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Reviewed Article:

Bracers or Whetstones?

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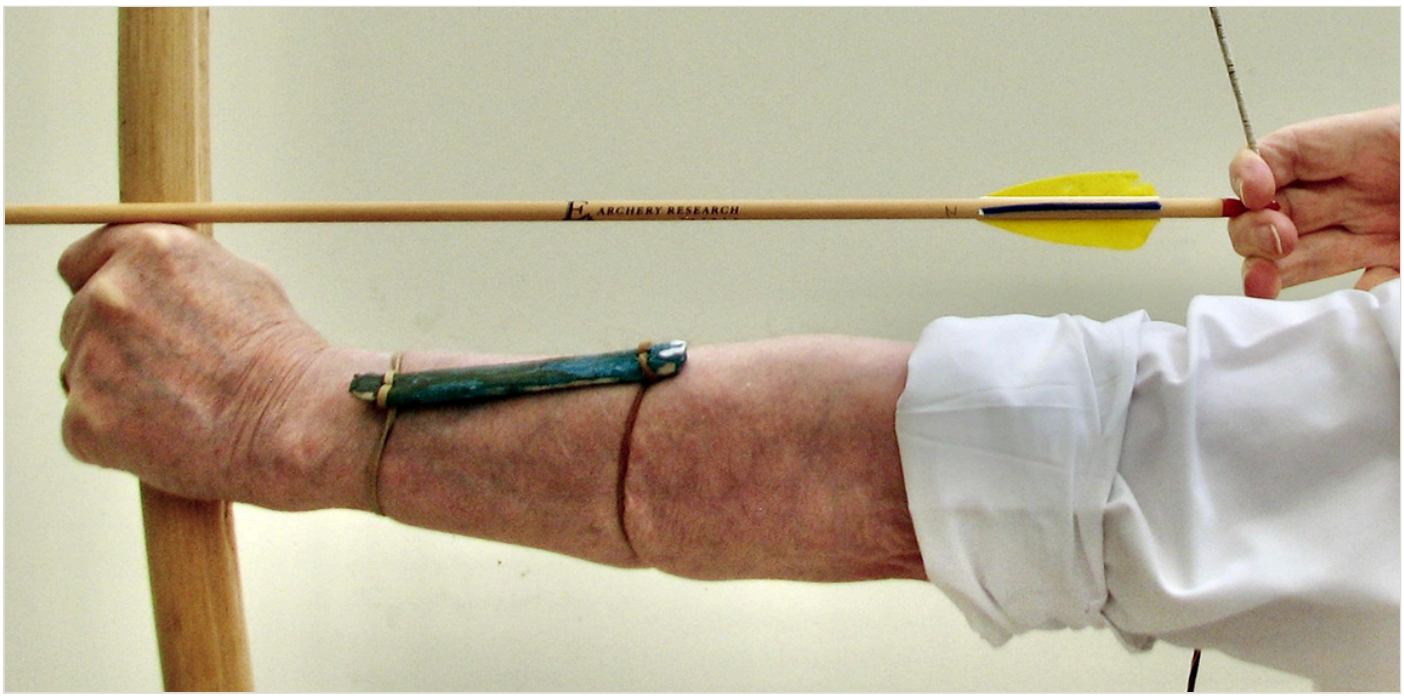

Stone wrist-guards from around the Early Bronze Age have been widely regarded as archers' bracers (Ingram, 1867; Fokkens, et al., 2008; Vitani and Bailly, 2022). In recent years, however, their association with archery has come under scrutiny. In an attempt to a see if there might be a broader association with archery, the present writer performed a scoping exercise to see if a non-bracer alternative could be established. The result of the experiment - and a review of the literature - suggest that the study of stone wrist-guards is more appropriately subject to a study of their association with copper.

> As wrist guards appeared in the early years of the discovery of copper metal, a proxy sword was made from a blunted metal strip similar to the back of a kitchen bread knife.

Introduction

Archaeologists have recovered many ground and polished oblong stone strips at burial sites from the Chalcolithic, or Copper, Age (roughly 2,500 BC to 2,200 BC), and from the Early Bronze Age (roughly 2,200 BC to 1,600 BC) in Ireland, Britain and mainland Europe (Harbison, 1995, p. 91; Vitani and Bailly, 2022). The strips are roughly between 6 cm and 13 cm long (Vitani and Bailly, 2022, p. 125), and about half to a quarter of their length in width. Archaeologists have generally identified the wrist-guards as archers' bracers, strips worn by archers to protect their inner forearm from the bow string, or to protect the bowstring from loose clothing during shooting (See Figure 1).

