what they were. Where peoples with different religious views meet up there are often tensions, even though their views may not be very different. In fact, it can happen that the closer the religions are to each other, the greater the tensions, as illustrated by wars between different strands of Christianity and again by Shia and Sunni branches of Islam which are also not immune from such problems. In Britain, the dividing line between the two groups of people, seems to have passed between Avebury to the north and Stonehenge to the south. The difference is only about twenty miles. Avebury to the north used the Old Yard whilst Stonehenge used the Megalithic Yard. The Aubrey Hole ring is peculiar to the Stonehenge area, in that it uses the Old Yard and not the megalithic yard. If there is any truth in the story of the Bluestones being brought from the west and of them having to be arranged in exactly the same way as they were in their original setting,



then it would explain why the Aubrey holes were set up using the Old Yard. It would also explain why the Bluestones were not set up in the Aubrey holes, as they used the “wrong” unit.

My analysis of ring diameters show that, in Scotland, the large rings with diameters over fifty feet demonstrated no evidence for the use of Thom’s Megalithic Yard, but showed considerable indications of the use of the Old Foot, used in both groups of three and groups of five. For small rings the evidence for the use of Thom’s Megalithic Yard was unambiguously strong. As large rings tend to be older than small rings, it would seem that the use of the Old Foot was superseded by the use of the Megalithic Yard.

These lines of evidence strongly indicate that sometime in the middle of the third millennium B.C. there were great changes that radiated outwards from the Stonehenge area and ended when the instigators of these changes reached the Orkney Isles. Frustratingly, the dating of these events is somewhat vague, so it can not be ascertained how quickly they happened.

It has been argued previously by me that there must have been considerable tensions between the tribes around Stonehenge and those of Avebury. It seems likely that these boiled over into actual conflict with the defeat of the Avebury people. If so then the Stonehenge people would have become the most effective power in the area and it would only be a matter of time before they spread their influence much wider. Although this is only conjecture, something momentous must have happened, as the Avebury complex was allowed to fall into disuse and become overgrown. Also around this time work was started on the great rings and trilithons at Stonehenge.

To the north, in Derbyshire, lies the enigmatic ring of Arbor Low. There is an oval surrounding bank, about 83 metres long by 75 meters wide, with two entrances lying SSE and NNW. Inside the bank is a ditch with corresponding entrances, whilst inside the ditch lie about 42 limestone pillars. They are not standing, as no stone sockets have ever been dug. They are arranged in a rough ellipse with dimensions given by Burl as long axis 82.9 metres and short axis 75.0 metres. These correspond to 55 old five foot units, 50 old five foot units and an interfocal distance of 23 ffu. (The exact dimensions of the right angled triangle are 23, 50 and 55.036).

It seems that the builders selected and moved the stones from an outcrop some distance away, moved them to their present position, dug the ditch through solid limestone and built the surrounding bank, but perhaps not in that order. For some reason, after all that effort, they never dug the holes in which to erect the stones. It has been suggested that the stones were originally balanced on their ends and later fell down, but is it reasonable to believe that the builders, after so much effort, would fail to dig sockets for the stones and so leave the stones in such a precarious manner?

It is far more likely that the armies from the Stonehenge area moved northwards and prevented the completion of the Henge monument of Arbor Low. Then, again moving northwards, they conquered and prevented the use of the older belief system, until they reached the Scottish Islands and Orkney. There they feasted on the cattle of their opponents, after having completely smashed the rival belief system. From then on, the only rings to be built would use the Megalithic Yard.

There has been considerable controversy concerning the source of the sarson stones that have been used for the great rings and trilithons at Stonehenge, but refined analysis of these rocks has almost certainly identified the source. David Nash and his team used mass spectrometry on rock samples, obtained from around Stonehenge, and identified the concentrations of twenty two elements, which were then compared with similar elements from other possible sources. The most likely source for these sarson stones was found to be West Woods, a place that is only about three miles south east of

Silbury Hill and so well within the domain of the Avebury ring builders. After their victory, the Stonehenge people could take rock from wherever they wished and could use slave labour to transport twenty ton stones twenty miles to the Stonehenge site.

Below are maps of Britain showing the distribution of the use of the Old Yard and the Megalithic Yard in stone circles.

