

The Circular Archetype in Microcosm

The Carved Stone Balls of
Late Neolithic Scotland

Chris L. Stewart-Moffitt

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Foreword and Acknowledgements

This is the culmination of seven years research into the Carved Stone Balls of Late Neolithic Scotland. It is the first complete study of these enigmatic artefacts since that undertaken by Dorothy Marshall in 1977. My aim was to research them holistically in an attempt to understand how and where they originated through the types of stone they were made from, any associations with monumental structures and consider what, if any impact, carved stone balls may have had upon the changing worldviews of people during the Late Neolithic.

For the first time it has been possible to paint a more nuanced and complete picture thanks to the visual geological characterization of approximately 33% of carved stone balls in museum collections in Scotland, England, Ireland, and Norway. This enabled a more detailed analysis of the materials used, which in turn has allowed the origin of some stone to be identified and in many cases offered an insight into how the balls or their makers moved around the landscape. It has now brought together for the first time photographic and sketch imagery of the entire known corpus, complete with dimensions, weights, historical data, and maps and considers associated artefacts and monuments found within three kilometres of their approximate findspots. This information is available in the online database which accompanies this book. Finally, Dorothy Marshall's classification/typology has been revised to add a number of newly identified types which, following careful analysis, suggests that it may be possible to see some of the individual craftspeople involved in their manufacture.

I have Beverley Ballin Smith to thank for my interest in carved stone balls. During the early days of the Udal Project at Guard Archaeology in Glasgow I helped repackage finds from a dig undertaken by Iain Crawford during the 1960s. Beverley taught me an enormous amount about material culture and archaeology which enhanced my overall knowledge and helped greatly with the undergraduate degree I was taking at Leicester University. One day in particular, while I was repackaging a Neolithic plain stone ball Beverley mentioned that it might have been a carved stone ball in the making due to its slightly asymmetrical shape. Never having seen one before, I looked them up on Google, was instantly captivated and decided to use them as the subject for my upcoming BA dissertation. As a major part of my dissertation, I produced the first Master Photographic Database of Carved Stone Balls in 2015.

A year later I applied to the University of Aberdeen to research them further for a Masters Degree. My supervisor, Professor Gordon Noble, quickly realised the potential of the research and a few months after I began suggested that I should complete it to PhD level. I am indebted to him for his continual support and unswerving encouragement over the last few years.

Although I have had a lifelong interest in geology my knowledge at best was amateur and I knew I would be unable to identify many of the rock types used to manufacture the balls without additional help. This eventually came in the form of Dr John Faithful, Curator of Mineralogy and Petrology at the Hunterian Museum in Glasgow. John supplemented my limited geological and mineralogical knowledge with his own considerable expertise, without his help I would not have been in a position to offer the interpretations presented here. He deserves my enduring gratitude for his work on the visual characterisation of Aberdeen University Museum and National Museums Scotland collections. Without it my analysis of the geological origin of carved stone balls and how they moved through the landscape would not have been possible. Thanks also go to Malcolm Coull of the Hutton Institute in Aberdeen for his help with the composition and character of soils throughout Scotland which provided the potential background to why Late Neolithic people settled where they did.

With the exception of those that are now lost, missing or have been auctioned I have personally handled and recorded all but four balls. It goes without saying that I would have been unable to even begin this research without the help of past and present museum curators and the keepers of the few balls that are in private hands. There are too many people to mention individually, and I will simply list the museums where they worked. Without exception everyone was incredibly welcoming, helpful, and genuinely interested in my research and it was a pleasure to visit them, some several times.

List of organisations with one or more carved stone ball: please note that not all balls will be exhibited, and some locations are not open to the public.

