A Prehistoric Chert Assemblage with a Late Mesolithic Component from Castlegal, Cope's Mountain, Sligo

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Abstract

A small assemblage of chert lithics was recovered scattered through the topsoil of a garden in Castlegal townland on the southern slopes of Cope's Mountain in 2021. The assemblage included a Late Mesolithic component. Cores, scrapers, flakes and wedges that cannot be assigned to a specific prehistoric period were also recovered. This paper describes the assemblage and discusses it within the wider archaeological context.

Introduction

In March and April 2021, while planting trees in a garden in Castlegal townland, a collection of chert lithics was discovered by two of the authors (MD & JB) scattered through topsoil (ITM: 572929 840554). The site is located on the lower southern slopes of Cope's Mountain in north Sligo (Fig. 1). The discovery was reported to the National Museum of Ireland and a collection number (2021C2) was issued. The material was analysed by one of the authors (Hogan 2022), funded by a research grant from IT Sligo. The assemblage comprised 22 chert artefacts including two trimmed forms of Late Mesolithic date (5500-4000 BC), up to five cores, ten scrapers or scraper fragments, two wedges and three debitage pieces (Appendix 1, page 80). For explanations of technical terminology and dating, see Hogan (2021a).

Raw material

All twenty-two lithics recovered at Castlegal are chert. The majority are black in colour, but a number of pieces have a banded appearance ranging from light black through to off-white in colour. The scatter sits in an area of Namurian till derived from sandstone and shale. While not normally associated with chert, geological studies have shown that chert can occur within both sandstone and shale (Murray *et al*. 1992; Chough *et al*. 1996). To the north of Castlegal is the Dartry Limestone Formation, noted as being a 'dark fine-grained cherty limestone' containing seams of chert (GSI 2022). Occurrences of blue/grey chert have also been noted within the Benbulben Shale and Dartry Limestone Formations (McAteer and Parkes 2004, 45, 87). A deposit of the former is located to the east of Castlegal and the latter to the north. The

Fig. 1: Cope's Mountain (Marion Dowd).

colour variation noted on many of the 98 non-archaeological natural pieces collected for comparative purposes indicates that colour differentiation may not reflect different sources. Furthermore, the immediate presence of a similar geology does not imply a local origin nor preclude transport of material to the site. On balance of probability, however, the chert found at Castlegal was likely locally sourced, either quarried or gathered from surface debris.

Condition

The Castlegal assemblage is in a worn condition overall, mostly affected by abrasion and edge-damage, probably due to the fact that the material was recovered scattered through topsoil. Marks left by natural causes can confuse or obscure those made by human activities, which complicates interpretation. Most pieces (73%) display no patina. Iron-staining is visible on five pieces, likely a product of the boggy host soil. Abrasion occurs on 68% of pieces; the remaining 32% may have experienced little surface movement. None of the lithics display rolling or evidence of transportation by water. None of the pieces are burnt. Edge-damage is common. Six convex scrapers or possible convex scrapers (2021C2:3, 4, 5, 7, 18, 20) and three third-phase bipolar cores (2021C2:13, 14, 15) are broken, caused either by usage or post-depositional disturbance. Broken bipolar cores are not surprising as, by their nature, these are always found in a fragmentary state. Two artefacts display gloss, which is potentially related to usage, though this would need to be confirmed by microscopic analysis. A possible convex scraper fragment (2021C2:4) has gloss on a retouched area and on the ventral surface, while a possible core fragment (2021C2:17) displays gloss at both ends.

Cores

A first-phase bipolar core (2021C2:22), three third-phase bipolar cores (2021C2:13, 14, 15) and two possible core fragments (2021C2:17, 21) are present in the Castlegal assemblage (Fig. 2). The first-phase core is smaller than the original state of the fragmented third-phase cores. That the width and thicknesses are similar belies the fact that the third-phase cores are an exhausted resource. They display a number of removals on both faces thereby making them thinner, and are fractured along their vertical axes making them narrower.

First-phase bipolar core (2021C2:22): Displays two worked faces and four removal scars. Three scars extend from the striking zone, one scar starts from the anvil zone. This opposing scar does not indicate rotation of the core but occurs as a result of anvil impacts in bipolar cores (Peña and Toscano 2013, 42-4). Écaillé[1] retouch is present on the edge of one face, with edge-damage on the opposite edge. Crushing and abrasion present.

Third-phase bipolar core (2021C2:13): The narrower end is interpreted as the striking zone due to the presence of crushing and écaillé retouch on both faces (Peña and Toscano 2013, 42-4). There are three or four removals; one appears to have failed due to the presence of a hinged scar with another hinge scar running at right angles. The scars to the left and immediate right of this may be from the same removal or two separate ones. These are initiated from the anvil zone as a negative bulb scar is present. A scar extending from the striking zone is likely not intentional but an accidental product of the bipolar method. Broken. Edge-damage present.

Third-phase bipolar core (2021C2:14): The striking zone is the broader end, though this core may have been rotated. There are two removals, one of which finishes in a hinged termination and has been initiated from the anvil end. The second occurs below this scar. From the anvil zone, there is a blade removal that appears to have been struck after fragmentation. The sloping aspect of the striking zone is unusual. It may have collapsed at an earlier stage and was then re-started. There is possible écaillé retouch at narrow end. Some edge-damage but doesn't appear related to working. Broken. Iron staining present.

