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THE SIGNIFICANCE OF THE ANCIENT STANDING STONES, VILLAGES AND TOMBS FOUND ON THE ORKNEY ISLANDS

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ABSTRACT

The Orkney Islands make up an archipelago north of Scotland. A collection of ancient stone structures believed to predate the pyramids of Egypt and the golden age of China is found in this remote corner of the globe. Archaeological evidence from these islands is consistent in several ways with the biblical account in Genesis 11:1-9 that describes an advanced civilization at Babel in Mesopotamia, the confusion of languages, and the dispersion of groups of people throughout the world. Descendants of these dispersed people very likely built the advanced Orcadian civilization that prospered over 4000 years ago.

INTRODUCTION

Archaeologists consider the nearly 50,000 ancient standing stones found throughout Western Europe to be a key to understanding prehistoric Europe (28, p 9). These massive stone constructions represent great resources of manpower, advanced technical ingenuity, and social organization (12, p 7).

The first Neolithic farmers on the previously uninhabited Orkney Islands are believed to have arrived between 4000 and 3500 B.C. and to have begun construction of their society very early in their habitation. Historians say these settlers had advanced ideas of culture and society and possessed a remarkable intelligence that enabled them to construct significant ancient structures (9, p 6,7). Archaeologists date England's stone circles, including the Ring of Brodgar and the Standing Stones of Stenness on the Orkney Islands, from 3500 to 3000 B.C. (4, p 145-148). This predates all but the Sumerian civilization and possibly the early Breton Passage graves in France (28, p 32).

There are two theories that relate to the origin of the advanced knowledge necessary for the construction of the ancient standing stones. The non-diffusionist theory holds that local tribes independently acquired the knowledge and motivation to build these structures. The diffusionist theory, on the other hand, claims that these major construction projects resulted from Eastern Mediterranean or Southern Mesopotamia influences (12, p 9).

There are also two theories that relate to the dating of history. One theory is based on information contained in the Bible and places the age of the earth in the range of 6,000 to 15,000 years (11, p 26-31). The other assumes that the earth is about 4.6 billion years old and maintains that modern mankind evolved over millions of years from less advanced forms of life (13, p 91). Since this theory presents a chronology radically different from biblical chronology, its adherents often challenge the dates of ancient historical events regarded as accurate by biblical scholars. Their differences remain unresolved.

Ancient stone structures found on the Orkney Islands are not confined to this site alone. The remains of ancient civilizations around the earth reveal almost contemporaneous construction of communities and stone structures, e.g. India, Russia, Ireland, Egypt, Peru, China, France, and Germany. This may suggest that ocean travel was common (2, p 187) and that theocratic groups in various places kept in touch with one another during the Neolithic period (12, 192). Therefore, it is reasonable to assume that ships capable of crossing large oceans connected the people of the Orkneys to other ancient

civilizations.

The Book of Genesis (Chapter 41, verses 54-57) relates the story of a famine that lasted seven years and affected all the face of the earth. A seven-year famine in these times would decimate most communities. The first affected persons who would not survive would be children from birth to age five; the second group who would suffer the same fate would be the oldest individuals; next to perish during a long famine would be the young people from ages six to sixteen. The most likely survivors would be middle-aged individuals enjoying reasonably good health before the famine began. However, even these survivors would generally be lethargic and their offspring malnourished and possibly malformed.

Many biblical scholars believe that this was only a local famine restricted to Egypt and Canaan and perhaps the countries bordering the Mediterranean Sea and Mesopotamia. However, if the Bible dissertation is accurate, we are reading of a worldwide famine that may have been connected in some way to the Ice Age. Likewise, a literal interpretation of these verses records a major catastrophe that devastated all but the very best prepared societies and could be the explanation for the sudden mysterious decline of civilizations around the earth. The Bible reports that Egypt was well prepared for this long famine because of a supernatural revelation about the coming seven years of bountiful harvests followed by seven years of famine.

The total impact of a seven-year famine would be catastrophic. Not only would there be a tremendous loss of life due to malnutrition and starvation, but societies without a written language or cultures dependent upon oral transmission of experiences and techniques would lose massive amounts of acquired information because of the rapid and unexpected death of the most experienced and best-educated individuals. Included in this loss could be the engineering practices necessary to cut and move large stones and to construct major structures with large stones. Likewise, extensive knowledge of astronomy, mathematics, and music could be lost with the early death of community masters.