There are, however, several objections to this identification (Smith, 2006; Fokkens et al., 2008). First, these 'wrist-guards', when recovered in graves, are usually found on the outside of the forearm (Nicolas, 2020, p. 44), as can be seen in the remains of the Amesbury Archer in Salisbury Museum (See Figure 2). Secondly, they are vastly over engineered, frequently being made of imported stone (Nicolas, 2020, p. 21) when a simple leather strip would suffice to make a perfectly effective bracer. Thirdly, they seem frequently too short to be useful for the suggested purpose, with some as short as 3.7 cm (Nicolas, 2020, p. 27). Although in experiments (Moro. 2017, p. 29), it was found that wrist-guards as small as 8.4 cm could protect the forearm from being struck by bowstrings, most ordinary modern bracers are not less than 13 cm. Fourthly, some of these wrist-guards appear to be the wrong shape for this purpose although longitudinal sections are rarely provided in the literature so it is difficult to estimate what proportion would be impractical.

The purpose of a bracer is to deflect the bowstring from striking the inner forearm, either to protect it from being caught in the archer's sleeve or to protect the skin of the archer's bare forearm from being torn. Having a lip where they should have a bevel (See Figure 3) would defeat that purpose, the elevated lip making it much more likely to catch the bow string than to facilitate its passage unhindered.

One can see from a photograph of a wrist-guard (See Figure 4) in the National Museum of Ireland (NMI ref. 1927:317) that the vertical edge of the upward curve makes it inappropriate for use as a bracer. Other possible purposes for wrist-guards have been suggested:

1. That the wrist-guards were ceremonial (Nicolas, 2019, p. 134),
2. That they were signifiers of status, or elements of ritual (Case, 2004, p. 26),
3. That they were of cultural or social significance (Smith, 2006).

4. That they were of multiple purposes constantly in the process of changing (Tsoraki, et al., 2023).

The wrist-guards certainly have acquired a strong association with archery in archaeological literature. In an attempt to support the association of wrist-guards with archery, a while ago the present writer suggested a fifth possible interpretation (Lalor, 2023, pp. 48-49), that wrist-guards were forearm protections worn on the outside, used by archers in combat, to protect them from being slashed by knives or short shafted spears (Anderson, 2011, p. 606). Consider the archer with bow and arrow facing enemy combatants wielding swords, knives, or short shafted spears. In close combat an archer's string hand would be free to draw a blade but the bow arm would be left very vulnerable. A wrist-guard worn on the outside of the archer's bow forearm might seem to provide some help against a slashing blade, and a deflecting lip would be a useful protection (See Figure 5). Wrist-guards might have reasonably been considered as a forerunner of body armour, and possibly also an, albeit distant, ancestor of the first shields which, according to W. O'Brien (2017, p. 405), date to about 1,950 BC to 1,600 BC

The Experiments

To establish the plausibility of this thesis, a scoping experiment was undertaken by the present writer. It was decided that a rough replica of a bow arm, as it was being held rigid holding a bow, could be approximated by robust twigs, wrapped in strong fabric and held in a vice grip. Two freshly cut sticks, roughly the size of the bones of the forearm, were bound individually, and then together to replicate a forearm (See Figures 6 and 7). The replica arm was then supported at one end in a bench vice. As this was intended as a scoping experiment, it was not thought necessary to reproduce known wrist guards, only to ensure that the stone replicas were at least as robust, if not more so, than know wrist guards. Six stones of various kinds, approximately the size of the wrist-guards on display in the National Museum of Ireland, were located at the mouth of a stream near Blackwater, Co. Wexford. Each, in turn, was attached to the replica arm to make an armature which would roughly replicate the wearing of a wrist-guard on the outer forearm (See Figures 8, 9 and 10).

As wrist guards appeared in the early years of the discovery of copper metal, a proxy sword was made from a blunted metal strip similar to the back of a kitchen bread knife. One by one each 'wrist guard' was tapped quite gently with the proxy sword as a preliminary to striking with moderate force, more or less as one taps a nail before hitting it with a hammer. In the event, the taps broke each of the stones with the first impact. Interestingly the stones did not always break along the line of impact, demonstrating their brittleness and a tendency to break along the lines of existing faults.