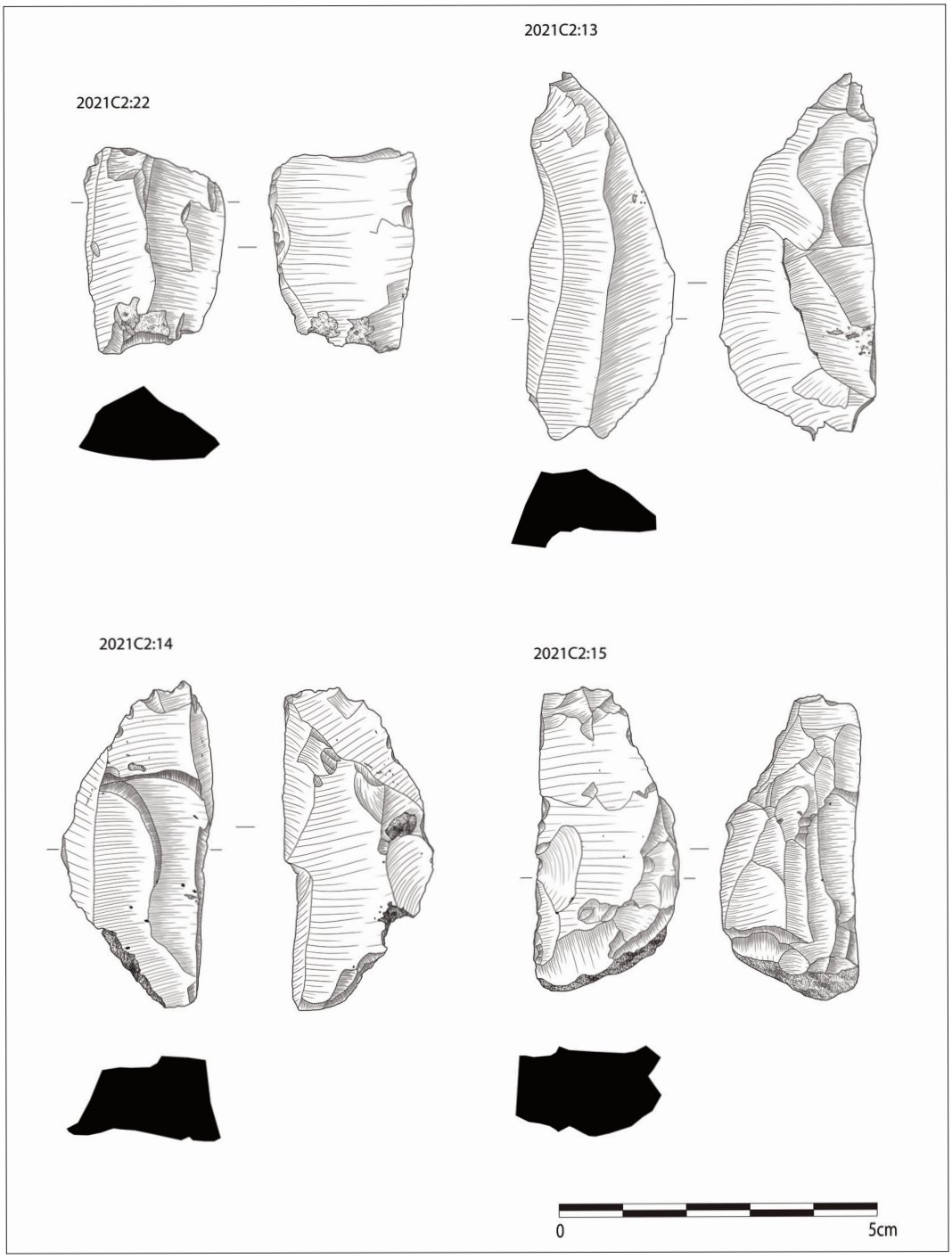

Fig. 2: First-phase bipolar core (2021C2:22), third-phase bipolar cores (2021C2:13 and 14) and possible third-phase bipolar core (2021C2:15) (Elaine Lynch).

Possible third-phase core (2021C2:15): There is some écaillé retouch on one face at the striking zone, but this may be edge-damage. There are no definite signs of crushing on the anvil end. It is difficult to confirm intentional removals, but one possible example is present. Cortex at one end with possible crushing. Broken. Abrasion visible.

Possible core fragment (2021C2:17): Ends appear edge-damaged and glossed. Abrasion present.

Possible bipolar core (2021C2:21): Some markings suggest a bipolar core – areas of crushing, with associated flake scars and écaillé retouch, and a pillowed profile. The overall form, however, is somewhat unusual; this could be due to the core collapsing or to post-depositional damage.

Late Mesolithic trimmed forms

Only two elements in the Castlegal assemblage can be considered diagnostic and these belong to the Late Mesolithic period (Fig. 3).

Distally-trimmed blade (2021C2:1): This is noticeably larger than the other pieces. An arris runs down its centreline indicating two prior removals. The left proximal zone may be altered or may be broken. There is crude retouch on its right dorsal and left ventral at the distal end. It has a short extension over the dorsal surface. The retouch is applied in a scalar, semi-abrupt fashion. The mean edge angle for the retouched distal right lateral was calculated to be 53.89°,[1] which falls within the upper range of recorded figures for Late Mesolithic retouched edges (Woodman 2015, 145, 146). Scars on the left ventral lateral are not attributed to secondary modification but caused by use or post-depositional processes. Overall, the secondary modification is very crude. Abrasion and iron staining present.

Backed form, proximal fragment (2021C2:23): This is a sub-type of the trimmed form but is difficult to classify due to its fragmentary nature. It is similar to examples of backed forms in Woodman *et*

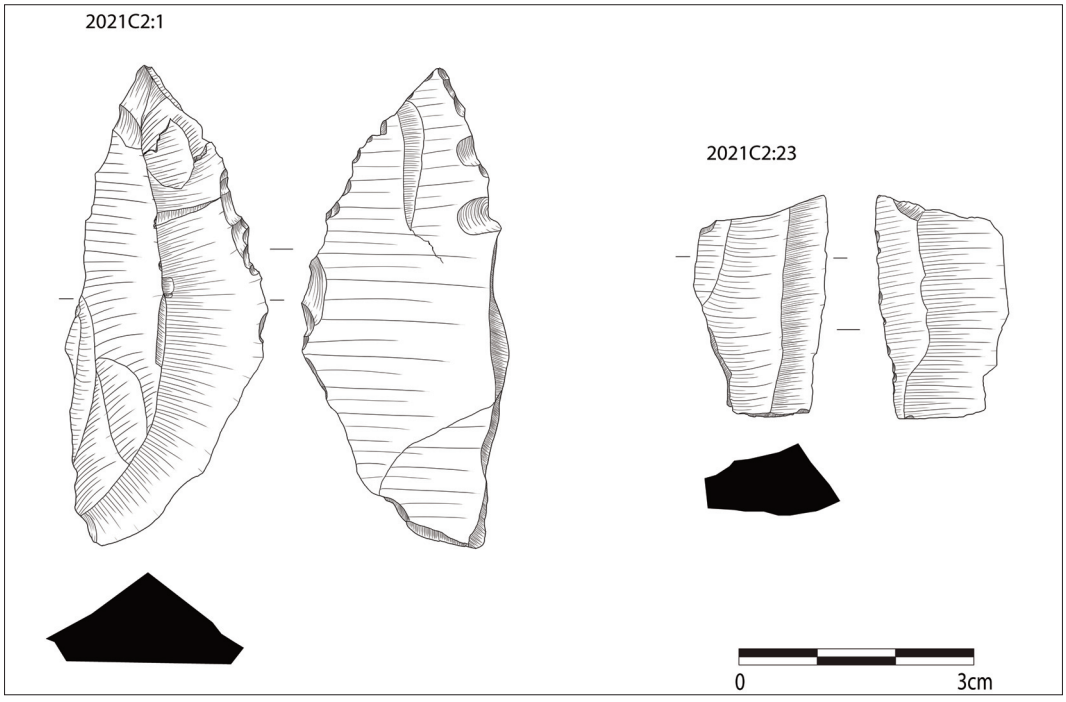

Fig. 3: Late Mesolithic distally-trimmed blade (2021C2:1) and backed form (2021C2:23) (Elaine Lynch).

