Newsletter 77 Spring 2023

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A slight blip in editorial policy

With very few exceptions the content of this newsletter has been confined to the iron industry of the Weald. Thus articles have been concerned with what happened in the Weald and/or how the Wealden iron industries affected other parts of the world.

We have, in this issue, a short piece by Judie English which deals with some attributes of pre-Christian smithing deities. This is included because, whilst evidence of such deities in the Weald is almost non-existent, the ubiquity of religious frameworks for metal-working makes us infer their existence. Points of reference (which might inform a search for evidence) are needed. The evidence, if it is to be found, may be artefactual or perhaps (a long-shot) epigraphic.

Regular readers of the newsletter will recognise Judie's article as a continuation of a theme we have been following for some time.

There is, of course, solid evidence for iron-related magic in the early modern period. This is mostly in cast iron firebacks, but the use of horseshoes for luck and nails for protection is well known. However, this evidence belongs to the fully christianised era and most of that apotropaic magic is expressed with outwardly Christian symbols (See newsletter No. 76). We lack convincing evidence for earlier ages.

A picture of history

In a recent visit to the Uffizi gallery in Florence, I came across a picture catalogued as 'Landscape with Mines' by the Flemish artist, Civetta dated 1525. In fact, it illustrates far more than mining as there is a blast furnace to the right and a forge to the left as well as mine shafts. Civetta, also known as Henri met de Bles, was a native of Bouvignes in the Walloon region of present day Belgium, where presumably he painted this landscape.

The blast furnace has a thatched roof and flames can be seen emanating from the top of the square shaft. The bellows are powered by an overshot water wheel and the wheel race flows under the track through an arched stone culvert. The furnace casting arch is evident and what appears to be a large sow recently cast. Another sow is being manhandled to a pile in the foreground by eight people, one of whom appears to be a woman. There is a steep hill above the furnace, presumably used to gain access to charge the furnace. The end of a building to the right of the furnace could well be the charcoal store.

The illustration of the forge shows two hearths, one with a chimney above it and bellows to introduce air. A rather spindly 'spider' appears to be the mechanism for blowing the bellows. Possibly for artistic licence, the hearths are shown as exposed in the front of the forge. Highlighted by the left hand hearth is the forge hammer – a rather small looking piece of equipment, maybe the artist's attempt to produce perspective. A heavy shaft appears to operate the hammer, presumably via cams. Finally, note the owl hidden in the bottom left corner, the trade mark of the artist.

The description of the picture is of iron mining and the media, oil on canvas. It came from the Medici collections probably as a result of Francesco I's interest in raw materials and mining.

Should anyone have the opportunity to visit the Uffizi, the inventory number is 1890 No 1051 ***(cont. over)***

A number of virtual tours of the Uffizi are available on the internet such as: https://joyofmuseums.com/museums/europe/italy-museums/florence-museums/uffizi-gallery/

But strangely I cannot find 'Landscape with Mines' on any.

The Gallery also contains magnificently painted ceilings, one of which shows the manufacture of cannon and various workshop scenes. More about this in another item.

Tim Smith

A further note on Henri Blés

The picture to which Tim Smith draws our attention (in the note above) has been published before. It appears in **Évrard, R. (1955) Les Artistes et Les Usines à Fer**. **Éditions Solédi, Liège.**

A point of interest is that, at that time, it was known as *Paysage avec forges et minières.* Those in charge at the Uffizi have evidently lost the expertise that would have allowed them to understand the significance of the content of their painting.

There is no doubt that the painting contains information which is important in the study of the Walloon process. Henri Blés painted several versions of this picture. Each differs in the background of castles, mountains and so forth, but the details of the forges and the furnace are held constant. The spatial arrangement of the furnace and forges is unchanged between versions. Similarly, the details of the apparatus do not change between versions. Even the people and their carts remain in place.