Aberdeenshire Council Museums Service Mintlaw, Aberdeenshire	Elgin Museum Elgin, Morayshire
Aberdeen Art Gallery and Museums Aberdeen, Aberdeenshire	Falconer Museum Forres, Morayshire
Arran Museum Brodick, Isle of Arran	Fife Cultural Trust Kirkcaldy, Fife
Ashmolean Museum Oxford, Oxfordshire	Gairloch Museum Gairloch, Wester Ross
Auld Kirk Museum Kirkintilloch, Dunbartonshire	Great North Museum Newcastle upon Tyne, Tyne and Wear
Banff Museum Banff, Aberdeenshire	Glasgow Museums Glasgow, Lanarkshire
Benera Museum Breacleit, Isle of Lewis	Hawick Museum Hawick, Scottish Borders
Bristol Museum and Art Gallery Bristol, Avon and Somerset	Highland Folk Museum Newtonmore, Highland
British Museum Bloomsbury, London	Hull and East Riding Museum Hull, East Riding of Yorkshire
Bromley Libraries and Heritage Bromley, London Borough of Bromley	Hunterian Museum Glasgow, Lanarkshire
Campbeltown Museum Campbeltown, Argyll & Bute	Hunt Museum Limerick, Republic of Ireland
Caithness Horizons Thurso, Highland	Inverness Museum and Art Gallery Inverness, Inverness-shire
Clifton Park Museum Rotherham, South Yorkshire	Meffan Museum and Art Gallery Forfar, Angus
Dick Institute Kilmarnock, Ayrshire	Montrose Museum and Art Gallery Montrose, Angus
Dumfries Museum and Camera Obscura Dumfries, Dumfries and Galloway, South	National Museums Scotland Edinburgh, Midlothian
Dunbeath Museum Dunbeath, Caithness	Orkney Museum Kirkwall, Orkney
Dunblane Museum Dunblane, Stirlingshire	Paisley Museum Paisley, Renfrewshire
Dundee Art Gallery and Museum Dundee, Angus,	Perth Museum and Art Gallery Perth, Perth and Kinross
Dunrobin Castle Museum Golspie, Sutherland	Stirling Smith Art Gallery and Museum Stirling, Stirlingshire

Stornoway Museum
Stornoway, Isle of Lewis

University of Aberdeen Museum
Aberdeen, Aberdeenshire

Tarbat Discovery Centre
Portmahomack, Easter Ross

University of Manchester
Manchester

Trondheim Museum
Trondheim, Norway

University of Oxford (Pitt Rivers Museum)
Oxford, Oxfordshire

Tullie House Museum
Carlisle, Cumbria

University of Cambridge
(Museum of Archaeology and Anthropology).
Cambridge, Cambridgeshire

With the exception of the British Museum, everyone has allowed me to freely use the images you see here, waiving all copyright fees so the carved stone balls in their collections could be seen by all; for that I am especially grateful. Unfortunately, the British Museum insisted on charging £42.00 for each image despite them having been taken by me. It could have been worse as they originally wanted to additionally charge for taking the images themselves which would have cost a further £108.00 per image. Considering it is a public institution designed to describe how the human race has developed over time I felt this was iniquitous but nonetheless was forced to pay up so the complete story could be told. Had the other museums charged similar amounts this book would have never been published.

I have to thank three other people for their part in this story. Dr Elizabeth Curtis of Aberdeen University and Dr Kenny Brophy of Glasgow University were my viva voce examiners, they not only showed great interest in my thesis but also offered a number of very useful suggestions that have made this volume far more readable.

The third person is my wife Elizabeth who has provided endless support in so many ways during the past seven years. She has driven me endlessly around Scotland, England, and Ireland in the pursuit of carved stone balls and has spent hours discussing them. She has read all iterations of my thesis and this volume many times over to check both detail and grammar; she deserves so much more credit than space allows!

This book is dedicated to her.

Chapter One

Introduction

In 2015, in the final year of a six year part-time degree in archaeology at Leicester University, I chose Neolithic Carved Stone Balls (CSBs) as the subject for my final dissertation. In doing so I found it necessary to create both a Master Database and Photographic Database, as despite them being regarded by many as one of Scotland's archaeological treasures, no national database existed for them. I soon realised that, although the databases themselves were undoubtedly useful, my actual knowledge of CSBs was limited and initial research revealed that surprisingly few studies had been carried out on these artefacts and so decided to study them in greater depth. This is the culmination of a further six years' research into their manufacture, distribution, potential use, and the people who made and used them.

Unlike Plain Stone Balls, which have also been carved and are often similar in size, Carved Stone Balls *per se*, have between three and one hundred ninety-two knobs or discs projecting from their surface. The most commonly found type have six knobs or discs with the second most common having four. While being made from a variety of rock types, most of those seen in museum collections are grey or black which is mainly due to the acquisition of organic or mineral coatings during 5000 years of burial along with dirt and grease from handling since rediscovery. In some instances, these coatings have been removed revealing the true coloration of the stone used; as the freshly made replicas in Figure 1.1 show, the colour of many would have, at least initially, been quite distinctive. A small number were also decorated with carved or incised motifs similar to those used on tombs in the Boyne Valley in Ireland and, to a lesser degree, rock art found elsewhere in Britain and Ireland (Bradley and Chapman 1986: 131).