al. (2006). The piece is retouched on its left dorsal lateral at the proximal end. It is recorded as having a semi-invasive extent. The retouch is applied in a parallel, enclume[3] fashion. The interpreted dorsal surface has an off-centre arris. There appears to be the negative impression of a bulb of percussion. Scars are present on the right ventral lateral that have the appearance of retouch – short, abrupt and sub-parallel in character. It is unclear whether this is intentional retouch or caused by use. Due to the consistent appearance along a 24 mm span, a post-deposition cause is unlikely. The termination is interpreted as a later break that appears to interrupt the adjoining retouch scar. Whether this was due to usage or post-depositional processes is unclear. Abrasion present.

Scrapers

Three complete convex scrapers, six fragments of convex scrapers and a retouched piece that may also have functioned as a scraper were identified in the assemblage (Fig. 4).

End-of-blade convex scraper (2021C2:2): The sub-class of this piece is indeterminate due to an interpreted break that may have removed the platform and bulb, and a lack of visible reduction markers. It is possible that this is a natural piece of chert that was modified. It has a complete scraper edge, though the location is indeterminate. The retouch is applied in a stepped, enclume fashion. Retouched end feels more abraded than the opposite end which feels fresh and may be a more recent break. Edge-damage, abrasion and iron staining recorded.

Sub-circular disc convex scraper (2021C2:6): Semi-invasive ephemeral retouch is visible on three edges, applied in an abrupt, scalar fashion. Part of the retouched active edge is interrupted by a defect and appears to be broken – the edge under a protrusion, opposite to the exterior surface, appears to be missing a portion. The dimensions fit the proposed typology (Woodman *et al*. 2006, 159). Abrasion and iron staining recorded.

Convex scraper (2021C2:16): Thick flake struck from a split piece of debris or core, then rotated onto right lateral and struck on left lateral. The écaillé retouch at its dorsal proximal end indicates several blows were required to effect it. This is applied in a scalar, enclume fashion and has a semi-invasive extent. There is opposing écaillé retouch on the ventral distal end. Its left lateral displays signs of working. Two opposed removal scars on the ventral surface appear to interrupt the original waves of percussion. Crossed scars on the dorsal surface may be associated with these strikes rather than earlier working. The right lateral displays secondary modification by retouch. Edge-damage and abrasion present.

Convex scraper fragments (2021C2:3, 4, 5, 7, 18, 20): All six fragments have a section of retouch on a convex-curved edge. All have secondary modification and/or use-wear to varying degrees of certainty. The modification is interrupted in all cases by a break that occurs along the long axis of the modified form.

Convex scraper fragment (2021C2:3): There are two or three retouch scars with smaller crushing at the active edge where it has a slightly abraded feel. The rest of the piece is fresh. It is not clear if the break is recent or ancient. Edge-damage is present.

Convex scraper fragment (2021C2:4): Retouch is dubious. Gloss and abrasion recorded.

Convex scraper fragment (2021C2:5): Broken by a deliberate blow at active retouched end. A negative bulb impression is visible on the face opposite the retouched edge (contains two edge-damage scars). The second smaller flake scar has interrupted the retouch. Edge-damage and abrasion noted.

Convex scraper fragment (2021C2:7): Appears to have two breaks occurring at a right-angle. The narrower end displays very fine scars and possible gloss, which may be a result of use or post-depositional processes. Remains of two opposed removal scars are present on one face. It is unclear if this is a natural piece of stone, a core fragment or a product such as a blade. Retouch is very ephemeral. Abrasion recorded.