The seven-year famine is a viable explanation for the well-documented mysterious decline of the ancient Orcadian civilization. In addition, it would be an excellent reason for the rapid decline of many other contemporaneous societies around the globe. There was also a loss of knowledge and technological skill in Egypt during this time period.

A number of unusual words and phrases used by archaeologists to identify various structures and locations are used in this paper. An explanation of their meaning and importance to this discussion is provided in Appendix I.

Location of the Orkney Islands

The Orkney Islands are located between the northern coast of Scotland and the Shetland Islands. There are about seventy islands within the Orkney archipelago, thirteen of which are presently inhabited. The exact number is dependent upon the definition of an island, since many are little more than uninhabited rocks or skerries. Orcadians define an island as a piece of land on which one can keep a sheep for a year, whereas a smaller area than that is called a rock (19, p 1,3). The islands are on latitude 59 degrees north, which is only 50 miles south of Greenland. They extend 53 miles from north to south and 30 miles east to west, with a total coastline of approximately 570 miles. The islands cover an area of 376 square miles, more than half of which is taken up by Mainland, the group's largest island. Most of the islands are formed by rocks of the middle old sandstone layer, apart from the hills of the island of Hoy that consist of upper old red sandstone rocks. The rocks provide an abundant supply of good sandstones and flagstones for building purposes and, since they split easily along clear bedding planes, present little difficulty in quarrying. This abundance led to the tradition of fine dry-stone building early in the prehistoric settlement of the Orkneys (23, p 5).

Orkney is divided into three regions: the North Isles, the South Isles, and the Mainland. The 1991 census reported a population of 19,450 people, the majority living on the Mainland. Today, the two largest communities are Kirkwall and Stromness (16, p 1).

Remains of ancient civilizations on the Orkney Islands

The landscape of the Orkneys is highlighted by multiple remnants of ancient stone structures. Not only

are these standing stones, homes and villages, and communal tombs some of the most ancient and best-preserved structures in the world, they are readily accessible. A partial listing and description by location of the major structures of the ancient Orcadian civilization is provided in Appendix 2.

Sequence of Orcadian civilizations

Prehistoric dates in Western Europe vary from region to region, but the Mesolithic (Middle Stone Age) commonly used in Britain refers to the period from 10,000 to 4,000 B.C. and the Neolithic (New Stone Age) to the period 4000 to 2000 B.C. Another historian (4, p 15) defines the prehistoric periods in Britain, Ireland, and Brittany as:

Early Neolithic	4500 to 3500 B.C.
Late Neolithic	3500 to 2200 B.C.
Early Bronze Age	2200 to 1750 B.C.
Middle Bronze Age	1750 to 1000 B.C.

Following these periods are the Iron Age, the Picts and Christian era, the Viking period, Early Scotland, the British period, and lastly, Modern Scotland. No remains of human activity in Scotland have been reliably dated before 7500 B.C. (2, p 124). This discussion deals almost exclusively with the most ancient periods of demonstrable Orcadian history.

Assessment of the most ancient Orcadian civilization

The ancient stone structures found on the Orkney Islands present the remains of an advanced civilization that prospered around 4000 years ago. A prime example of the skills of these ancient inhabitants is the oldest standing dwelling house in Northwest Europe, the Knap of Howar on the island of Papa Westray, dated before 3500 B.C.

The climate of this era appears to have provided a warmer and much more favorable environment for habitation and the cultivation of crops than at the present time. A study of the human remains found in the Tomb of Eagles on South Ronaldsay Island revealed that the people experienced energetic lives of health, even though some encountered some of the injuries and diseases common to contemporary society. A small percentage experienced dental caries and periodontal disease, while others exhibited fractured and healed bones, and still others suffered from degenerative spinal disease (24).