As a result of comprehensive research to establish which museums held collections of CSBs in Scotland and England, a series of visits were made to record them between late 2014 and mid 2015. During this period over 350 CSBs were weighed, measured, and

digitally photographed and the first Master Carved Stone Ball Database and Photographic Database was produced. Although some collections were relatively close together, they were not always available at the same time. For instance, one collection was on loan to a Japanese museum for several months and National Museums Scotland were in the process of moving much of their collection to a new storage facility, entailing more than one visit to some locations. The collection of data eventually involved travelling over 15,000 miles.

One of the main problems encountered in recording CSBs was a lack of findspots or contextual information, resulting in them being labelled random or stray finds. Many were at best attributed to a farm, village, parish, or county with a few simply recorded as being from Aberdeenshire or Scotland. From the dearth of information recorded in museum accession registers it was clear that, by the time they were acquired by antiquarian collectors or museums, the findspot and context of many were lost or distorted. Some had also been curated privately as 'curios' while others were simply left in garden sheds being considered oddly shaped stones. When later generations donated or sold them to museums much or all knowledge regarding



Figure 1.1: Replica Carved Stone Balls showing fresh colouration. © C. Stewart-Moffitt 2021.

their origin was lost in the depths of time. Over the years many CSBs have been sold to private collectors at auction, and even today more continue to be sold regardless of their apparent value to the nation. At least two personal CSB collections exist in Scotland; one has been recorded and can be found in the Master Database, while the other in Kincardineshire, has so far proved elusive and remains unrecorded.

Even in the secure environment of museums, original accession registers have been lost over the years to fire and flood, and from the information recorded in some it is clear that past curators were often unaware of both the significance of the artefacts or information being recorded. Inconsistencies in some registers show the amount and quality of information recorded changed for better or worse as new curators came on the scene and even today, in some high-tech museum environments, original information in accession registers was summarized while being transferred to digital systems and is occasionally missing important and useful information. Despite these shortcomings, around two thirds of CSBs were found to have approximate locations and therefore still have the potential to provide us with an approximate idea of their distribution. Frustratingly though, the remaining third are often the ones that appear to hold the key to unlocking a more complete understanding.

The rediscovery of carved stone balls

The floruit of CSB discovery was in the eighteenth and nineteenth centuries during the Improvement Period (c. 1750 – 1850). Thousands of hectares of previously unproductive and boggy land were drained and brought under the plough by landowners restructuring their estates to increase productivity. Thanks to the Drainage Loan Acts, enacted by Peel in 1846, over £2,000,000 was distributed by the Treasury to farmers in northeast Scotland, enabling the excavation of hundreds, if not thousands of kilometres of drainage trenches and ditches to drain the land. Drainage projects in Aberdeenshire saw trenches dug at depths of between 0.9mtr to 1.1mtrs from the surface; with deeper dikes or ditches taking the drained water to the nearest burn or river (Morton 1855: 688). In 1838, renowned Edinburgh lawyer Lord Cockburn, noted that he '*knew no part of Scotland so visibly improved within thirty years as Aberdeenshire*' and that '*the country between Keith and Stonehaven was little else than a hopeless region of stones and moss*' (Carter 1979: 52).

In lowland areas this entailed the rationalization of farm and field boundaries and the drainage of unproductive wetlands and mosses by trenching, as this comment made by William Hunter in 1862 illustrates '*... the ploughman and the drainer have enriched archaeology by*