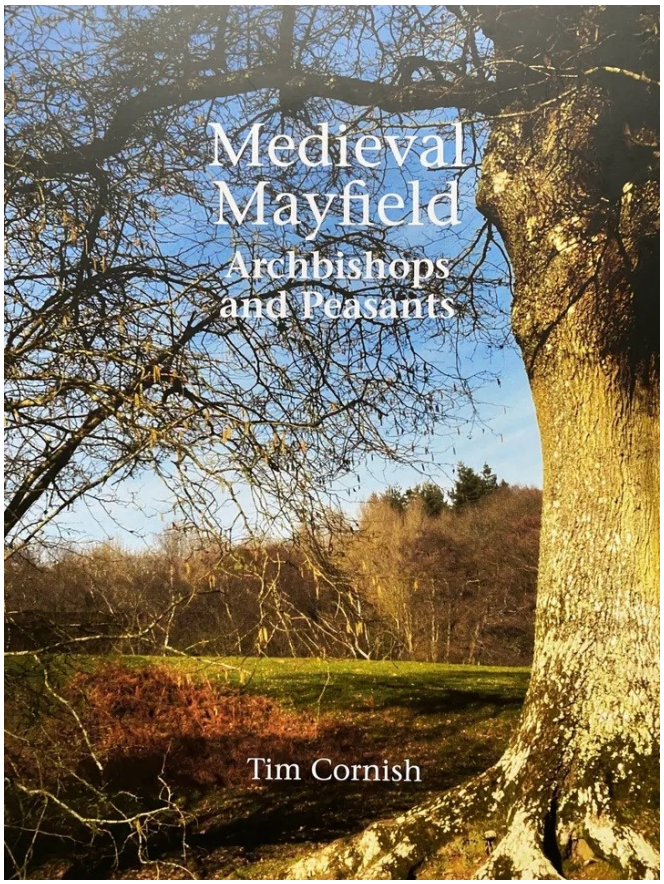
We can infer that these technological details were captured in a sketchbook and reused. The backgrounds can be seen as pretty, but imaginary.

In recent years a huge effort has gone into digitising collections of images. This example severs as a caution that it may be difficult to locate technological details if the images' curators do not title their collections correctly.

MEDIEVAL MAYFIELD

A new book has been published by Tim Cornish, a 330 page fully-illustrated hardback entitled "Medieval Mayfield: Archbishops and Peasants".

The book details the development of the High Weald



and the role of the church but also includes elements relating to the iron industry. A context is provided for the introduction of the blast furnace by Archbishop Morton in the 1480s as part of an armaments strategy to secure the continuance of Henry VII's vulnerable regime. There is also a section on a high profile merchant called Gilbert Maghfeld who, as a member of the "Mystery of Ironmongers", imported large quantities of high grade iron ore from Spain in the 1390s.

Full details are to be found at www.mayfieldtimshistory.org

Tim Cornish

VAGRANCY AND WEALDEN IRONWORKS

Furnaces and forges in the Weald were almost always located in remote places, down in valleys and away from villages that occupied the ridges between them. Often they were the abode of people who spoke a foreign language or with a strange accent. But they were warm places in wintertime when they were most likely to be working and perhaps were places where no questions were asked about who you were or where you had come from. Vagrancy was a common feature of early-modern England where, from Henry VII's reign, it was an offence to beg if you were deemed capable of work - a 'sturdy beggar' - punishable by whipping or placing in the stocks. The options were to find work or starve. The unfortunate individuals whose plight this was sought places where they could escape the attentions of those in authority, such as local landowners and the clergy. Too often we only hear of the victims of these circumstances when it was already too late, in the burial records of Wealden churches.

Crookford Furnace and Worth Hammer, which we know of as Worth Furnace and Blackwater Green Forge, were where three such cases were reported in the register of St Nicholas's church in the 1580s. All occurred in the winter months. Each was "a poore man" or a "poore fellowe". One of them, in November 1588, was "a foreigna being a traveller falling sicke at Worth Hamer". This time someone had taken pity on him. He had been taken in by a local person who evidently lived at the Hammer, perhaps a finer or hammerman who the local Rector recorded in the register as John Curtess.

Pregnancy out of wedlock may have been a reason for women to seek the anonymity of ironworks. The baptism register at Haslemere in 1607 records the christening of "a maiden child hight Grace of an unknowne father from Mr Robert Quynnel's furnace in Chiddingfold". Two years later someone called John – no-one had got to know his other name – from the same furnace was buried; just someone who was there at the time.