The possibility then arose that the stone wrist guards were vulnerable to metal blades but might be protective against stone weapons. It was decided to repeat the tests but with a proxy for a prehistoric stone knife or dagger. In this experiment, six stones of approximate

size to the wrist-guards, and one much larger for comparison, were picked on a beach (See Figure 11). As can be seen from the illustration, they are of widely different shapes and sizes. The largest, 157g, could not possibly be worn on the arm except in extraordinary circumstances; the others seemed more plausible.

A stone of approximate similarity to a prehistoric stone knife was used (See Figures 12 and 13). The proxy knife was probably more robust than an actual stone knife of the time but was considered close enough. The second tranche of stone proxy wrist guards were measured and fastened to the proxy arm and struck with the knife. When tapped with the stone knife, with gentle pressure, all but one shattered easily. Interestingly, the 38 g stone was struck where the small white patch, indicated by a red arrow, shows on the image, but it shattered along a fault about 2.5 cm from the impact site. Despite my best efforts, the large 157 g stone could not be broken by the stone knife. Figure 14 shows the stones after impact. The fragility of the wrist-guards when tapped even quite moderately makes it difficult to think they were in any way defensive.

While some attention has been given to the colour and the fineness of the grain in wrist-guards, not a lot of attention seems to have been given to the type of rock used in stone wrist-guards. For instance, Vitani and Bailly's critical inventory of Western European stone bracers (Vitani and Bailly, 2022), does not mention the type of stone at all. There is some information about Irish stone wrist-guards (Harbison, 1977). About 100 wrist-guards have been recovered in Ireland. Of the records of the approximately 60 wrist-guards in the National Museum of Ireland, 34 are not characterised, of the others, one is recorded as Chert, nine as Jasper, one of Porphyritic greenstone, three as Jet/Lignite, two as Porcellanite, one as Malanocratic Rock, two as clay slate, three as siltstone, two as red stone and ten as honestone. Most wrist-guards appear to be made from a soft, silty stone (Woodman, et al., 2006, p. 192) with none of the characteristics necessary for defence or, indeed, anything to do with combat.

Discussion

It seems inescapable that the wrist-guards were never bracers. Because the wrist-guards break so easily, even from this scoping experiment it also seems difficult to come to any conclusion other than that the wrist-guards were not used as guards against being struck by a weapon in combat. In all the circumstances it appears to be time to abandon the notion that wrist-guards have any association whatsoever with archery. Many wrist-guards may well have been more symbolic of status, ceremony or ritual, than functional. A striking example is the wrist-guard from Villa Nova de Cerveira in Portugal. It is made of gold and has mock studs which resemble rivets sometimes found on stone wrist-guards (Armbruster, 2013, p. 460). But the fact that some specimens were for show does not mean that they all were, many having a functional appearance.

A possible alternative direction for study is the wrist-guards' association with copper. According to one study "Copper-based weapons (metal arrowheads, Palmela points, copper daggers, other copper weapons) constitute the most significant set of stone bracers' contextual relationships ..." (Vitani and Bailly, 2022, p. 133). Because of their softness copper knives would require frequent sharpening, and the most likely method would be using a whetstone. Traces of copper have been found on the surfaces of some wrist-guards (Moro, 2017, p. 29), and some traces of metal may have been removed on other wrist-guards "since the stone materials found in the excavations are usually washed and even rubbed under water" (Moro, 2017, p. 30). A final suggestive aspect of wrist-guards is that they seem to have disappeared shortly after the time that bronze replaced copper as the dominant metal. It seems very probable, therefore, that wrist-guards were used as portable whetstones, worn on the outer forearm for convenience and perhaps also as emblems of the metal worker's profession.