the stores of relics which they have brought to light' (Hunter 1862: 2; RCAHMS 2008: 3-4 and Welfare 2011: 31-32). As farm equipment and methods improved, steam ploughs allowed deeper ploughing and the cultivation of heavier soils than had previously been achieved with horse drawn equipment. First introduced in the northeast at Torry, near Nigg in 1858, they came into their own in Kincardineshire some eight years later, when a single set of steam ploughs was purchased by the Kincardineshire Steam Ploughing Company; so popular did they become that the company purchased a second set in 1872 (Carter 1979: 88). In the same year the first set of steam ploughs were used by the Scottish Steam Cultivation and Traction Company at Brownhills, Slains but the heavy Buchan clays seem to have been problematic for the company who moved their equipment back south to Edinburgh. Despite this apparent setback, Aberdeenshire company Philorth brought Fowler double engine steam ploughs to Aberdeenshire and very quickly had a full order book (Carter 1979: 89). While CSBs had been previously discovered through traditional cultivation methods, more were undoubtedly brought to the surface following the use of steam ploughs and subsoilers which tilled the ground to a greater depth. As improvements were made to the land many smaller farmsteads were demolished and new houses, farm buildings, townships and public buildings were constructed (Tarlow 2007: 35), along with the development of a new road and railway infrastructure needed to serve the ever-increasing population. Many CSBs were unearthed while digging post holes and trenches for foundation works, while others were discovered while digging peats for fuel. LM CSB 002 found at Jeantown, now Lochcarron, in Wester Ross was recovered from a peat bog at a depth of 2.44mtrs and LM CSB 013 found at Dale Moss in Caithness was buried at 1.83mtrs. Documentary evidence shows that the majority of CSBs were found by ploughmen, farm labourers and groundworkers going about their daily work of trenching, digging foundations, clearing cairns and tumuli (Smith 1874: 30-51). Contemporary records also appear to show that many CSBs were subsequently acquired either by the owners of the land on which they were found or by local clergy, many of whom were antiquarians and collectors of curios. While some CSBs remained in family collections for generations others were bought, sold, swapped, exchanged and exhibited before being either auctioned or donated to museum collections. As with many other prehistoric artefacts, contextual information associated with their findspots, if it ever existed, was generally lost during these exchanges and very often the death of a collector also meant the loss of any information associated with the artefact (Smith 1874: 33).

Not all CSBs were found on land, three were found in watery contexts, in or close to rivers; whether

these were deliberate depositions or accidental loss is unknown. CSB 407 was found buried at a depth of 2.44mtrs beside the Bridge of Earn at a location used for centuries as a ford. This ford was situated at a point where the tidal element of the Earn had a minimal effect on its depth at low tide, suggesting it could have been accidentally lost during a river crossing. Although found close to the bank it seems reasonable to suppose that river dynamics over 5000 years may have altered its course which, along with land reclamation and bridge building over the last several hundred years, may have restricted its width at this point, suggesting it could have originally been lost in the river itself (Bradley 1998: 5). Alternately it is possible that it may have been deliberately deposited as a votive offering (Bradley 1998: 36-40 and Bradley 2017: 180-198) or even simply discarded in the river at the end of its useful life. CSB 072 was also discovered in a watery context being dredged from the River Tay, but once again the circumstances of its deposition or accidental loss are unknown. Although, as the actual findspot is unknown, it is also possible this may have been an act of deliberate deposition at the end of its useful life. The final ball found in a watery context is CSB 017 which is said to have been discovered in the River Thurso: as the exact location and circumstances surrounding its recovery are unrecorded it is impossible to comment on whether it was an accidental or deliberate deposition.

CSB distribution

The majority of these uniquely Scottish artefacts were found along the eastern seaboard of Scotland between the Moray Firth and the Firth of Forth with an epicentre around Inverurie and Fyvie in Aberdeenshire. A few outliers have also been found scattered along the thin strip of fertile coast that exists between the Moray Firth and Caithness, on the Inner and Outer Hebrides, along the west coast of Scotland as far south as the Solway Firth and into Cumbria along the River Eden. They have also been discovered in Orkney, although the majority of these have a different and particularly distinctive form. Three were also found scattered along the east coast of England in Northumberland, Durham, and Yorkshire with a further three in Ireland and a single example in a medieval clearance cairn in Norway. It's probable that the majority of these travelled during the Neolithic but, as their history is unknown, it is also possible they could have journeyed there more recently in the hands of antiquarian collectors. The sole example from Norway was almost certainly found by Vikings

Table 1.1: CSBs with find dates between 1827 and the 1970s. C. Stewart-Moffitt 2020.

Year	Number Found	Year	Number Found
1827	1	1902	1
1835	1	1905	1
1847	1	1910	1
1848	1	1914	2
1854	1	1915	1
1858	1	1923	1
1867	1	1930s	3
1879	1	1940s	1
1882	3	1950s	3
1891	1	1960s	3
1894	2	1970s	4
1896	1	-	-
1897	2	-	-
1898	1	-	-
1899	2	Total	41

during an expedition to Scotland and taken home as a curio; it is documented as being discovered in an early medieval clearance cairn (Brevik 2013: 47-49).