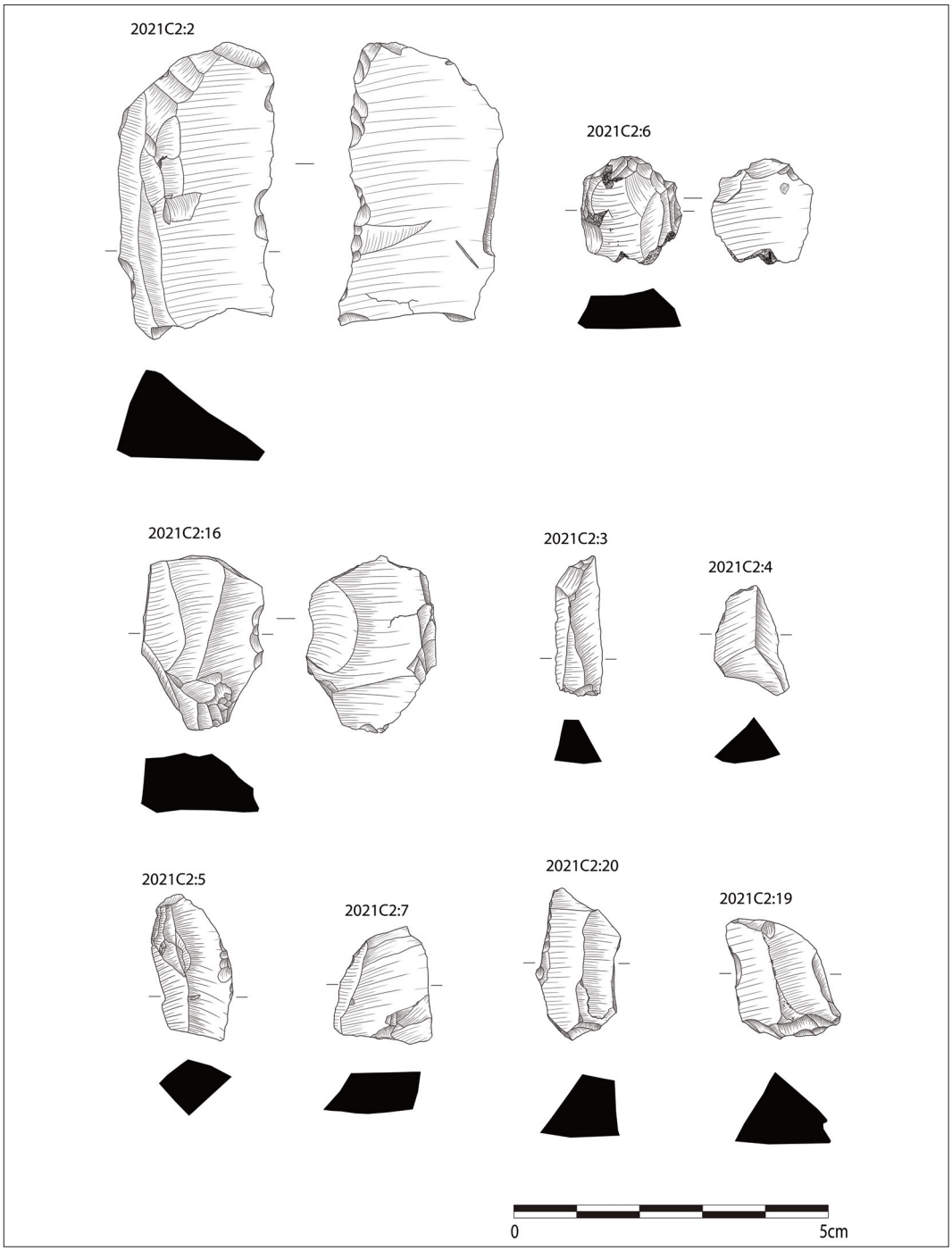

Fig. 4: End-of-blade convex scraper (2021C2:2), disc convex scraper (2021C2:6), convex scraper (2021C2:16), convex scraper fragments (2021C2:3, 4, 5, 7 and 20) and retouched piece (2021C2:19) (Elaine Lynch).

Convex scraper fragment (2021C2:18): Very tentative identification. Appears to be retouched at thick end - interrupted by face on right. Surfaces feel abraded and seem to be glossed, which is a possible sign of use. Abrasion and edge-damage recorded.

Convex scraper fragment (2021C2:20): Tentative identification. Scars at broader end appear to be deliberate. It has two flake scars on the left side but no other reduction markers. The angled face is interpreted as a later break and interrupts retouch on the left side. Point appears to interrupt line of short retouch or edge-damage. Abrasion noted.

Retouched piece (2021C2:19): This has a complete retouched edge, though the location is indeterminate. The extent of the retouch is very short and is applied in a semi-invasive, sub-parallel fashion. Both ends seem broken. This may be a piece of debris or natural stone that was utilised because of the form of the edge; or the 'retouch' could be post-depositional damage. Edge-damage appears concentrated in one area, continuous. This piece may have functioned as a scraper.

Wedges

Two wedges made from irregular flakes are present in the assemblage. They are similar in form, displaying an arris with two parallel scars and irregular terminations (Fig. 5). The terminations on both are irregular. Both display damage on their lateral ends, which is opposed écaillé retouch.

Wedge (2021C2:9): Has a plain platform and a diffuse bulb of percussion. The left lateral is the hammer edge, the right lateral is the active edge. Both laterals display a similar development of retouch, making it difficult to identify the active/passive edges. This may indicate a rotation of the wedge so both laterals were worked evenly. Abrasion recorded.

Wedge (2021C2:10): Has a linear platform and a flat bulb of percussion. The left lateral is the active hammered edge, and the right is the passive. The right lateral ventral surface displays a concavity and large semi-circular scar with edge damage; this can be paralleled in experimental pieces (Peña 2011). Abrasion recorded.

A third wedge is identified on the first-phase bipolar core (2021C2:22). The right edge on one face displays écaillé retouch, interpreted as the active edge. The left edge displays very light edge-damage. This opposing occurrence of damage is interpreted as resulting from use as a wedge.

Miscellaneous

Also in the assemblage was a core-rejuvenation flake and two seemingly worked fragments (Fig. 6).

Core-rejuvenation flake (2021C2:8): Exhibits a hinged termination on the right lateral, thought to be from an earlier removal. This was created in order to remove it from a core. The platform is punctiform. Small eraillure scar/parasitic flake on ventral surface at impact point, which corresponds to dorsal scar. No ventral markers could be clearly discerned. Possibly bipolar, though the striking point would seem to preclude that. Iron staining present.

Fragment (2021C2:11): Appears to be broken on two axes. Edge-damage noted.

Fragment (2021C2:12): The orientation of the removal is difficult to determine. No clear platform or waves of percussion are present. The ventral surface is damaged in a few places. A hinge break is present as one long edge and may be the initial termination or a later break. It has a removal scar on the dorsal face, which displays non-conchoidal fracture characteristics. The initiation point does not appear crushed, but more so as a punctiform platform (Woodman *et al*. 2006, 90). The proximal zone of initiation has a lip, indicating bending initiation (Andrefsky 2005, 27, 28). There is no negative impression of a bulb of percussion. The waves of percussion have a complete extent and appear more like compression ripples than transversal waves (Drift 2012, 11-3). Edge-damage noted.