In addition, the Orkney people possessed a remarkable knowledge of engineering, mathematics, and astronomy that is demonstrated by the craftsmanship and durability of remaining structures and artifacts. Despite the fact that the Orcadian culture seems to have been prosperous, religious, and well educated, there is a striking absence of any original inscriptions or writing on the erected stones of this time. Scholars use the term prehistory to describe a time before writing was used; the time of prehistory ended in Scotland between A.D. 750 and 1000 (2, p 124).

Skara Brae

The ancient well-designed and very well built houses and villages found on the Orkney Islands reflect a comfortable lifestyle with a sense of community. One of the world's best examples of an ancient community is Skara Brae, which is located on the western coast of the Mainland adjacent to the Bay of Skail. The village was inhabited for seven generations but never grew larger than eight structures and never had a population more than 100 people (18, p 1). Professor Gordon Childe, who supervised the archaeological research of this site from 1928 to 1930 (5, p 30) said: "Nowhere, except in Egypt or at Pompeii, is there a prehistoric settlement in which the sites, huts, and even domestic furniture are in such perfect preservation." However, it must be added that due to storms some structures of Skara Brae have been lost over the centuries.

Archaeologists believe that Skara Brae was inhabited continually from 3100 to 2500 B.C., making it one of the first known farming villages in Britain (14, p 11). During this 600-year period there appear to have been two distinctive phases of construction. What is mainly seen today is the second phase. The descendants of the first settlers decided to improve their dwellings about halfway through the time the

village was occupied. Originally, beds were set into the walls at either side of the hearth and, typical of Skara Brae, a shelved stone dresser was placed opposite the main entrance. Completion of this project that involved construction of new homes built in the immediate vicinity of the remains of earlier structures may have taken a generation (5, p 20,21). Even though larger and more rectangular with rounded corners, the new houses had the same basic design with a floor area about thirty-six square meters. Later, the beds were not built into the wall, but protruded into the main living area.

The unusual construction technique employed by the people of Skara Brae involved use of midden, a substance that has the texture of tough clay (5, p 6). Apparently, the people living in an earlier village purposely collected their everyday refuse on a nearby site where, after gradual decomposition, midden formed. When a sufficient amount had accumulated, mounds of the substance were placed wherever a new site was selected and holes were dug to support stones for houses. This technique was used exclusively, but there is no evidence that this village ever consisted of freestanding stone structures. Midden may also have been used for wind-proofing and general weather-proofing (5, p 16,17).

There was also a single way of arranging the interior of the house, suggesting to historians that sharing attitudes and beliefs by everyone in the community doing things exactly the same was an important part of living together in harmony. Therefore, a large square hearth made up of four stone kerbs (closely set stones) was always placed in the center of the house (2, p 124) where it provided warmth and light to the entire structure, as well as for cooking and disposal of combustible rubbish (17, p 1). Each house was a private home designed for the accommodation of family units comprising two or three generations, i.e. parents, their children, and grandparents but not aunts, uncles, and cousins. There were no communal dwellings other than a freestanding structure that is believed to have been a workshop.

Different theories have been proposed about the abandonment of Skara Brae, but the exact cause is unknown. Some believe the individual family became more important than the tightly knit village, leading to the dispersal of families into single farmsteads that identified with a regional community. Professor Childe believed that a strong storm forced the abandonment of the village (5, p 29). Heavy snowfall from the Ice Age Period may also have forced the people to leave Skara Brae. It is also possible that a famine may have caused the end of Skara Brae. We do know that at some time a major storm covered the village with sand until 1850 when a strong storm uncovered a portion of the village.

The Ring of Brodgar

The Ring of Brodgar is the largest and finest known simple stone circle in Scotland. The structure was built between 3000 and 2000 B.C. and is located on the Mainland between the freshwater Loch of Harray to the north and east and the saltwater Loch of Stenness to the south and west. Originally, the ring is believed to have had about sixty tall thin stones that were set in a perfect circle with a diameter of 110 yards. Fewer than half of the stones now remain and many of these are broken. Unfortunately, one stone was recently struck by lightning and broken into pieces.

Surrounding the circle of stones is a ditch cut into stone that measures as much as thirty feet wide and ten feet deep. Adjacent to this structure are other stones that lead to the nearby Standing Stones of Stenness (4, p 173); both are believed to have been religious monuments (5, p 28). Since it is estimated that almost 150,000 work hours were needed to construct the Ring of Stenness and the Ring of Brodgar, much more than any single village could have supported, a coordinated effort would have been required (5, p 28).