Occasionally we know more about an individual. Such is the case of Robert Grosmere, or 'Black James', an inveterate vagrant who the magistrates were keen to lay hands on in 1614. In the Quarter Sessions records we hear that on Tuesday 19 April

> *the deponent laye at Dedisham ffornace in the company of Jo: Ashley and his wife, Willm Blunden, John Botting, John Michell and other wandering people. And on Wednesday he left the said company and went alone to Amberley where he was layed by the heeles a while and after kept there in a house threatened to be sent to the house of Correction and there he remaind that night and on Thursday mornyng he came down along by Cowfold wandering till he came to Byrchen bridge fforge where he laye in a Barne neare to the said fforge all the night without any company and yesterday being Friday about ix or x of the clock he went thence towarde Cowfold again where he sawe the said Blunden and Botting againe but staiyed not with them and from thence he came down to a barne in Hitchingfield where he was apprehended the last night* [22 April] *by the constable.* ***(cont. over)***

The Poor Relief Act of 1601 established a system of relief for the 'impotent poor', those too ill or old to work, but dealt more harshly with the likes of Robert Grosmere and the other "wandering people" with whom he associated, and which included a husband and wife. His stays at Dedisham Furnace and Birchenbridge Forge indicate that such places were where he and others knew they could expect to find shelter and perhaps something to eat.

As we have already observed, it was not only travelling men that frequented ironworks. Arthur Ponsonby, in *The Priory and Manor of Lynchmere and Shulbrede* (1920) mentions three entries in the registers of Linchmere of the burial of vagrant females from North Park Furnace in the 1630s. One of them was the particularly tragic case of Eliner, the child of Mary Percival, "a wandering harlot", who, one presumes, accidentally died of burns there.

There will be other examples of vagrancy at ironworks noted in Wealden parish registers and Quarter Sessions records and if any readers come across them I should be interested to hear of them.

Jeremy Hodgkinson

Anomalous object located at Tanyard Cottage, Newick Lane, Heathfield

This object is approximately 1400 x 400 x 100 mm. and appears to be mostly made of iron with inclusions of other material. If it was more rounded we would probably not hesitate to call it a bear. However, this looks as if it could be the result of a break-out from a furnace, not something that had to be hacked out of the furnace stack. There is no obvious ironworking debris in the area, but there is a large amount of typical farm detritus. (Geologically the find site is located on the Ashdown.)

It is about 2.5 km from both Bungehurst Furnace and New Mill Furnace, both of which were probably in the ownership of the Baker family at some time. The property on which the object is located is also thought to have belonged to the Bakers.

The object is very heavy and must have been moved to site for a specific purpose. Use as an element of the nearby cottage, either for structural use or in a fireplace are possibilities. What comparable examples exist?

Gathering ore for the experimental furnace

We have used most of the ore we previously collected and blended for the experimental furnace at Pippingford.

Previously we collected this from a stream at Beacon Wood, near Biddenden in Kent, but it is a very steep climb out of the valley making it hard to collect a sufficient quantity for our annual campaign of smelts. Before Beacon Wood, we collected ore at Sharpthorne brick quarry, but the quality was very variable.

Hence, in March this year, we explored an area around East Hoathly where there had been a number of both bloomery and blast furnaces and promisingly named woods – Minepit Wood and Cinder Wood. We explored the side streams running into the Bull River in both woods, but without success. There is still the possibility of looking further upstream here, north of Scallow Bridge, where the geological map shows an extension of Wadhurst clay, but in March the river was too high.

Hence, we returned to Beacon Wood and have extracted about 150kg of ore from a side stream of the small river that runs East through Benenden and passes under Stepneyford bridge where it is joined by a second stream from the north.

We carried about 50kg of our ore cache 1km or so up a steep slippery path to our cars, and have broken, roasted and crushed this at Pippingford. Due to the weight-loss on calcining as CO_2 and moisture are driven off, and the production of fines on sizing, this produced only about 15kg of ore sized to 1-2cm for the next smelt.