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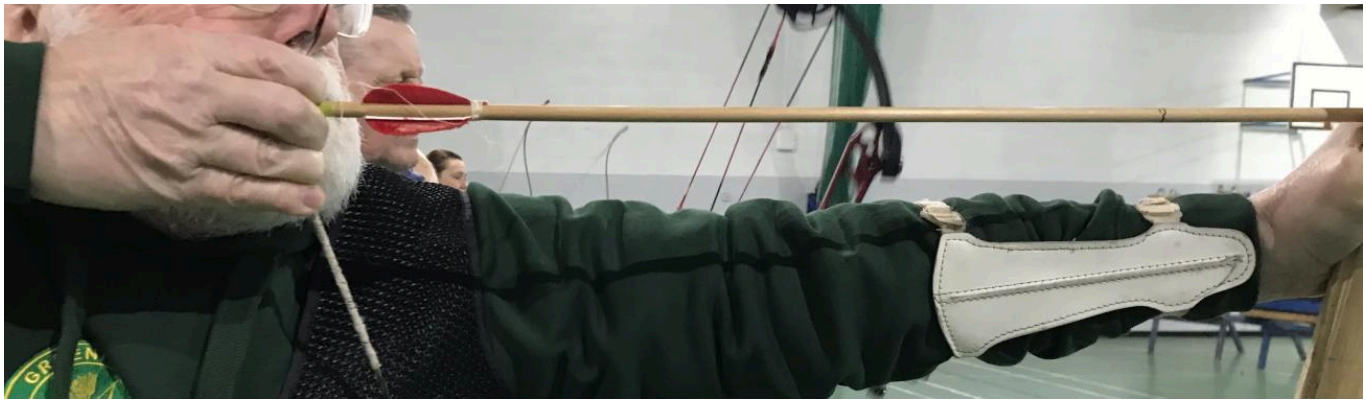

FIG 1. AN ARCHER WEARING A BRACER. PHOTO BY STEPHEN LALOR.