The Standing Stones of Stenness

The Standing Stones of Stenness are about one mile from the Ring of Brodgar. Originally, twelve very tall stones in a circle or an ellipse with a diameter of 104 feet were surrounded by a henge bank and ditch. Excavations of the site have uncovered a square setting of four stones in the middle of the circle; traces of stone and timber structures were identified between these four stones and the henge entrance. Adjacent to the Standing Stones of Stenness are the remains of a village built not long after 3000 B.C. It has been excavated also and is called the Barnhouse Village (4, p 147)(14, p 173).

Significance of the ancient structures on the Orkney Islands

The ancient structures, human remains, and artifacts found on the Orkney Islands are examples of an advanced civilization that, according to biblical chronology, flourished in a time period shortly after the dispersion of people from Babel in Mesopotamia. According to archaeologists, the people who built this vast array of individual houses and villages, standing stones, rings and circles, and chambered tombs were the first inhabitants of the Orkney Islands.

The engineering and construction skills required to build many of these structures is remarkable. The methods used first to acquire, then move and position large stones of immense weight is still a mystery. Their ability to drill holes through hard rock and polish rock to a mirror surface is a truly extraordinary accomplishment. That these people possessed sufficient knowledge of astronomy to coincide site selection and alignment of structures with positions of the sun and moon at different times of the year is fascinating. Where did this intelligence come from? Could it be that the people who migrated to the Orkney Islands brought these skills with them from a previous intelligent society?

Most ancient houses found on the Orkney Islands were built of native stone and were comfortable dwellings for their inhabitants, what we would call traditional family dwellings. They contained numerous amenities that made for easier living, such as built-in beds, shelves and dressers, storage areas and water tanks in the floor for storage of drinking water, washing, or keeping fish bait. There were interior-to-exterior drainage systems that were used to remove liquid waste from the inside of the house. They all had a central fireplace or hearth that was used for light and warmth, cooking, and garbage disposal. The builders of these dwellings created a pleasant and private place for their families to live, and these homes were used for hundreds of years (5, p 8).

The roof construction of the houses is not known since no roofs have been found. However, modern historians have made an interesting supposition on this subject saying the roofs were probably made of driftwood. Reportedly, an abundant supply of driftwood from the eroding virgin forest of North America was apparently carried across the Atlantic by the prevailing currents and washed up on the island beaches (5, p 13)(9, p 223). This is a fascinating theory since the driftwood could also very possibly have been a remnant of the Genesis Flood; this seems more plausible than multiple trees by chance falling into rivers and washing across the Atlantic.

The Ring of Brodgar and the Standing Stones of Stenness are truly remarkable arrays of large stones, carefully placed to form a ring or circle. After years of study and speculation, the exact purpose or function of the stones remains a mystery. However, it does appear that the stones of the Ring of Brodgar were purposely positioned to align with the moon and the Standing Stones of Stenness to align with the sun. They are located between the village of Skara Brae and the elaborate tomb known as Maes Howe. Quite likely they were centers of religious activity (4, p 145-148).

The people who built the Maes Howe tomb also possessed significant engineering skills and a fine understanding of the movement of the sun. The only passageway into the interior is aligned so that the rays of the setting sun on the shortest day of the year traverse through this passageway and shine on the back wall of the main interior room. Interestingly, in the adjacent Barnhouse Village the entrance to structure number eight points to the midsummer sunrise on the longest day of the year.

Acoustic archaeologists have studied many ancient sites around the earth, including the structures of the Orkney Islands, and believe that many were purposely built in a manner which would enhance the quality and volume of sounds made in or near them. The sources of sound are said to have come from speaking, whistling and singing, striking rocks or drums, and musical instruments (6, p 30-42). In addition, historians think that hallucinogens were used throughout Europe during the Neolithic period. Traces of henbane, a potent hallucinogen, have been found in Scotland. Music and drugs were often mixed to produce a more impressive religious experience (2, p 68).