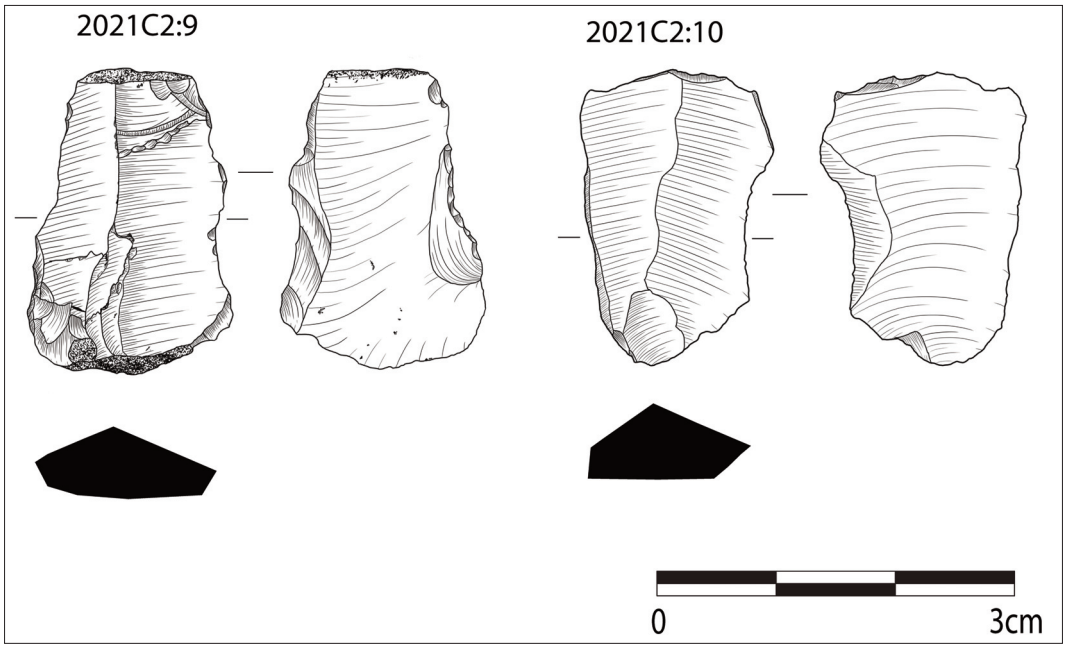

Fig. 5: Wedges (2021C2:9 and 10) (Elaine Lynch).

Technology

Three forms of primary technology were identified in the Castlegal assemblage: bipolar reduction (n = 5), freehand reduction (n = 2) and pressure flaking (n = 1). Secondary technology in the form of crude retouch is visible on twelve artefacts.

Bipolar reduction

Five pieces were attributed to bipolar reduction (2021C2:13, 14, 15, 16, 22), with axial bipolar present on the convex scraper (2021C2:16) and non-axial identified on two cores (2021C2:14, 22). In the case of one bipolar core (2021C2:13), the presence of a negative bulb of percussion at the anvil end of one face can indicate two possibilities: that it is an axial bipolar core, with the occurrence of a rare double opposed bulb (Drift 2009, 12); or, the core was rotated at least once to create opposed removals. The convex scraper (2021C2:16) attributed to axial bipolar reduction displays waves of percussion with a complete extent, a hinged bulb of percussion and crushing at the striking zone. The ventral surface has a slight curvature around the vertical axis, which is associated with horizontal axial bipolar (Diez-Martín *et al*. 2011, 692), sometimes referred to as 'cobble sectioning' (Hintzman and Garfinkel 2011). Two cores (2021C2:14, 22) show the implementation of non-axial bipolar reduction by the fact that the striking zone is off-set from the anvil end. Despite the presence of an opposed removal scar on one example (2021C2:22), this does not indicate rotation of the core. Core (2021C2:14) was rotated. A scar with hinged termination runs opposed to the identified striking zone.

Freehand reduction

Freehand reduction was identified on two flakes that were used as wedges. Wedge (2021C2:9) displays a plain platform and a diffuse bulb of percussion; wedge (2021C2:10) displays a linear platform and a flat bulb of percussion. The termination on both pieces is

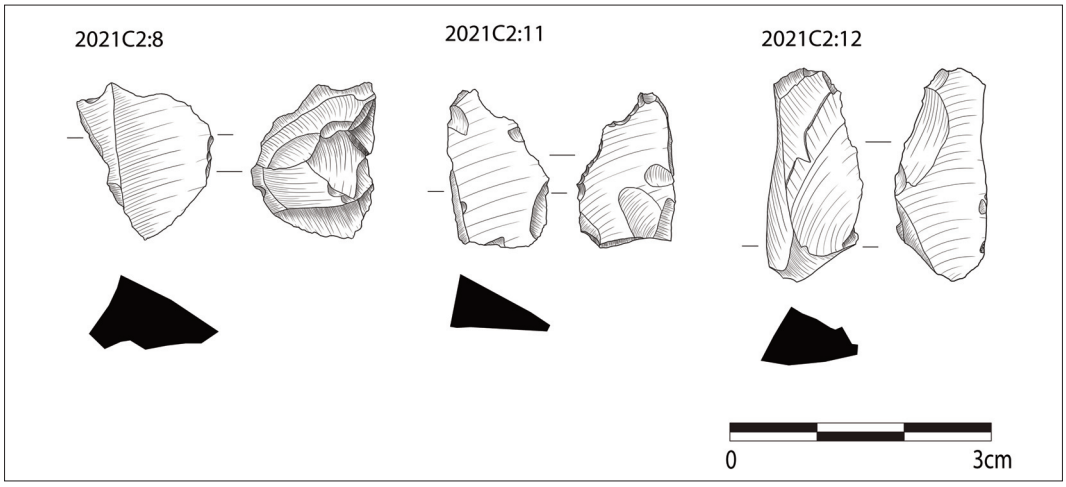

Fig. 6: Core-rejuvenation flake (2021C2:8) and chert fragments (2021C2:11 and 12) (Elaine Lynch).

irregular, which is attributed to the nature of the worked material, rather than a comment on the skill or ability of the knapper. The small size and ephemeral bulbs of percussion on these flakes indicate reduction by direct percussion with a soft hammer (Costa *et al*. 2001, 2, 5, 6).

Pressure flaking

Pressure flaking is indicated on a debitage fragment (2021C2:12). The removal scar on the dorsal surface displays non-conchoidal fracture characteristics. These extend from a point, which resembles a punctiform platform rather than an area of crushing. This scar bears a resemblance to those of channel flakes seen on Folsom points; experimental work established that these could be produced using hand pressure flaking (Gryba 1988, 59).

Secondary technology

Enclume-type retouch was recorded on two convex scrapers (2021C2:2, 16) and the Late Mesolithic backed form (2021C2:23). This is a bipolar technique that involves the use of an anvil stone to achieve the retouch (Woodman *et al*. 2006, 92, 93). It is most likely non-axial, as axial reduction may introduce an outward curve on the removal negative (Vergès and Ollé 2011, 1017, 1018; Drift 2009, 5). The abrupt and semi-abrupt retouch seen on the distally-trimmed blade (2021C2:1), disc scraper (2021C2:6), four convex scraper fragments (2021C2:3, 4, 5, 7) and retouched piece (2021C:19) can be achieved through both freehand and bipolar means (Drift 2009, 5, 7-9; Woodman *et al*. 2006, 92, 93). To date, the association of bipolar reduction with secondary modification is limited in Irish understandings – primarily to the enclume mentioned above. It is not clear if the bipolar method of retouching would leave marks on the dorsal surface, where the opposing force is applied away from the edge.