Finders, collectors, museums, and dates

During my initial research it became clear that despite the majority of museum registers recording acquisition dates, few recorded find dates or indeed anything else about the artefact. This may have been due to the collecting activities of antiquarian collectors more concerned with artefact acquisition than the recording of temporal information. Even when more was known of the circumstances surrounding the discovery of an artefact this knowledge rarely survived subsequent transfer between peers or when collections were donated or sold to museums. For this reason, most of the information regarding find dates had to come from secondary sources such as the Proceedings of the Society of Antiquaries of Scotland. Today only a handful of reliable find dates exist as can be seen in Table 1.1.

One of the most active antiquarian collectors in Aberdeenshire was John Rae (1848-1891). Rae, who in 1867 aged nineteen, opened a grocer and spirit merchant business in Aberdeen, and was an active member of the Aberdeen Natural History Society and the Aberdeen Working Men's Natural History Society and was known to regularly contribute artefacts to antiquarian lectures and exhibitions (Taylor 2015: 165). His antiquarian interests and knowledge were well known in academic circles to the extent that in 1885 he and his wife were invited to Balmoral Castle for a meeting of the British Association for the Advancement of Science (Taylor 2015: 166). He was a prolific collector and by 1891 his collection was considered by his contemporary, Alexander Walker to be '*not only the best known in private hands but was superior to that of the Antiquarian Museum in Edinburgh*'. When his collection,

which he unassumingly called a ‘*mere routh o’ auld nick-nackets*’, was auctioned in 1892 it comprised over 5832 items, some of which originated from overseas: much of the collection was acquired by museums (Taylor 2015: 166, 177-180). Rae began collecting in childhood and continued until his death in 1891 and although we cannot be sure of actual acquisition dates, it seems that as an adult he was probably collecting artefacts from at least the late 1860s to the early 1890s. Rae was not the only collector of CSBs during this time, many of his fellow antiquarians were also busy collecting and exchanging artefacts, some of whom no doubt had begun their collections even earlier. An analysis of antiquarian collectors, Table 1.2, shows that most were either members of the aristocracy, professionals or, like Rae, businessmen. Although not comprehensive, Table 1.3 lists some of the larger antiquarian collections sold or donated to museums on the death of their keeper.

Museum acquisition records between 1827 and the early part of this century are shown in Table 1.4. The earliest record appeared in 1827 and was followed by a few sporadic acquisitions up until the early 1850s. Between 1855 and 1871 the numbers increased slightly and became more regular and may have been due to an intensification in the amount of drainage work undertaken following the 1846 Drainage Loan Acts along with increasing amounts of building and infrastructure work. A larger and more consistent increase can be seen between 1872 and 1892 which may have been due in part to the depths achieved by steam ploughing. The increase in the National Museum of Antiquaries (now National Museums Scotland) collection, between 1896 and 1911, may also have been due to the influence of Frederick Coles during his employment as Assistant Curator between those dates. Coles great interest in CSBs and his correspondence with antiquarian collectors will be covered in more detail in a later chapter.

Treasure Trove records from the 1990s and early 2000s show many of those processed during this period had been either family heirlooms or curiosities found by previous generations which were either ‘curated’ at home on the mantle shelf or put in a drawer or shed and subsequently forgotten.

Recreating the past: replica CSBs

A number of cast/replica CSBs are known to have been made from originals in private antiquarian collections. While some were made to satisfy the demands of fellow antiquarian collectors, others were made professionally by the National Museum of Antiquaries to expand their collection and displays. Overall, the quality of these cast/replica CSBs was excellent; many appear to have been cast in self coloured resin and at least one seems

to have been weighted to be comparable with the original. The few that were cast in plaster particularly stand out as they are light in weight and have generally not aged well. Many of those with painted surfaces are now crazed and several appear to have been dropped resulting in considerable damage. When, on the death of their keepers, antiquarian collections became available, many cast/replicas were also acquired by museums. The majority appear to have been one-offs, although in a few cases a duplicate seems to have been made, possibly for another collector or a museum (Foster and Curtis 2015: 1-27). Table 1.5 lists all known cast/replicas in museum collections along with the current location of the originals.