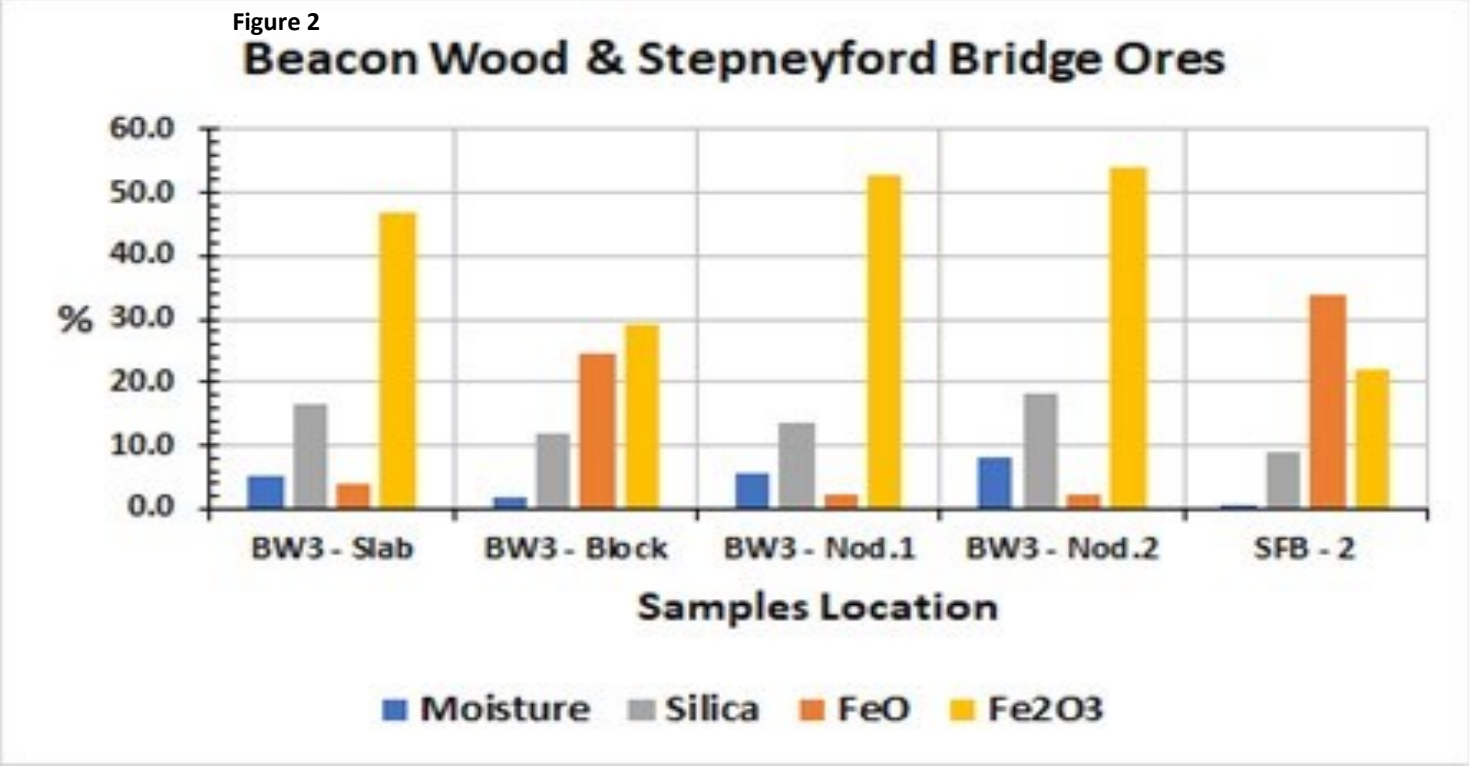
Figure 1. Multiple morphology of ore collected

Member, Alan Davies, expertly conducted an analysis of the raw ore which came in three distinct shapes – plates 1-2cm thick, blocks 3-4cm thick and nodules. Unlike previous ore collected from this source, much of the carbonate ore (siderite) had been oxidised to a hydrated form of oxide known as limonite. Fig 1 provides the analysis for iron and silica.

If you would like to join us prospecting for ore, contact Tim – details below.

Smelts take place on the first Saturday of the month from May to October with the second Saturday held over in case of wet weather on the first Saturday. WIRG members are invited to come along any time during the day (7am to 5pm) but let Tim know on 01403 710148 or e-mail secretary@wealdeniron.org.uk in case of any change of plan. If you require directions to the site contact Tim as above.

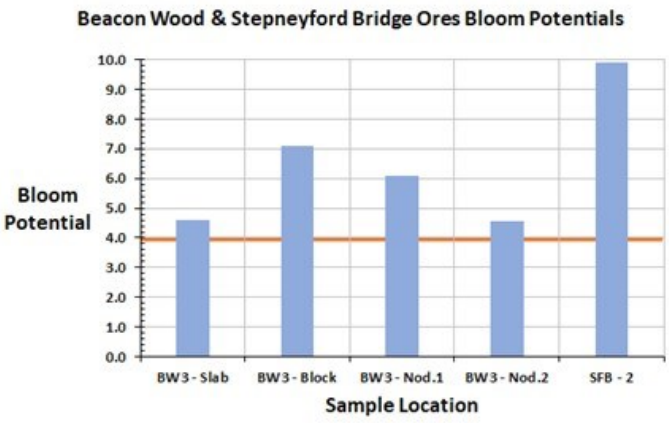
Figure 2



The key property of an ore for a bloomery furnace is the ratio of the silica to the iron oxide present as the silicon combines with the iron to form slag. This is why in a blast furnace limestone (or sometimes on the Weald, chalk) was added as a flux, the calcium so introduced combining with the silicon in preference to the iron doing so. For a bloom to form, the ratio of the elements Si/Fe must be above 4.