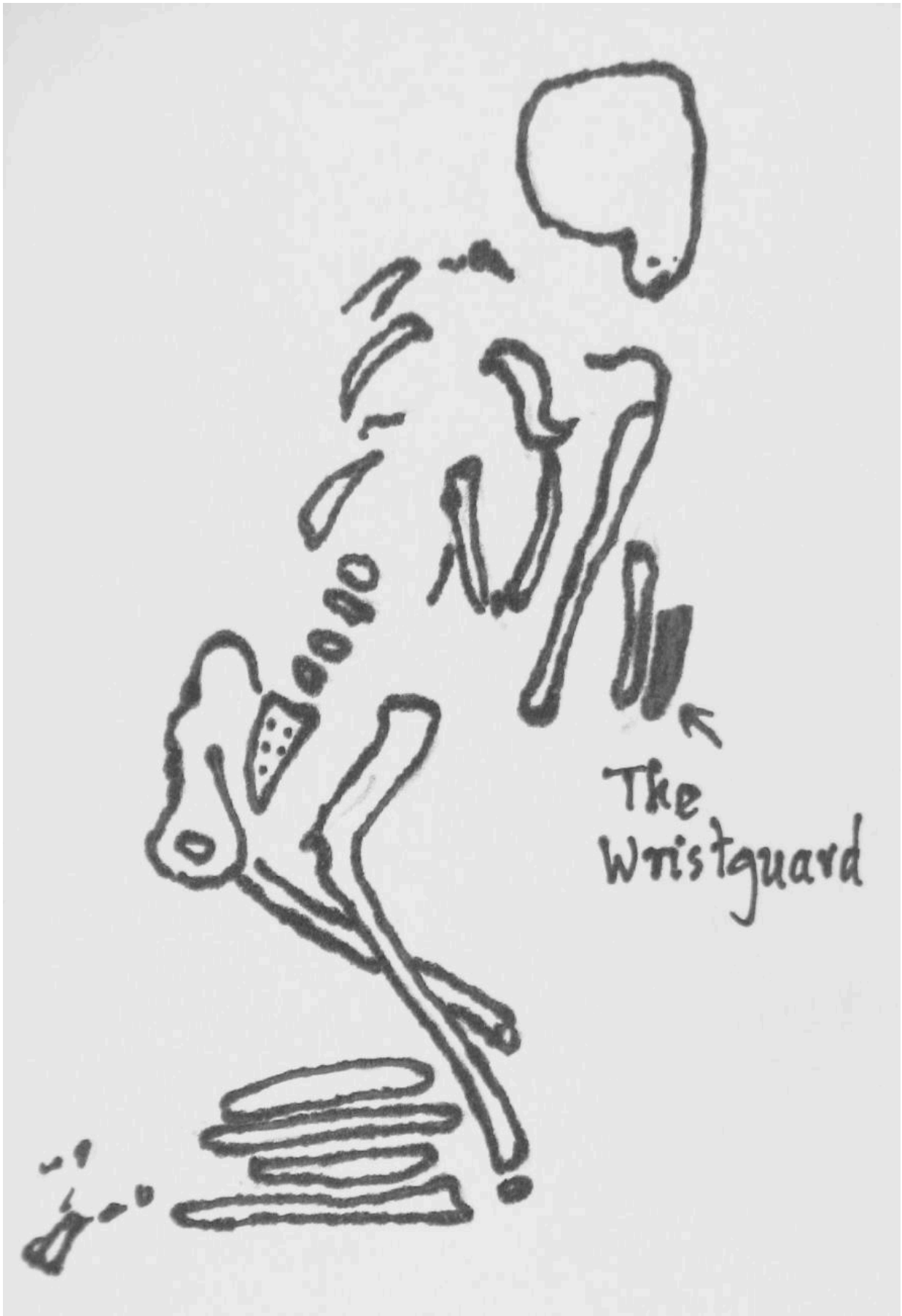

FIG 2. SKETCH OF AMESBURY ARCHER SHOWING POSITION OF WRIST GUARD. DRAWING BY STEPHEN LALOR.

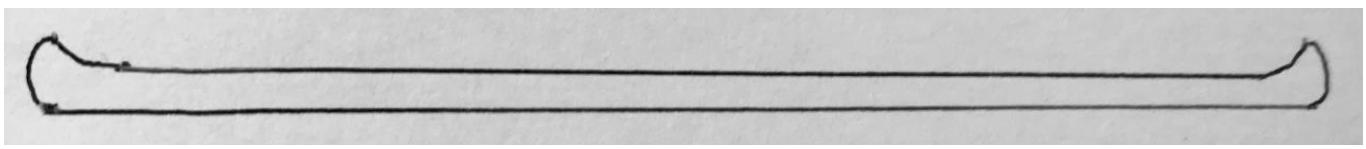

FIG 3. A LONG-SECTION OF SUCH A WRIST-GUARD TO SHOW THE DIFFICULTY. DRAWING BY STEPHEN LALOR.

FIG 4. WRIST-GUARD ABOUT 13 CM LONG FROM 2,500-2,200 BC, IN THE NATIONAL MUSEUM OF IRELAND (NMI REF. 1927:317). PHOTO BY STEPHEN LALOR.

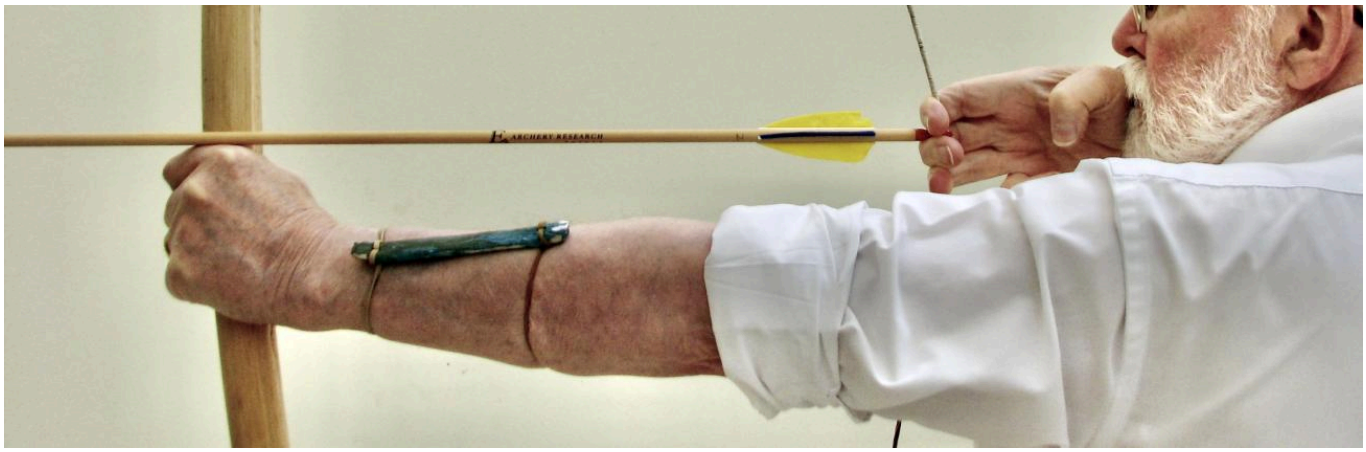

FIG 5. REPLICA WRIST GUARD ON THE OUTER FOREARM. PHOTO BY STEPHEN LALOR.

FIG 6. THE PROXY FOREARM ULNA AND RADIUS. PHOTO BY STEPHEN LALOR.

FIG 7. THE PROXY FOREARM. PHOTO BY STEPHEN LALOR.