Archaeological Context of the Castlegal Lithics

An assemblage of 121 pieces of chert were collected from topsoil while gardening at Castlegal on the southern slopes of Cope's Mountain. It was apparent from the outset that many pieces were natural, but these were deliberately retained for comparative purposes. Twenty-two archaeological artefacts were identified from the material gathered, including bipolar cores, convex scrapers, flakes and wedges. Two of the pieces can be classified as Late Mesolithic but no date

can be ascribed to the remaining artefacts as neither the form nor technology are sufficiently diagnostic. Consequently, it is not possible to identify how many separate events are represented by the scatter, though almost certainly more than one archaeological period is represented.

Late Mesolithic

The distally-trimmed form (2021C2:1) and the proximal fragment of a backed form (2021C2:23) are sub-types of the trimmed form typology associated with the Late Mesolithic (5500-4000 BC), with the backed form being rare (Woodman 2015, 127-9). The calculated edge angle on the distally-trimmed form allows for some comment on use. Steeper angles (40° to 55°) have been associated with working siliceous plants and butchering where meat and bone are present. A more robust edge is required when working these more resistant materials (Jensen 1986, 28). It is possible that other pieces within the Castlegal scatter are contemporaneous, but the absence of diagnostic features renders this difficult to establish. For instance, there is an association of end-of-blade scrapers with the Mesolithic and the Castlegal assemblage includes one example (2021C2:2).

Few Mesolithic sites have been identified in Sligo and thus the Late Mesolithic component of the Castlegal scatter provides a modest but important contribution to the early prehistory of the county (Fig. 7). A small quantity of human bones representing an adult male of Late Mesolithic date were recovered from a mountain cave at Sramore, Co. Leitrim, some 5 km to the east-south-east (Dowd 2008; Dowd 2015, chapter 4; Fibiger 2016). Ancient DNA analysis revealed a hunter-gatherer genetic profile for this individual (Cassidy *et al*. 2020). Two charcoal samples from a shell midden at Conors Island, 13 km northwest of Castlegal, returned Late Mesolithic dates. Shellfish were exploited here throughout the year, including oysters, periwinkles, cockles and limpets (Hausmann *et al*. 2019). At the Carrowmore passage tomb complex, 10 km to the southwest of Castlegal, multiple Late Mesolithic radiocarbon dates were returned on charcoal samples from Carrowmore 1, Carrowmore 3 (referred to as Carrowmore 4 by Burenhult), Carrowmore 7 and Carrowmore 51 (Listoghil) (Cooney *et al*. 2011, 646-8, 655; Burenhult 2019). Charcoal from Croaghaun passage tomb (Glen townland) also returned a Late Mesolithic date (Bergh 1995, 105, 225). Göran Burenhult's (1984, 2019) contention that the Carrowmore dates indicated the tombs had been constructed by hunter-gatherers has been widely rejected (e.g., Bergh 1995; Bergh and Hensey 2013). What has often been overlooked in the debate about the construction date of the tombs, however, is that this not insignificant corpus of radiocarbon dates indicates burning activities on the Cúil Irra Peninsula during the Late Mesolithic, many centuries before the construction of the megalithic tombs.

The two most substantial Mesolithic sites in the wider region are lacustrine and were focal points for hunter-gatherer communities. Lough Allen in Co. Leitrim, 28 km southeast of Castlegal, was the focus of intensive activities during the Late Mesolithic. A range of diagnostic tool types have been recovered from different parts of the lake shore including butt/distally trimmed forms, picks, bar forms, borers and a range of edge retouched lithics. Many of the stone axes, scrapers, blades and flakes retrieved also likely date to this period. The principal raw material used was locally available silicified dolomite (Fredengren 2002, 300; Driscoll *et al*. 2014). Similar dense concentrations of Late Mesolithic stone tools have been recorded at multiple locations around the shores of Lough Gara and on Inch Island within the lake, 40 km south of Castlegal. These scatters include typical diagnostic elements such as the so-called 'Bann flakes', butt-trimmed flakes, picks, cores and blade points – all manufactured primarily from chert with occasional flint items. Timber and brushwood structures of Mesolithic date were also excavated (Fredengren 2002, 94, 112-140; Driscoll 2006).

Occasional stray lithic finds also testify to a Mesolithic presence in Sligo, even if ephemeral, in the uplands and adjacent to bodies of water. A probable Late Mesolithic butt-trimmed flint knife was recovered in a residual context during excavation of a Late Bronze Age house on the summit