Seventy-six chambered tombs or cairns have been identified on the Orkney Islands, and it is assumed that more are yet to be discovered (7, p 291). Not all these stone burial places were built in the same style or with the same techniques, but they do have similarities. They were all constructed about the same time and apparently were used for hundreds of years. Most have multiple rooms or chambers and exhibit extremely well built walls, shelves, and ceilings. Evidently, not all the deceased were buried in these special tombs; rather, they served as ossuaries for selected bones of selected individuals. Upon the death of an individual, the body was placed on the ground or on a platform of some type. After many

months, the soft tissue of the body would have separated from the bones making it possible to collect and move the bones to a chambered tomb or final resting place. This practice is called excarnation and has been practiced in many places around the earth, even to the modern era (9, p 133-135).

Great coordination and communication was necessary to build these ancient structures, and thousands of work-hours were required for each project. Since scholars have noted that there was no written language in Scotland before A.D. 750, information had to be passed down from generation to generation by word of mouth, a monumental task. Nonetheless, this is precisely what this highly intelligent and skilled people were able to accomplish. Amazingly, there do not appear to be any examples of experimentation or mistakes in the remaining structures, and the fact that they have survived for 4000 years in such excellent condition attests to the craftsmanship of their builders.

Interpretations and discussion of the ancient sites

The presence of this ancient civilization on the Orkney Islands appears to be consistent with the biblical account in Genesis of the events immediately following the dispersion of people from Babel. According to the Bible, after the flood there was a migration of Noah's family from Ararat to Mesopotamia where Nimrod established a major civilization, its main city being Babel. God was not pleased with the activities and practices of the citizens of this city and, in judgment, caused a confusion of their spoken language, i.e. groups of people were now speaking different languages and each group was unable to communicate with any other. The result of this confusion was the dispersion, whereby groups of people who now spoke new languages migrated to new homes throughout the earth. No explanation has been given for how long it took these groups to formulate a written code for the new languages.

Evidence suggests that part of the migration may have taken place by way of ships that sailed down the Tigris and Euphrates Rivers, through the Persian Gulf, and into the Indian Ocean, perhaps eventually reaching the coastal areas of all the continents. Certainly a land migration would have occurred also, thereby dispersing people throughout Asia, Europe, and Africa. Furthermore, scholars posit that the Arctic Ocean was free of ice and navigable to ships prior to the Ice Age. Hence, a transpolar route to the Far East would have been possible and very desirable for commerce and communication. This would make the Orkney Islands a convenient stopping point for ships sailing across the North Pole, through the Bering Strait, and into the Pacific Ocean.

Archaeologists report that the climate on the Orkney Islands in this ancient time was warmer and milder than today, and thus more conducive to farming. This coincides with the warmer climate documented to have occurred along the coasts of the Arctic Ocean prior to the onset of the Ice Age. A lush growth of vegetation, even tropical plants, developed in the northern territories of Russia, Alaska, and Canada, and enticed millions of woolly mammoths to a land of plenty (3, p 168). Alas, the mammoths were trapped and frozen by a sudden decrease in temperature that occurred in conjunction with the Ice Age (15).

An interesting passage in Genesis (Chapter 41, verses 54-57) concerns the severity and extent of a seven-year famine that was foretold in the dreams of Pharaoh as interpreted by Joseph. That the famine affected Egypt and Canaan is known, but many biblical scholars say that it must have also affected the nations bounded by the Mediterranean Sea. The King James Version of the Bible states:

“The dearth was in all lands. The famine was sore over all the face of the earth. All countries came into Egypt to Joseph for to buy corn; because that the famine was so sore in all lands.”

The word *all* in this passage provides a significant piece of information. If all nations came to Egypt to buy corn, a convenient method of transportation would have been by ship and include use of the North Pole passage. Some conservative biblical scholars place the beginning of the seven-year famine at 1708 B.C. (11, p 67), certainly in the range of time when the Ice Age was in progress. The closing of the northern shipping lanes by ice could have contributed to the famine, as well as to the demise of the woolly mammoths.

Historians report an unexplained or mysterious decline in the ancient Orcadian civilization (5, p 29). Many possible causes for this collapse have been offered, but one report says that it occurred after twenty or so generations, while another puts the breakdown at a few generations after 2500 B.C. (2, p 84). A crop failure and resultant famine has also been suggested as a reason for the sudden downturn.