FIG 8. SOME OF THE STONES COLLECTED FOR USE IN THE EXPERIMENT TOGETHER WITH A BAR FOR USE AS A PROXY FOR A SWORD OR KNIFE. PHOTO BY STEPHEN LALOR.

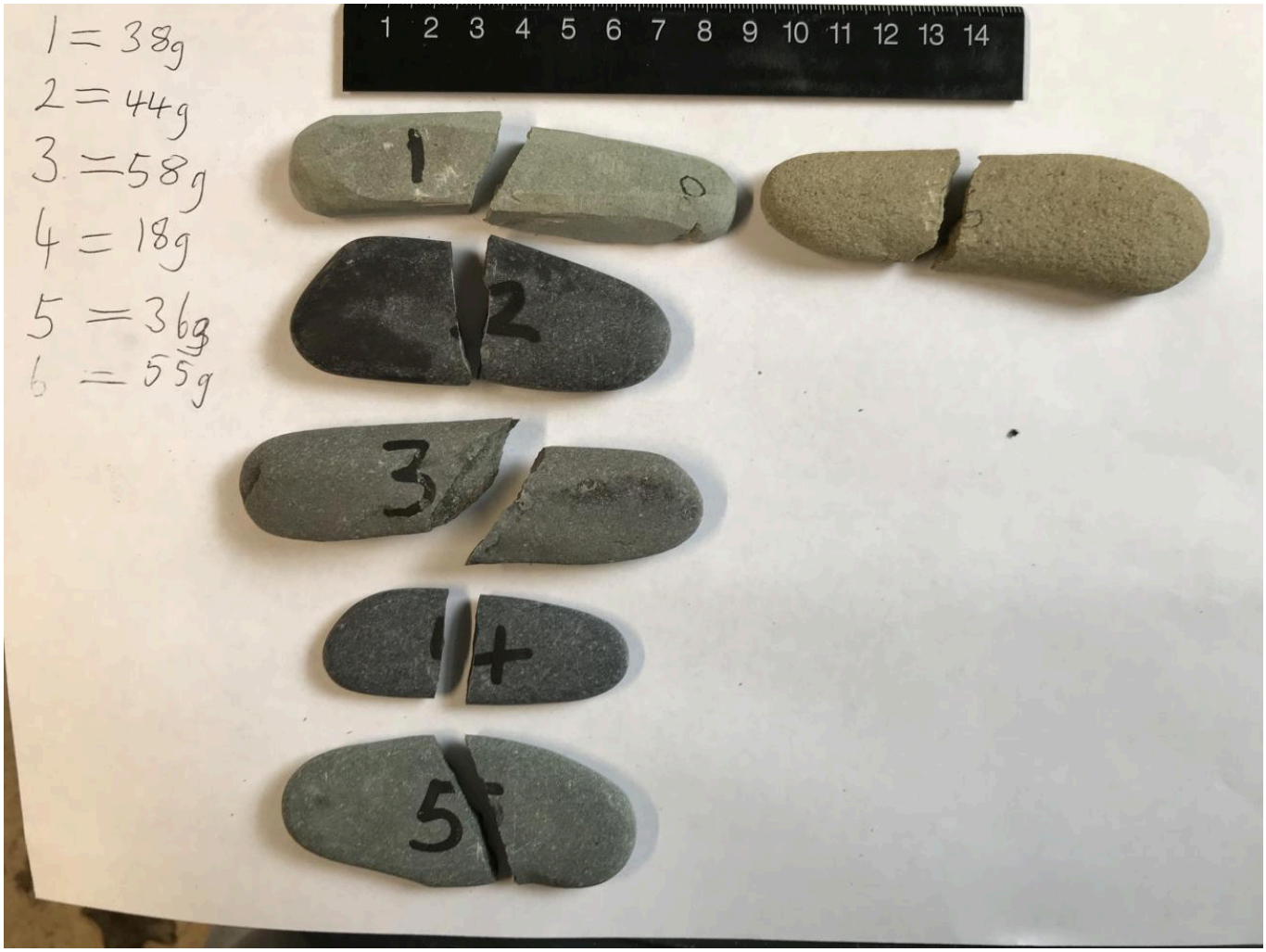

FIG 9. SIX OF THE STONES, AND THEIR WEIGHTS, USED AS PROXY WRIST-GUARDS, AND THE RESULTS OF STRIKING THEM WITH A LIGHT FORCE BY THE PROXY SWORD. PHOTO BY STEPHEN LALOR.