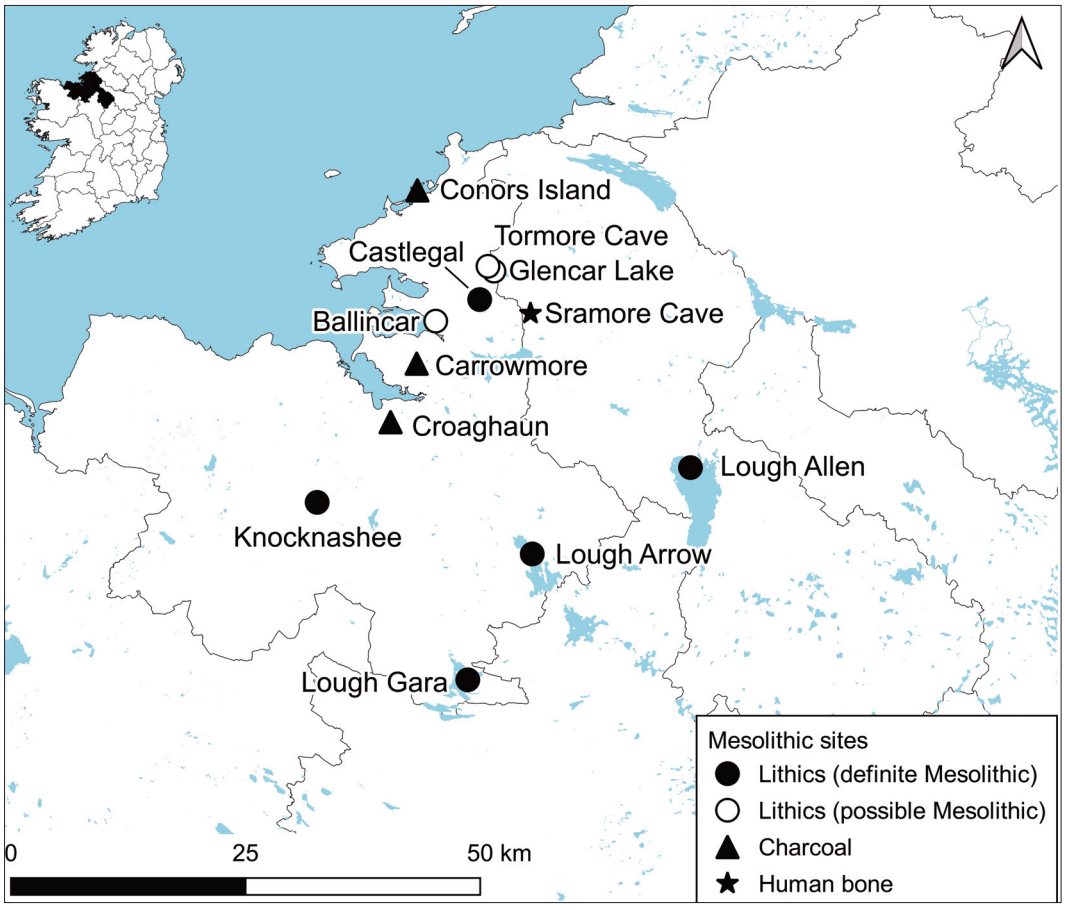

Fig. 7: Locations of Mesolithic and possible Mesolithic activities in and around Sligo.

of Knocknashee Mountain (Brandherm *et al*. 2020, 156-8; 2021). At Inishmore Island on Lough Arrow, a Mesolithic ground stone point was discovered on the lake shore (Driscoll 2006, 218). Another potential Mesolithic find is a flint blade discovered in a secondary context during archaeological monitoring in Ballincar townland, close to the coast, some 5.5 km west-south-west of Castlegal (Timoney 2008-2009; 2009). Approximately 3.5 km north of Castlegal, an extensive scatter of hundreds of chert lithics was recovered from an alluvial fan on the north shore of Glencar Lake (Fig. 8) (Dowd and Bonsall 2020). This assemblage appears to reflect multi-period activities and a Mesolithic component would not be surprising. Approximately 600 m north of Glencar Lake, a possible roughout for a Late Mesolithic butt-trimmed form was recovered during archaeological excavations in Tormore Cave (Fig. 9) (Dowd *et al*. 2022). A stoat mandible from Coffey Cave, Keash, has also been radiocarbon dated to the Mesolithic (Woodman *et al*. 1997), but there is nothing to suggest that this is anything other than a natural occurrence in the cave and it is not archaeological in nature.

Fig. 8: Hundreds of chert lithics were discovered on the north shore of Glencar Lake by M. Dowd and J. Bonsall in 2020 (James Bonsall).

Later prehistory

A significant portion of the Castlegal assemblage most likely relates to post-Mesolithic activities. Bipolar technology is also often associated with later prehistory, specifically the Chalcolithic and Bronze Age. However, Driscoll (2010, 241, 247) has evidenced the use of bipolar reduction in quartz during the Mesolithic. Furthermore, Kador (2007) juxtaposes flint bipolar cores with other artefacts dated to the Mesolithic with the inference of bipolar reduction occurring at that time. Woodman *et al*. (2006, 112) also posit the use of anvils in retouching Early Mesolithic microliths. Bipolar technology, therefore, cannot be used as a diagnostic chronological marker.

The Castlegal assemblage displays a high ratio of modified pieces, particularly scrapers. The complete scrapers are convex in form and the fragmented scrapers were also probably originally convex. Convex scrapers have traditionally been associated with later archaeological periods but with a rare occurrence in early prehistory (Woodman *et al*. 2006, 114, 115, 156-61). The breaking of scrapers has been associated with the Chalcolithic (McDevitt 2010, 35), though research has indicated an occurrence in the Neolithic also (Mallía-Guest 2011: 83). The concentration of scrapers at Castlegal may represent a special purpose single-use site or a repeatedly visited site where activities required the use of specific tools, namely scrapers. Convex scrapers are known to have been used in hide-working and wood-working (Bamforth and Woodman 2004, 29, 30), and the Castlegal assemblage may represent one or both of these activities. The presence of wedges during the Bronze Age has been confirmed (Hogan 2021b, 127-9, 174) – though not to the exclusion of other periods. Experimental work has demonstrated that wedges can be used to open ribs and bones, to cut ribs lengthwise, and to cut the ends off long bones (Peña 2011, 83). In woodworking, they can be used to cut and split branches, to split logs and to cut poles (Peña 2011, 84). The Castlegal wedges may have played a role in activities such as woodworking or butchering animal carcasses and bones.

Evidence of late prehistoric activities in the vicinity of Cope's Mountain is plentiful, but no clear associations with the Castlegal lithics can be suggested or assumed, particularly considering the artefacts were recovered from topsoil in a secondary context. A Neolithic

court tomb (SL009-046----) is just 100 m to the west of the lithic scatter (Fig. 10). Within a 1.3 km radius, four wedge tombs (SL009-028----, SL009-031----, SL009-048----, SL009-050----), a ring-barrow (SL009-027----) and an embanked barrow (SL009-030----) are recorded. The rich later prehistoric record of the area was further demonstrated by AMS (Archaeological Management Solutions) during works associated with the N16 Lugatober Road Project in 2020. A series of prehistoric monuments, all previously unknown, were excavated including: a rectangular Neolithic house (Lugatober 4); three ring-ditches (Castlegal 2, Castlegal 3, Lugatober 3); a palisaded enclosure (Castlegal 4); a prehistoric pit (Drumkilsellagh 1); a cluster of 28 pits and 12 stakeholes (Drumkilsellagh 2); a series of pits, postholes and hearths (Lugatober 5); a pit (Castlegal 5); and possible charcoal-production pits (Collinsford 1) (www.excavations.ie). Collectively, these sites produced a small number of chert and flint lithics and a small prehistoric pottery assemblage. The rectangular house (Lugatober 4) was dated to the Early Neolithic and finds included Early Neolithic pottery, rubbing stones, stone beads, clay wasters, flint scrapers, blades and a plano-convex knife (www.excavations.ie). One of the ring-ditches (Lugatober 3) was radiocarbon dated to the later Iron Age and produced two glass beads, chert scrapers and chert flakes (www.excavations.ie). A Bronze Age date is suggested for some of the other sites excavated in 2020.