Of the 67 rings plotted for Scotland:

1. 23 rings satisfied the double Meglithic Yard of 5.44 ft. to within 0.544 ft. ie. 0.1 units.
2. 24 rings satisfied the Old three foot Yard of 2.97 ft to within 0.297 ft. ie. 0.1 units.
3. 20 rings satisfied the Old Five foot length of 4.95 ft to within 0.495 ft. ie. 0.1 units.  
(By chance, in any group, only about 13 of these rings would be expected to satisfy the above criteria.)

Number of rings satisfying:

Criteria 1 and 2	5	Criteria 2 and 3	7
Criteria 1 and 3	5	All criteria	2

The diameters of five rings do not satisfy any unit.

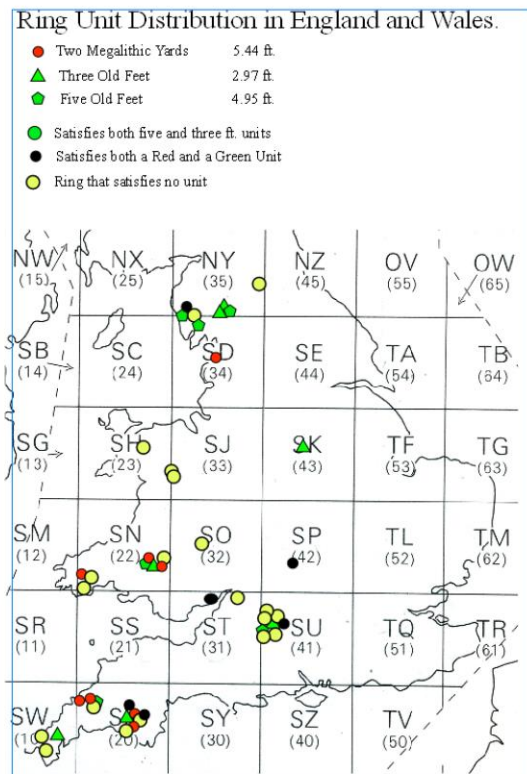
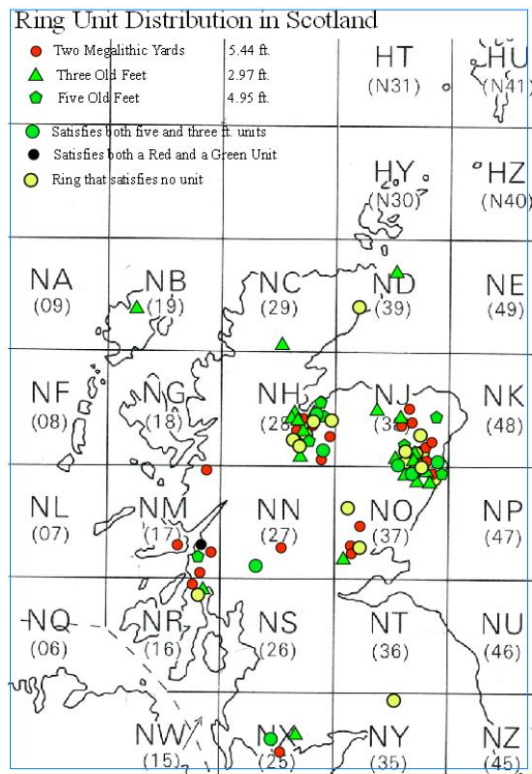
Only rings with accurately determined diameters were selected for inclusion in the following maps.

The distribution of rings in Scotland clearly show that the green coloured rings predominate, accounting for almost two thirds of the total number. These are the ones that use the old foot and tend to be the larger rings. The red coloured rings, the ones that use the Megalithic Yard, are fewer in number and tend to be smaller. This distribution is consistent with a conquest of Scotland by the armies of the Stonehenge people and replacement of the *old foot* unit by the *Megalithic Yard*. The Islands around Scotland must also have been invaded and, as at Arbor Low, work on monument building came to a stop.