Lost knowledge, new theories, and artistic fascination

The lack of findspot and contextual information is particularly unfortunate and has considerably hindered further investigation into their age, origin, and social use (Saville 2011: 19) and does not permit any insight into how CSBs lost either their allure or influence or indeed met their final demise. While some may have been accidentally lost others may have been subject to formal deposition or simple abandonment at the end of their useful life. Over the years a great deal of speculative discussion by both academic and lay people has taken place, but despite numerous suggestions their use is still currently a mystery. In 1954 Stuart Piggott wrote ‘*The use, practical or ritual, of these balls is unknown...*’ (1954: 332) and so it remains today, 66 years later. Despite the obvious lack of information, museums with collections of CSBs report considerable interest in them with their displays prompting numerous questions from visitors who find it difficult to understand their purpose. Over the years National Museums Scotland, who have the largest collection of CSBs, have compiled a considerable file of letters suggesting alternative hypotheses regarding their potential use (Edmonds 1992: 179, 184). Any search for carved stone balls or petrospheres on the internet will always produce several pages of hits covering both historical and more recent research to New Age inspired ideas which suggest they may have been copies of pollen grains, platonic solids, star patterns, atoms, or shamanistic visions. Interest in these artefacts is both international and wide-ranging, with admirers not only in the academic worlds of archaeology and museology but also in the worlds of mathematics, science, architecture and particularly art as can be seen in Figures 1.2, 1.3 and 1.4.

How little we know and questions to ask

As noted earlier, despite recording and compiling two original databases and offering some original ideas regarding the origin of the material in my

Table 1.2: Titles and Professions of collectors
(Individual collectors and those with larger collections).
C. Stewart-Moffitt 2020.

Professions	
Titled	6
Academic	1
Medicine	8
Military	5
Religion	7
Law	3
Teaching	3

Table 1.3: Larger Antiquarian collections acquired by museums
by year. C. Stewart-Moffitt 2020.

Collection	Year
John Sturrock	1889
John Rae	1892
Dr. Temple	1900
Rev. William Greenwell	1909
Wilson Collection	1910
Henderson Bishop Collection	1914
Young Collection	1927
Sir John Evans Collection	1927
Captain Hugh P Lumsden Collection	1937
Grahame Callander	1940

Table 1.4: CSB find dates/museum acquisition dates by year (where listed). C. Stewart-Moffitt 2020.

Year	Total	NMS	Year	Total	NMS	Year	Total	NMS	Year	Total	NMS
1827			1864	2	2	1901	1	1	1970s	10	1
1828			1865			1902					
1829			1866			1903	4	4	1980s	8	1
1830			1867			1904	4	4			
1831			1868			1905	1	1	1990s	14	1
1832	2		1869			1906	5				
1833			1870			1907	2	1	2000s	15	4
1834			1871			1908	3	2			
1835			1872	2	1	1909	3	1			
1836			1873	1	1	1910	5	4			
1837			1874			1911					
1838			1875	1	1	1912	1				
1839			1876	1	1	1913	2	1			
1840	1	1	1877			1914	20				
1841	2		1878	6	4	1915	1				
1842			1879			1916	1	1			
1843			1880	1	1	1917	2	2			
1844			1881	3	3	1918					
1845			1882	3	3	1919					
1846			1883			1920	2				
1847			1884	1	1	1921	2	1			
1848			1885	2	2	1922					
1849			1886	3	3	1923	1				
1850			1887	1	1	1924					
1851			1888	2	2	1925	3	4			
1852	1		1889	11	10	1926					
1853			1890	14	13	1927	13	2			
1854			1891	7	7	1928	1	1			
1855	1		1892	11	8	1929	1	1			
1856	1		1893								
1857	5		1894	1	2	1930s	20	12			
1858	1	1	1895	1	1						
1859			1896	2	1	1940s	10	8			
1860	2	2	1897	1							
1861	2	2	1898	4	3	1950s	18	6			
1862			1899								
1863	2	1	1900	4	4	1960s	8				

Table 1.5: List of Cast/Replica locations along with the original CSBs where known. C. Stewart-Moffitt 2020.