FIG 10. THE PROXY FOREARM HELD IN VICE TO MIMIC THE HUMAN GESTURE HOLDING IT AS PROTECTION. A TRIAL STONE IS ATTACHED. PHOTO BY STEPHEN LALOR.

FIG 11. PROXY WRIST-GUARDS AND THEIR WEIGHTS FOR THE STONE-KNIFE EXPERIMENT. PHOTO BY STEPHEN LALOR.

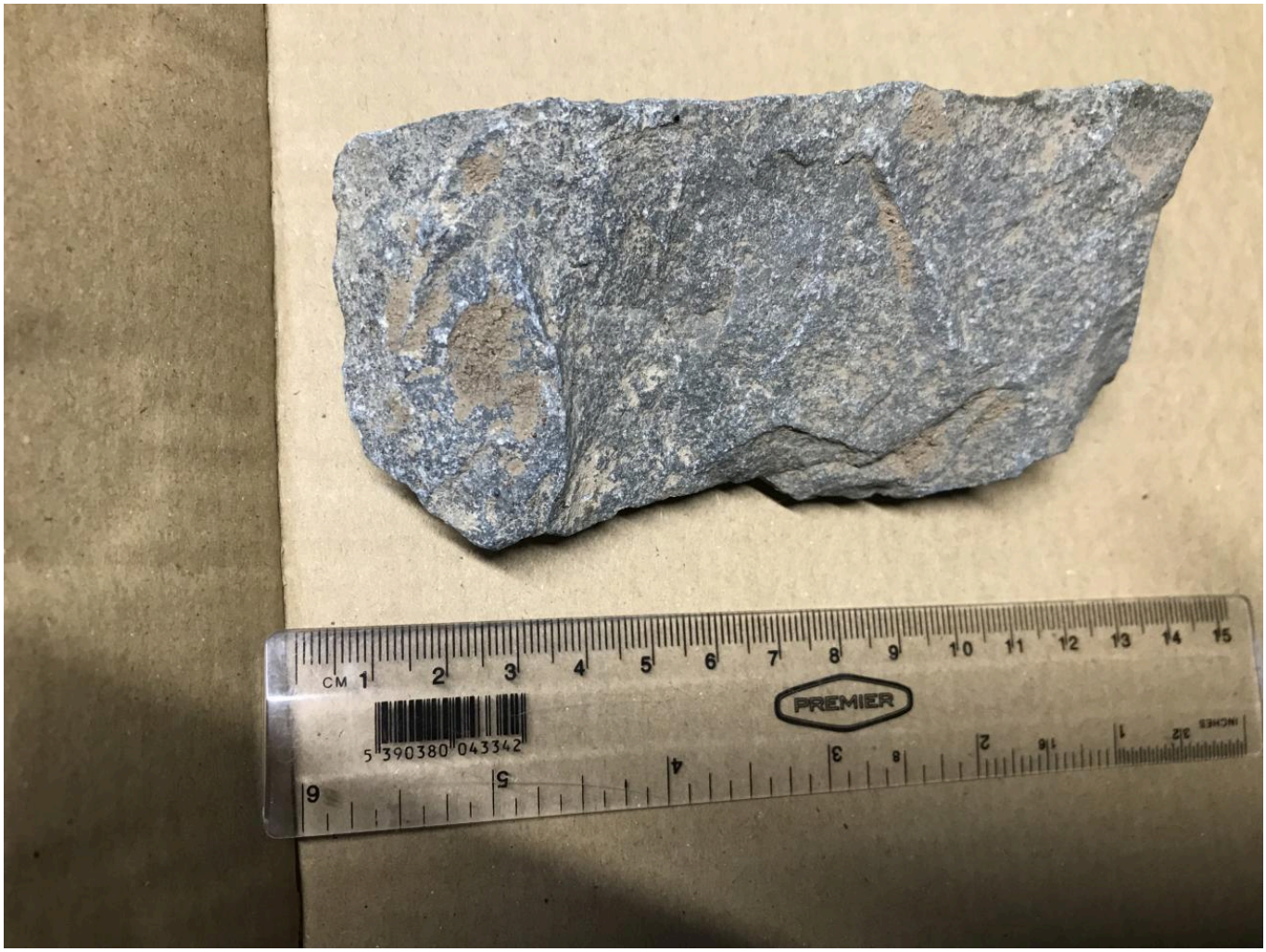

FIG 12. THE PROXY STONE-KNIFE. PHOTO BY STEPHEN LALOR.