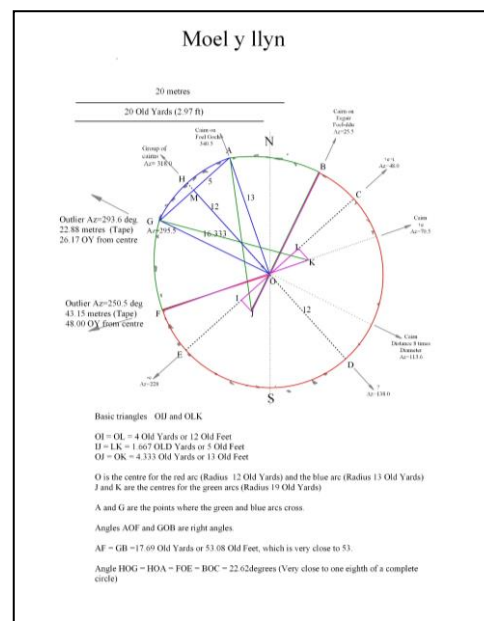
Taking what must have been a huge army to the north of Britain, was an undertaking that would have to travel the best part of a thousand miles, cross dangerous seas to reach many of the islands and would have been very difficult. There must have been years of meticulous planning. Bows and particularly arrows must have been manufactured in huge numbers and made to the highest standards, as there would be little chance to manufacture them whilst on the march. Arrow heads would also have had to be knapped by those best skilled. The soldiers would require training, clothing and the equipment needed to live outdoors for extended periods of time. The organisation would have been enormous. No doubt they would have been expected to live largely off the land, but that could not be relied upon. It is also certain that for years preceding the invasion there would have been spies feeding back information.

Even with the best of preparations the expedition could have been a disaster if they had not secured their home base by attack from the west whilst the army was away. Possibly the legend about the seizure of the bluestones from the Preseli area has some truth in it. Was this an expedition to secure their western flank from attack? If so the destruction of the Preseli prized ring and the killing of many of their leaders and young men, would have gone far to demoralise those remaining, especially so if many others died as slaves whilst transporting the stones to Stonehenge.

## Distribution of rings showing the units used in their construction. (Green for the old foot.)



Not all their leaders would have been killed. Some, together with many fit and able men and women, would have fled to remote areas, such as the wild central areas of mid Wales. It is in this area that my son Robert visited two remote and interesting stone rings. I had heard by word of mouth about one of them thirty of forty years earlier, but could find no information about it and there was no indication of it on the large scale O.S. maps that I had. Later editions of the 1:25000 O.S. maps did show it and it is now called Moel y Llyn stone circle. The probable reason that it had not previously been recorded is that the stones are very small, not standing any higher than the tufts of rough grass, so that it is unlikely that anyone walking past would be aware that a ring was there. Later Robert and his younger brother David made an accurate survey of the ring, which is reproduced here.



The ring has a fascinating geometry involving two pairs of 5,12,13 triangles, one using dimensions in old yards and the other old feet, so that there can be no doubt as to the units used and the ring has several construction lines well integrated with the surrounding remains. The question then is why does such an important ring have such small stones when there is no shortage of much larger ones? The answer that suggests itself to me is that the builders of it were some of the people driven into exile by earlier wars and who wished to continue to worship their old gods. To do this openly could be dangerous, so it was necessary to conduct their

worship as secretly as possible. A prominent ring with large stones could be seen as an act of defiance and bring retribution.

The second ring, Lle'r Neuaddau, similarly has small stones. This is much smaller and has a simpler construction, but still uses the old yard. It is nearly circular, but one half is a half ellipse. More details on both rings can be found in the section on Recent Surveys. Robert and one of his sons have since surveyed another ring, Carn Caca, in South Wales, that uses small stones and is not easy to see. It is interesting in that it is an egg shaped ring based on a pair of 3,4,5 triangles that use the Old Yard.

Less than a mile south of Lle'r Neuaddau lies the Hirnant cairn circle. This uses 5,12,13 triangles and an elliptical big end, but clearly uses the Megalithic Yard. It also uses larger stones and is much more prominent. There is a clear suggestion here that the local inhabitants had discarded their belief in the power of the Old Yard and Old foot and accepted the Megalithic Yard as the standard of length, but had retained many of their other beliefs. There must have been very much deeper differences between their beliefs, but it is not likely that we will understand what they were. The examination of the use of different units though has thrown a light on some aspects of the history of the third millennium B.C. that would be difficult to determine by other methods.