Number	Cast/Replica Held By	Accession Number	Original Held By	Details
CSB 016	National Museums Scotland	NMS X.AS 38	Hunterian Museum	Cast/Replica of CSB 046 in the Hunterian Museum numbered GLAHM B.1914.357.
CSB 204	Cambridge Museum of Archaeology and Anthropology	Z 21546/ Record 2	Dunrobin Castle Collection	Cast/Replica of CSB 471 in Dunrobin Castle Collection.
CSB 205	Glasgow Museums	ARCHNN.1303	National Museums Scotland	Probable Cast/Replica of CSB 455 in NMS numbered NMS X.AS 111.
CSB 253	National Museums Scotland	NMS X.AS 32	National Museums Scotland	Cast/Replica of CSB 494 in NMS numbered NMS X.HA 658.
CSB 278	Elgin Museum	ELGNM 1957.12.1	National Museums Scotland	Cast/Replica of CSB 388 in the NMS numbered NMS X.AS 217.
CSB 285	National Museums Scotland	NMS X.AS 8	Aberdeen University Museum	Probable Cast/Replica of CSB 136 in Aberdeen University Museum numbered ABDUA 16277.
CSB 289	National Museums Scotland	NMS X.AS 11	National Museums Scotland	Cast/Replica of CSB 388 in the NMS numbered NMS X.AS 217.
CSB 291	National Museums Scotland	NMS X.AS 17	Perth Museum	Cast/Replica of CSB 073 in Perth Museum numbered 1290B.
CSB 292	National Museums Scotland	NMS X.AS. 19	Aberdeen University Museum	Probable Cast/Replica of CSB 127 in Aberdeen University Museum numbered ABDUA 16268.
CSB 293	National Museums Scotland	NMS X.AS 20	N/A	Possible Cast/Replica of CSB 116 in Aberdeen University Museum numbered ABDUA:16257.
CSB 294	National Museums Scotland	NMS X.AS 21	N/A	There may be another Cast/Replica similar to this numbered CSB 463 or A1455 in the Stirling Smith Museum, Stirling.
CSB 295	National Museums Scotland	NMS X.AS 22	N/A	N/A
CSB 296	National Museums Scotland	NMS X.AS 24	National Museums Scotland	Cast/Replica of CSB 444 in the NMS numbered RSM 1905-950.
CSB 297	National Museums Scotland	NMS X.AS 25	National Museums Scotland	Cast/Replica of CSB 445 in the NMS numbered RMS 1905-947.
CSB 298	National Museums Scotland	NMS X.AS 26	Montrose Museum	Cast/Replica of CSB 228 in Montrose Museum numbered M1977.84.
CSB 304	National Museums Scotland	NMS X.AS 87	Ashmolean Museum	Cast/Replica of CSB 013 in Ashmolean Museum, Oxford. numbered AN 1927.2730.
CSB 305	National Museums Scotland	NMS X.AS 33	Skara Brae Visitors Centre	Cast/Replica of CSB 493 in the NMS numbered HA 657.
CSB 308	National Museums Scotland	NMS X.AS 47	Aberdeen University Museum	Original is probably CSB 144 in Aberdeen University Museum numbered ABDUA 16286.
CSB 309	National Museums Scotland	NMS X.AS 48	Hunterian Museum	Cast/Replica of CSB 047 in the Hunterian Museum numbered GLAHM B.1951.1.
CSB 310	National Museums Scotland	NMS X.AS 49	N/A	N/A
CSB 311	National Museums Scotland	NMS X.AS 51	Aberdeen University Museum	Probable Cast/Replica of CSB 115 in Aberdeen University Museum numbered ABDUA 16256.



Figure 1.2: Glass Carved Stone Ball and hand, 'Mine' by Louise Tait. Courtesy of Bam Hyslop.

undergraduate dissertation, it soon became evident how little I or anyone knew about these enigmatic artefacts. I began to realise that my inability to answer the many questions I was asked showed the need for a greater depth of study and so began a research degree in 2016 formulating six key research objectives based upon my previous two years' work.

1. Carry out a complete and detailed re-analysis of the corpus taking into account the striking similarities between CSB materiality and decorative/constructional elements, to investigate the possibility that individual craftspeople might be identifiable within the corpus. Following this re-analysis to update and revise Dorothy Marshall's 1977 Classification/Typology by adding new types where necessary. Also, to reanalyse CSB decoration and make comparison with other Late Neolithic decorative motifs in an attempt to establish why and when the decoration on some CSBs may have been made and what it might have meant to those who made and saw it.
2. It appeared that, in the past, little geological or mineralogical characterisation or identification had been carried out on CSBs and much that was attempted seemed to have been by people with a very rudimentary knowledge of these disciplines. It was therefore considered necessary to complete an expert visual characterization of as many CSBs as possible in an attempt to reveal more about both the artefacts and their origin. Following visual characterisation, a comparison would be made between the newly identified materiality of each CSB and the geology surrounding its findspot to distinguish which examples may have been made from locally available materials and which may have travelled from elsewhere.
3. The landscape context of each CSB was also identified as an important area of research and aimed to study the overground geology and agricultural potential of the area along with contemporary artefacts or monuments around findspots, to explicate any context that may exist between them. In particular an assessment of