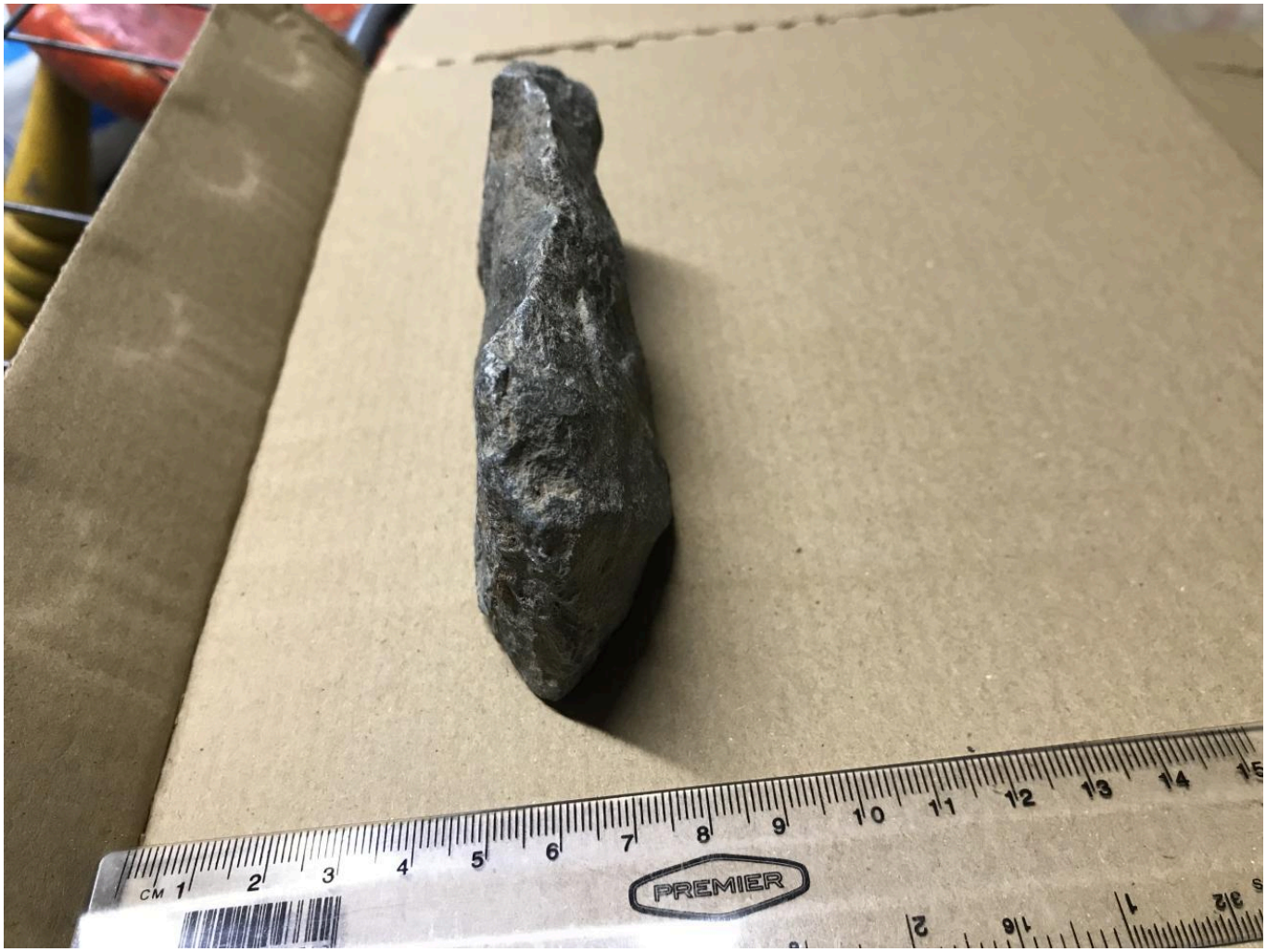

FIG 13. THE KNIFE EDGE ON. PHOTO BY STEPHEN LALOR.

FIG 14. THE PROXY WRIST-GUARDS AFTER BEING STRUCK BY THE STONE-KNIFE. THEY SHATTERED EASILY EXCEPT FOR THE 157G WHICH RESISTED THE BLOWS. PHOTO BY STEPHEN LALOR.