These suggestions also seem to coincide with the seven-year famine and the Ice Age.

Interesting to note is the decline of another prosperous civilization at this same time. Julian Reade (22, p 69) describes the sudden collapse of ancient Mesopotamia during the eighteenth century B.C. Many cities in the northern portion of this culture were abandoned and the meticulous clerks of Ashur lost count of their kings! The immediate cause of the breakdown is obscure, but a succession of bad harvests and famine has been suggested. This author also provides insight into ancient chronology: dates provided in Mesopotamia are likely to be in error less than a century after 2100 B.C.; allowances should be made for two centuries for the period 3000 – 2100 B.C. and several centuries after 3000 B.C. Cultures and periods frequently overlap in the latter time period (22, p 70).

Archaeologists have discovered the mounds and ruins of the city Caral, Peru, located in the Supe Valley 129 miles north of Lima and about 13 miles from the Pacific Ocean. The oldest structure found in the area is a pyramid that is 60 feet high and 500 feet across. The city prospered from 2627 to 2020 B.C., a time period contemporary with the Egyptian pyramids, the Sumerian culture in Mesopotamia, the Indus Valley in China, and the newly discovered Central Asia civilization near Iran and Afghanistan. Caral emerged very rapidly, grew to a population of 3,000 people and thrived for hundreds of years. Why the civilization declined and disappeared is not known, but it is suggested that the soil in the area became exhausted after 600 years of agriculture, and new complexes were built to the north and south (26)(10)(25)(27).

Thus, it seems as though many ancient civilizations had similar histories and suffered somewhat the same problems about the same time. However, the date for these events is still a matter of dispute. Carbon fourteen dating for the structures of the Orkney Islands (calibrated using dendrochronology) is consistent with modern documentation of the times and events of ancient mankind (9, p 29,30). On the other hand, biblical chronology would suggest the construction of these structures shortly after the dispersion of people from Babel, conservatively around 2200 B.C. Many conservative scientists believe the Ice Age lasted for 600 to 700 years (15), placing it in the same time period as the seven-year famine recorded by the Bible. Because of their northerly location, the people of the Orkney Islands quite possibly were affected by the Ice Age and suffered from the famine. This could account for the sudden and mysterious decline of the ancient people of the Orkney Islands.

CONCLUSION

The ancient structures found on the Orkney Islands are a magnificent collection of edifices that demonstrate the way people of this remote region of the world lived, worked, worshiped, and were buried. The fact that this society arose in the era shortly after the dispersion of people from Babel in Mesopotamia seems to be evidence that they very likely were descendants of the dispersion.

The people who planned and built these ancient structures demonstrated advanced engineering and construction skills. They were aware of the movement of the sun and moon and tracked the movements of celestial bodies with observatories that we now call stone rings and circles. These talents were probably brought with them from their previous habitation.

Even though the evidence is strong that the people who populated the Orkney Islands were very advanced in a broad range of subjects, they apparently did not possess a written language but communicated by word of mouth. This may be due in part to the confusion of languages spoken of before the dispersion, since a long time would be necessary to develop a written code for a new language.

The Orkney Islands possessed a much warmer and more favorable climate at the time of these ancient inhabitants. Archaeologists believe that the Arctic Ocean was ship-navigable before the Ice Age and that the Orkney Islands may have been a stopping point for ships traversing the North Pole passage for commerce around the ancient world. The dispersion was most likely undertaken in part by ships sailing the oceans.

The seven-year famine and the Ice Age appear to overlap in biblical chronology, an unlikely coincidence unless the famine was precipitated at least in part by this climate change.

The famine foretold in the Pharaoh's dreams was catastrophic for people around the world. That many

civilizations mysteriously disappeared about this same time seems to provide validity to the Bible verse that says, " The famine was sore over all the face of the earth."

This same famine may also explain the sudden decline of the civilized culture of the Orkney Islands. Even though much of the information about these extraordinary people was lost with them, their passing may be another link in understanding our history as revealed in the Bible.