Figure 1.3: 'First Conundrum' in Festival Square, Edinburgh created by Remco de Fouw. © Google Images.

why some areas seemed to be hotspots for finds was considered necessary as was the potential use of overland, riverine, or coastal routes for their distribution.

4. Analysis of those CSBs with findspots, both by type and the number of knobs or discs to understand if local or regional connections may have existed.
5. Investigate CSB manufacturing techniques and tools used and examine suspected nineteenth and twentieth century forgeries.
6. Finally interpret and contextualise the above findings to identify the reasons behind the creation of CSBs and understand how and why they were used, in an attempt to further our knowledge of the Late Neolithic people of Scotland.

Structure, themes, and interpretation

In the chapter that follows I will provide a background to the transition between the Mesolithic/Neolithic periods offering a broad view of the changes that Neolithic people made to the natural environment, their farming practices, and the novel elements of material culture they introduced. Chapter Three will comprise a review of the literature surrounding CSBs from the mid nineteenth century to the early twenty-first century illustrating how past antiquarian and archaeological

thought regarding these artefacts has changed and, thanks to the internet revolution, will include some of the stranger ideas that surround them. In Chapter Four I will present a brief resumé of the unique geological landforms of Scotland with important new analysis by this author of the first visual geological characterisation of CSBs in the University of Aberdeen and National Museums Scotland collections. Visual characterisation work was carried out by Dr John Faithfull, Curator of Mineralogy and Petrology at the Hunterian Museum, an acknowledged expert in the geology and mineralogy of Scotland. Dr Faithfull had already carried out the mineralogical characterisations of several CSBs in the past and has a considerable knowledge of how stone has been used by past people. He was the obvious person to offer informed professional guidance on the materiality of CSBs. In Chapter Five I will consider how Scotland's landscape may have been responsible for CSB findspots and how it may have offered various opportunities for their dissemination throughout the country by land, river, and sea. Chapter Six will look for potential links between CSB findspots and Neolithic and Early Bronze Age monuments, artefacts and natural locations and features in the landscape. Chapter Seven will look at the subject of classification and typology and how it can be useful to archaeologists researching early collections of artefacts, especially where very little is known about them. I will also illustrate how Marshall expanded the early classification and typology by Coles



Figure 1.4: 'The Eternal Present: Gneiss, Granite and Gabbro' in Oldmeldrum, Aberdeenshire by artist Janet McEwan. C. Stewart-Moffitt 2018.

as more CSBs were found and by providing my own expansion of Marshall show that we may in fact be able to see the hand of individual craftspeople in the form of specific repetitive styles and attributes. In Chapter Eight I will consider how the decoration seen on some CSBs may have been in existence for considerably longer than the Neolithic and how it, or the ideas behind it, may or may not have travelled from one place to another. I will also provide additional modifications to Marshall's classification/typology and offer further thoughts on where the decoration on Aberdeenshire and Orkney CSBs may have originated. Chapter Nine will consider how many of the more symmetrical CSBs may have evolved from plain stone balls rather than simply having been carved from a beach or river cobble and provide evidence of levels of skill and innovation suggesting they were made by a range of individuals with a variety of skill. It will also suggest their potential

stylistic evolution and how and why these styles may have evolved over time before finally arriving at their developmental apogee. Finally, I will suggest what they may have been used for during the Late Neolithic and why they ultimately fell out of favour. In Chapter Ten I will conclude by reviewing the research questions posed at the beginning of my research to determine if any of my original objectives have been met and offer some thoughts on the way forward in carved stone ball research.

As will be seen in the chapters that follow a wide range of uses have been ascribed to CSBs, some finding their origin in the period during which their commentators lived, others from microscopic simulacra. It is hoped this latest research will offer some new and alternative ways of looking at them and will promote further discussion around the people of Neolithic Scotland.