All the forms of ore collected had ratios above this value so could be smelted to a bloom. However, the thin slab material, which proved the hardest form to break, and some of the nodular material, were barely above this value at 4.6 (Fig 2). The thicker block material was much better at 6.1, although the prize goes to a nodule collected near Stepneyford bridge at 9.9. Unfortunately, we found little ore at this location – but will search upstream as the area is much more accessible than Beacon Wood.

Figure 3



Tim Smith

AN UNUSUAL FIREBACK

While the foray to Wartling may not have discovered the hoped-for evidence of a lost ironworks, it did yield a rather remarkable iron fireback, the like of which I have not seen before. It is a hefty casting, 88cm wide and nearly 120cm high, and somewhat inexpertly cast as it is substantially thicker on the right side than on the left, indicating that the sand mould was not level.

On its surface is a wealth of detail, some of which is no longer easy to identify, but all of which is typical of the early-17th century, with strapwork, guilloche patterns and gadrooning as well as cherub heads and plenty of scrolls. There are classical allusions with a couple of heads of deities facing outwards from beside the central panel and, in the lower panel, *rinceau* work reminiscent of a plasterwork frieze. Although the design appears to be symmetrical there are minor details which belie that, such as the odd little figures below the heads of the deities already mentioned. They are not the same on each side but, such is the indistinctness of the relief, they defy interpretation. Similarly, above the heads of the deities there are rows of vertical features, two on the right and four on the left; one can only guess what they might be.

The whole fireback will have been cast in a mould formed from the impression of a single carved pattern or model, and it would be surprising were this to be the only casting made from it as its production would have been a considerable expense for just one back to have been made. It bears no date or initials, although the small panel in the centre, which has the appearance of a funerary monument, would have been a suitable place for such. Although it bears decorative features common across Europe at the time, it was most probably cast in England. Enquiries as to what the design represents or where it might have originally been located are ongoing. Whatever its origin it is an impressive piece of ironwork that would have belonged in a grand fireplace in a fine house.

Jeremy Hodgkinson

Figure 1: Probable Jacobean fireback from Cowden Farm, Wartling.

NEWFOUNDLAND ORDNANCE REVISITED

In Newsletter 71 in Spring 2020 I reported on the discovery of an iron cannon in Newfoundland that bore the, then unrecorded, mark of William Benge, gunfounder at the end of the 17th and beginning of the 18th century. I have since learned that the survey number that was said to have been engraved on the gun was, in fact, that of another gun discovered in the same location but which did not bear William Benge's trunnion mark. Instead the survey number on Benge's gun is 2799. However, this also relates to a culverin, or 18-pounder.

My correspondent in Newfoundland, Gary Kett, to whom I am most grateful, has been passing on some details of other examples of Wealden ordnance that were used to fortify the Avalon Peninsula in the SE of the island when it was threatened by the French during the 18th century. In the photographs are two guns on Harbour Rock Hill (Fig 1) in the town of Carbonear, about 65 miles from the capital, St John's. In Fig. 2 is a broken 18-pounder bearing the trunnion mark MR of Master & Raby, who cast guns at the Warren Furnace, near East Grinstead, between 1758 and 1764. Fig. 3, which has a faint W on the right trunnion and a Rose & Crown, is believed to be a 12-pounder made between 1717 and 1725 (and known as the Borgard type) at Waldron Furnace. On the west coast of the Avalon Peninsula, at Placentia, another Borgard type has the H trunnion mark of Hamsell Furnace, although it is not known who was casting there then.

Jeremy Hodgkinson

Figure 1: View from Harbour Rock Hill, Carbonear, Newfoundland

Figure 2: Broken 18 pounder cast by Master & Raby at Warren Furnace

Figure 3: Early-18th century 12 pounder cast at Waldron Furnace

Why are several smithing gods differently abled?