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NOMENCLATURE

- broch: a strong circular house built with dry stone, ordinarily 5 to 13 meters high and close to the sea; brochs are unique to Scotland where over 500 have been identified (28, p 17).
- brough: derived from an Old Norse word, *borg*, meaning fort; refers to an island with steep cliffs.
- cairn: a burial mound, long or circular, which is composed of a mass of small stones.
- chambered cairn: a place for deposition of bodies or skeletons consisting of a chamber under a cairn (17, p 123).
- chambered tomb: a mound of earth, turf, or stone containing burial chambers, usually built of stone (17, p 27).
- excarnation: a mortuary practice where the deceased body is not buried at death but exposed to the elements for many months; this allows the soft tissue to separate from the bones.
- henge: a term with various meanings; generally a circular enclosure with an encircling ditch inside a bank pierced with one or more entrances.
- kerb: close-set stones, usually surrounding a cairn or barrow.
- midden: a mixture of decomposed vegetable matter, animal dung, broken animal bones, stone and shells; a very tough clay similar to a gardener's compost heap, used as a building material for ancient houses of the Orkney Islands.
- nousts: scrape or scratch marks on a rocky coastline created by the keels of boats making a landing.

standing stone: a tall stone placed in a vertical position for a specific purpose; standing stones may be isolated or grouped in various arrays or shapes.

stone circle: an array of intentionally placed stones forming a circle or some variation of a circle.

stone ring: a term more accurate than stone circle because the stone circles of Scotland are not always truly circular; stone rings seem often to have had one side "flattened," or to be oval or elliptical (17, p 124).

APPENDIX: ANCIENT STRUCTURES LOCATED ON THE ORKNEY ISLANDS

Eday: an island located in the center of the Northern Isles.

The Stone of Setter: a weathered fifteen-foot tall monolith, probably the finest prehistoric single standing stone in Orkney.

Vinquoy Hill Chambered Cairn: a tomb consisting of a central chamber with four small compartments (14, p 8).

Huntersquoy Chambered Tomb: a tomb with two chambers, one above the other and reached by separate passages; the only other example of this construction is on Rousay.

Burnt Mounds: two large hillocks of burnt stones, possibly an ancient cooking station dating from the Bronze Age (1500-500 B.C.).

Iron Age houses: the main house is a large round house with radial internal divisions (early Iron Age).

The Calf of Eday: a small island just east of the northern tip of Eday; one of the most important prehistoric sites in the British Isles with well-preserved remains of chambered tombs and Iron Age houses (14, p180).

Hoy: the second largest island in Orkney at 57 square miles.

The Dwarfie Stone: the only rock-cut chambered tomb in Britain, dating about 3000 B.C.

Berriedale Wood: the northern-most woodland in Britain; pollen analyses suggest that woodlands of this type were widespread in Orkney around 5000 B.C.

The Broch of Braebister: an Iron Age fort built about 2000 years ago.

Green Hill of Hesti Geo: a site of an unusually large broch.

Mainland: the largest island in Orkney.

Kirkwall: the largest modern city on the Orkneys, founded around A.D. 1035.

St. Magnus Cathedral: a large edifice founded in A.D. 1137 and located in Kirkwall.

Skara Brae: a Stone Age village of ten one-roomed houses in a state of remarkable preservation, dating from 3000 B.C.

Brough of Birsay: a tidal island with the remains of early Christian and Norse settlements.

Broch of Gurness: a broch constructed between 500-200 B.C.; after A.D. 100, the tower was abandoned and likely used by single families until the 9th Century.

Ring of Brodgar: a stone circle comprised originally of 60 stones; 36 now remain either as uprights or broken stumps.

Standing Stones of Stenness: a small stone circle from the third millennium B.C.; originally consisted of 12 stones.

Maes Howe: the finest chambered tomb in Western Europe; built before 2700 B.C., it contains the largest collection of runic inscriptions to be found in any one place in the world; the Vikings raided the tomb in the mid-12th Century.

Barnhouse; a partially reconstructed Stone Age village of about 3000 B.C.; thought to be the homes of the builders of Maes Howe and the Standing Stones of Stenness.

Unstan Cairn: a chambered tomb excavated in 1884 in which many Neolithic pots were found.