Fig. 9: Left: Late Mesolithic rough-out for butt-trimmed flake (22E0030:96) from Tormore Cave. Right: Distally-trimmed blade (2021C2:1) from Castlegal (James Connolly).

Final remarks

It is worth asking whether a small multi-period lithic assemblage recovered from topsoil is worth the level of detailed analysis presented here. We argue that while the lack of a secure context limits the value of the Castlegal assemblage, it clearly indicates several 'events' in this general location in prehistory. The Late Mesolithic forms are particularly important considering the paucity of Mesolithic finds from counties Sligo and Leitrim as a whole (Fig. 7). The later period lithics confirm the monumental and excavation evidence: Cope's Mountain was a vibrant place for human activities during the Neolithic, Bronze Age and Iron Age.

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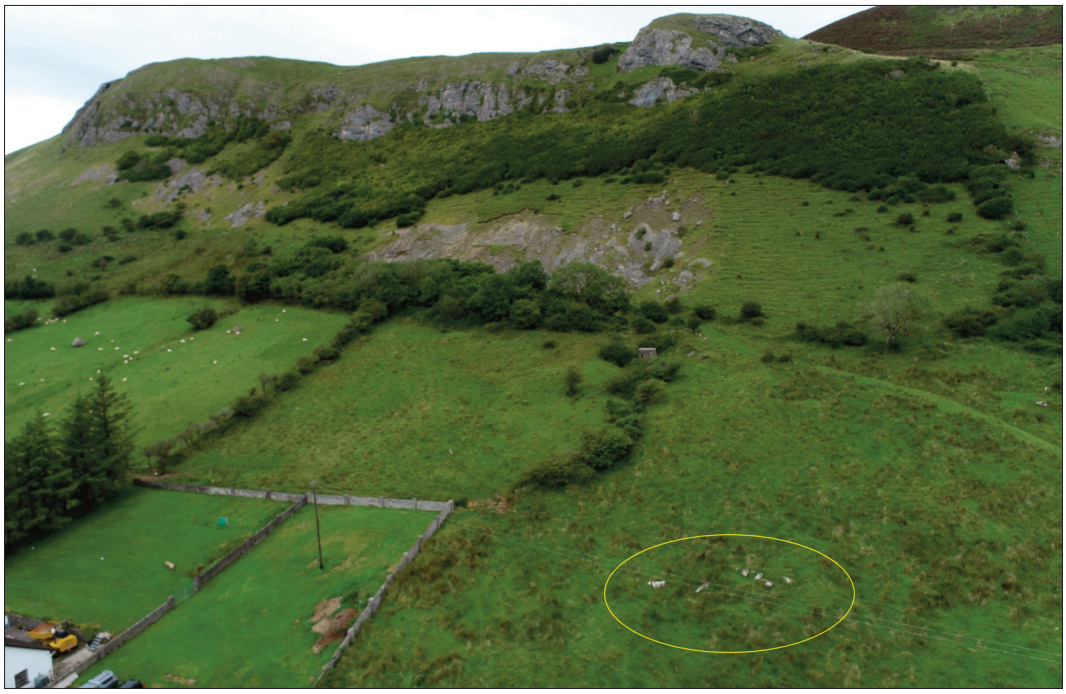

Fig. 10: Castlegal court tomb (SL009-046----) circled, on the lower slopes of Cope's Mountain and 100 m from where the lithic scatter was discovered (James Bonsall).

Footnotes

[1.] Écaillé: Small scars, irregular in size and occurrence. Present on the active and passive ends of bipolar cores and wedges. Appear similar to formal secondary modification, but created incidentally by hammering (Peña and Toscano 2013).

[2.] The edge angle of the distally-trimmed form (2021C2:1) was calculated using the calliper method proposed by Dibble and Bernard (1980), with methodological adaption following Siegal (1985). This method of edge angle calculation is subject to errors (Valletta *et al*. 2020; Dibble and Bernard 1980) and should be treated cautiously. Full details can be found in Hogan (2022).

[3.] Enclume: Very steep retouch, created using a hammer and anvil (Woodman *et al*., 2006, 94).

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NMI find number	Description	L.	W.	T.	Wt. gr.		Reduction method
CORES							
2021C2:22	First-phase bipolar core or wedge (debitage)	31	21	12	8.93		Bipolar, non-axial
2021C2:13	Third-phase bipolar core (debitage)	50	21	13	12.49		Bipolar
2021C2:14	Third-phase bipolar core (debitage)	46	22	12	13.13		Bipolar, non-axial
2021C2:15	Possible third-phase bipolar core (debitage)	43	19	12	14.67		Bipolar
2021C2:17	Possible core fragment (debitage)	22	9	8	1.80		
TRIMMED FORMS							
2021C2:1	Distally-trimmed blade	55	24	10	14.03		
2021C2:23	?Backed-trimmed form, proximal fragment	27	16	7	4.10		
SCRAPERS							
2021C2:2	?End-of-blade convex scraper	41	24	10	13.70		
2021C2:6	Sub-circular disc convex scraper	16	16	6	2.31		
2021C2:16	Convex scraper (irregular flake)	18	26	9	6.03		Bipolar - axial
2021C2:3	Convex scraper fragment	22	7	6	1.24		
2021C2:4	?Convex scraper fragment	17	10	8	1.20		
2021C2:5	Convex scraper fragment	22	8	8	2.01		
2021C2:7	?Convex scraper fragment	17	14	5	1.88		
2021C2:18	?Convex scraper fragment	21	9	9	2.25		
2021C2:20	?Convex scraper fragment	23	13	7	2.60		
2021C2:19	?Retouched piece	19	15	10	3.31		
WEDGES							
2021C2:9	Wedge (irregular flake)	25	17	5	3.17		Freehand direct percussion
2021C2:10	Wedge (irregular flake)	24	16	4	2.33		Freehand direct percussion
OTHER							
2021C2:8	Irregular flake (debitage product)	17	13	6	1.43		
2021C2:11	Fragment (debitage product)	16	11	5	1.00		
2021C2:12	Fragment (debitage product)	23	11	4	1.42		
2021C2:21	Unclassified indeterminate piece	25	20	8	4.89		

Fig. 11: Appendix 1. The Castlegal assemblage, Cope's Mountain, Co. Sligo, 2021.