Early belief systems, as far as we can understand them, seem to be types of shamanism where the practitioner contacts the spirit world, often during an altered state of consciousness. Very little is known about the characteristics of the spirits other than that they can affect the human world and that they can be either benevolent of malevolent. It is not until we have written or epigraphic evidence, that we know of named gods with individual stories and responsibilities but once this happens we can see that the great majority of cultures had deities in their pantheons who oversaw metal production. Several of these were differently abled in some way – Ptah, for example, an Egyptian god mentioned in the 22nd Dynasty (*c*943-716BCE) is sometimes depicted as a deformed dwarf with green skin. This version of the god places him with the folkloric race of dwarfs frequently skilled mining, smithing and the production of items with supernatural characteristics, for example *Mjölnir* – the hammer belonging to the Norse god Thor.

Probably better known is the Greek god *Hephaestus*, responsible for metal production and smithing among other crafts. Stories of his wounding vary but most agree that he was thrown off Mount Olympus either by his mother, Hera, because he was born lame, or by his father, Zeus for flirting with Hera, his wife. The Roman equivalent to Hephaestus was Vulcan, and he also had the misfortune of being thrown off Mount Olympus by his mother because he was a notably ugly baby and, having broken his leg in the fall, he was brought up by the sea nymph Thetis, and discovered how to smelt metals.

Wayland was not considered a master craftsman rather than a divine being but his manufacture of swords with magical properties (not to mention his flying ability) places him apart from the average blacksmith. Taken captive by king *Niđung* and hamstrung to prevent his escape, Wayland took a revenge worthy of Quentin Tarantino.

Not all differently abled gods were involved in metal production. Odin, earlier known as Wōđanaz, the premier god of north-west Europe, willingly gave the sight of one eye in order to gain wisdom and knowledge of all things. However, his son Hǫđr was born blind. The Hindu god Aruna was born prematurely and became a charioteer since he was unable to walk; Fukurokuju, the Shinto god of wealth and happiness, is usually depicted with an elongated forehead, a deformation which can be deliberately formed by binding the head from birth, as undertaken by the Hun peo-

Hephaestus with a deformed leg riding a donkey on a 6th century BCE vase

ples.

It may seem strange to us both that such powerful entities apparently didn't think to heal their own wounds, and that they should have been considered suitable to hold major roles in many pantheons. Part of the answer seems to be that differently abled individuals were regarded as valued members of society – supported in lie and sometimes given elite burials.

Shanidar 1, a Neanderthal male burial from Israel dated to about 70,000BCE, was of an individual who

Left - reconstruction of the face of the woman buried at Dolni Vestonice
Right - line drawing of the ivory head found nearby

had a number of injuries including a head wound which would have left him deaf and blind in one eye, two broken legs and a possibly amputated lower arm – he could not have survived without considerable input from others in his community. At Dolní Věstonice, in the Czech Republic, in about 26,000BCE, an adult female with a severe disfigurement to the left side of her skull was buried holding the body of a fox and covered with red ochre; close to her was found a carved ivory head with the same characteristics. Clearly she was respected and may have been a shaman. In the same cemetery a burial of three people with similar, rare skeletal traits may have been related; the central individual also had congenital deformities of the teeth, pelvis and lower limbs would have had difficulty walking. The three received a highly ritualised burial, again demonstrating both care during life and respect after death.

A Mesolithic burial from Germany was of a woman who had been provided with grave goods which strongly suggested she was a shaman; she also had congenital abnormalities to the bones of the base of her skull and her cervical vertebrae which may have meant she had visual and auditory hallucinations. She may also have been able to bring on an altered state of consciousness simply by tilting her head – an ability of use in shamanic ritual.

This is a very superficial view of the evidence which may be available with further research but there are hints of links in prehistory between smithing gods or smiths with supernatural powers and disabilities of different kinds. Shamanism and metal working – for example the double burial known as Upton Lovell 42 (Wilts) dated to the Early Bronze Age contained a burnishing stone with traces of having been used for gold working and a set of hammers / cushion stones thought to be metal working tools. This together with pierced bones and talons thought to have decorated the edge of a cloak and a necklace. There are also clear examples of differently abled individuals being supported throughout their lives, in some cases having roles in shamanic rituals, and being given reverential burials. Any combination of being 'touched by the gods', being able to communicate with the gods and having knowledge of a valued 'magical' process like metal production would make them immensely powerful within their communities.

Judie English