Mine Howe: a strange two-story structure sunk into the depths of the earth; twenty-nine steps descend to two levels, the lower being about 20 feet below ground level.

Quanterness Chambered tomb: a large communal tomb with a long entrance passage; located on the side of one of the biggest hills on the Mainland (14, 175).

Wideford Hill Chambered tomb: a large communal tomb believed to have been built around 3000 B.C.

Cuween Hill Chambered tomb: a Maes Howe type of tomb built with flat stone slabs (14, p 171).

Odin stone: a unique circular stone, destroyed in 1814.

Grain Earth House: an underground passageway and chamber hidden under an Iron Age farmstead, likely used for storage of food (14, p 171).

Rennibister Earth-house: one of the most skillfully built of the known Orcadian earth-houses; an Iron Age underground structure quite similar to the Grain Earth house (14, 175).

North Ronaldsay: the northeast-most Orkney Island.

Standing stone: a lone sentinel stone that stands over 13 feet high with a hole through its upper part.

Tor Ness: a probable site for a stone circle since there are thirteen depressions measuring nine feet in diameter.

Stone burial cists: a number of burial cists have been located near the center of the island.

Broch of Burrian: the centerpiece of a very extensive Iron Age settlement that may have been occupied until A.D. 800 or later (14, p 180).

Rousay: just north of the Mainland.

Taversoe Tuick Chambered Cairn: an unusual double-decker tomb with separate entrances (14, p 177).

Blackhammer Cairn: a stalled cairn with very neat decorative stonework (14, p 177).

Knowe of Yarso Cairn: the highest situated of the famous Orkney tombs (14, p 177).

Midhowe Broch and Chambered Cairn: a fine example of a fortified dwelling built during Bronze and Iron Ages; the Stone Age chambered cairn is the largest known of its kind (14, p 177).

Rinyo: a settlement similar to and contemporary with Skara Brae (2, p 78).

Sanday: the largest of the North Isles of Orkney.

Elsness-Quoyness Chambered Tomb: a Neolithic chambered tomb built around 2000 B.C.; one of Orkney's archaeological showpieces, it has a main chamber and six cells (14, 180).

Wasso Broch and Chambered Tomb: part of a wall of a broch visible adjacent to unexcavated tomb.

Tofts Ness: a prehistoric funerary complex with 500 burial mounds; representing thousands of years, this is potentially one of the most important prehistoric sites in Britain.

Quoy Banks-Viking-Age boat burial: a most significant Viking boat burial.

Rethie Taing-Burial Mound: probably a chambered tomb similar to Quoyness.

Shapinsay: just northeast of the Mainland.

Mor Stein: a megalithic monument.

Castle Bloody: a chambered cairn.

Broch of Burroughston: one of the fine examples of an Orkney broch built during the Iron Age.

South Ronaldsay: the most southern island.

Burnt mound: the site of an Iron Age cooking station.

Isbister Chambered Tomb/Tomb of the Eagles: one of the finest Orkney chambered tombs constructed around 3000 B.C.

Stronsay: a midwestern island.

Broch of Burgh Head: the largest of Stronsay's ancient sites.

Hillock of Baywest: an unexcavated 3000 B.C. site that contains a stalled-type burial chamber with an adjacent extensive Iron Age village.

Westray: the most northwest island.

Links of Notland Prehistoric Settlement: a 3000 B.C. village contemporary with Skara Brae.

Knowe o'Burristae Brock: a large mound with a broch tower that is partly destroyed by the sea.

Papa Westray / Papay: a second northern-most island.

Bronze Age landmarks: 3000-year-old boundary walls.

Burnt mound: a grass-covered knoll created by the accumulation of burnt cooking stones used in the Bronze and Iron Ages.

Knap of Howar: the two oldest known houses in northern Europe (23, p 7), constructed as early as 4765 ± 70 b.p. (7, p 20) or 3500 B.C. (14, p 180).

Munkerhoo: the remains of a settlement dating from the 6th century B.C. to the Middle Ages.

Nouster: a site containing excellent examples of boat nousts, traces of which exist all around the island indicating the presence of hundreds of boats.

The Holm of Papay: an impressive Orkney chambered tomb on a tiny deserted island just east of Papa Westray.