For the love of peat

Story and photos by Ruthanne Urquhart

St. Clement's Church, at Roghadal on the island of Harris, is an average 16th-century Scottish kirk.

The masonry of its square stone tower and squat nave has been chewed by the Outer Hebridean elements. In the kirkyard, the walled plots of founder Alexander Macleod and his family are crumbling under the onslaught of weather and salt spray. St. Clement's has been under almost continuous repair since 1887. The current wrap of scaffolding went up in 1997.

Some 470 km to the northeast, the village now known as Skara Brae sits intact at sea's edge on Mainland Orkney. Its minimally interpreted 5000-year-old mortarless stone walls—erected when Mesopotamia was the centre of civilization, and late Stone Age Illinoisians were first domesticating food crops—are solid enough to allow tourists safe passage through its dwellings – a bit of lichen, but no crumbling.

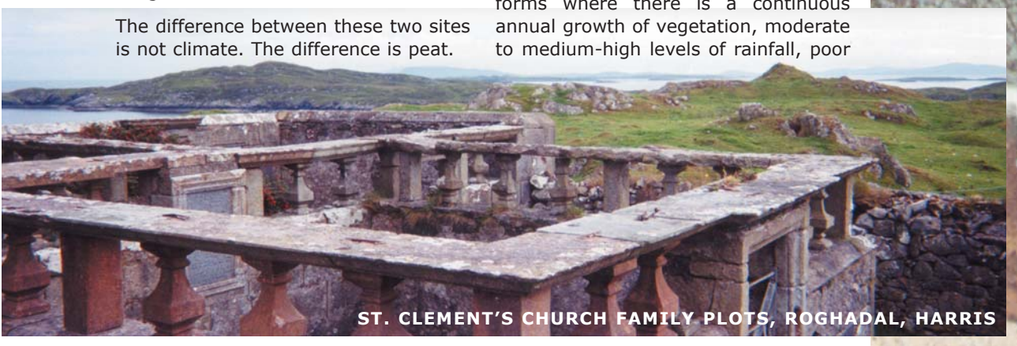
The difference between these two sites is not climate. The difference is peat.

Skara Brae sits on the shore of the North Sea. A violent winter storm in 1850 stripped away the more than one metre of peat-turf covering the village, revealing whalebone roof arches, stone furniture with remnants of skin upholstery, shelves, tools and utensils, all in much the same condition as when the inhabitants left the village about 4,800 years ago.

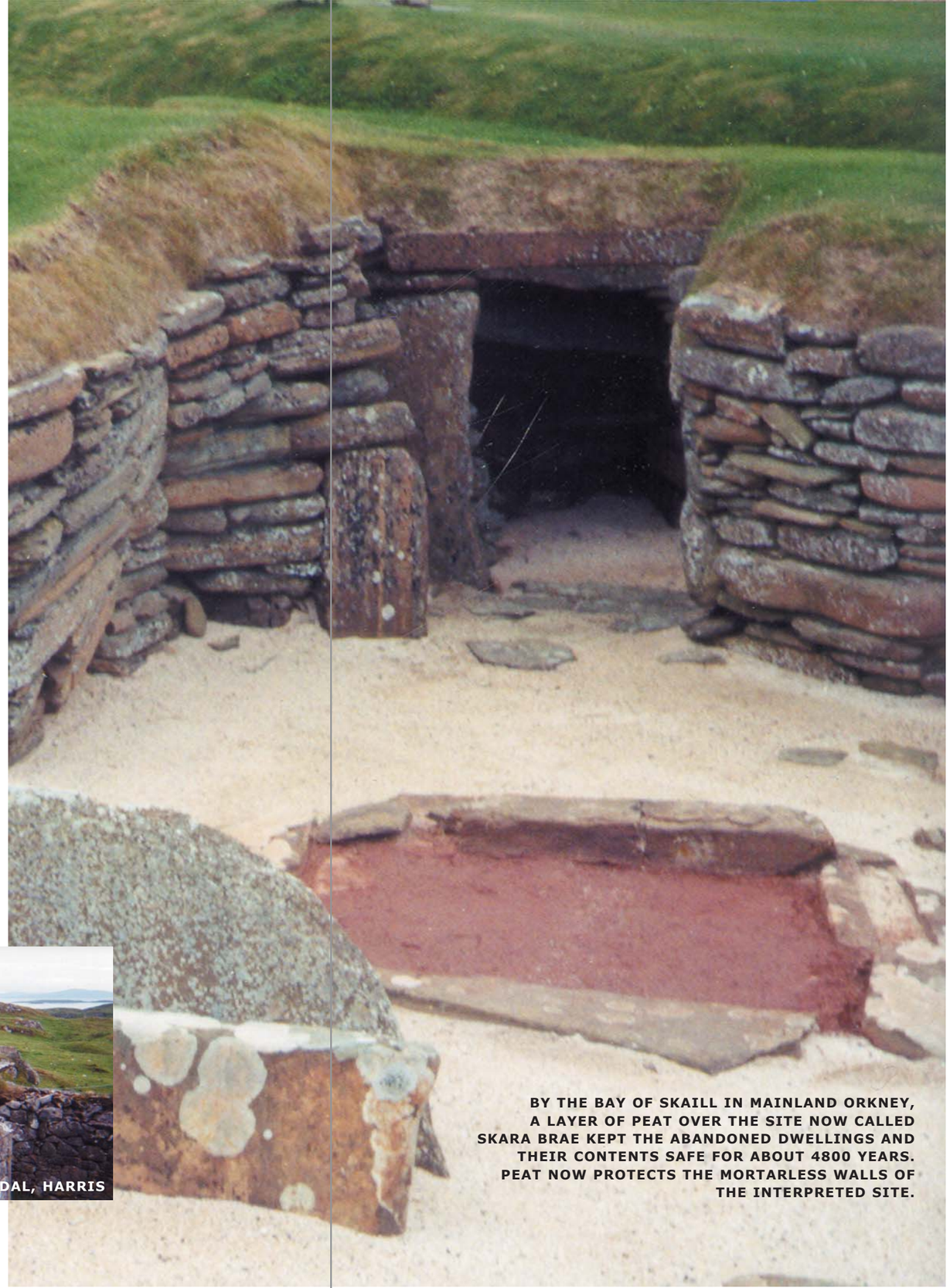
"Caves or ice also preserve things," says Alvin Christie, who's worked on-site at Skara Brae since 1974. "But peat really does a better job because things don't dry out, and they don't suffer the damage frozen things do when they thaw."

When Skara Brae was occupied, only the large middens—refuse heaps—would have announced its presence from any distance because the whalebone roof arches and stone slabs were covered with peat.

Peat is decomposing plant material. It forms where there is a continuous annual growth of vegetation, moderate to medium-high levels of rainfall, poor drainage leading to waterlogging of the soil, and a very low to non-existent level of oxygen in the soil.



ST. CLEMENT'S CHURCH FAMILY PLOTS, ROGHADAL, HARRIS



BY THE BAY OF SKAILL IN MAINLAND ORKNEY, A LAYER OF PEAT OVER THE SITE NOW CALLED SKARA BRAE KEPT THE ABANDONED DWELLINGS AND THEIR CONTENTS SAFE FOR ABOUT 4800 YEARS. PEAT NOW PROTECTS THE MORTARLESS WALLS OF THE INTERPRETED SITE.

LIDDLE BURNT MOUND CAN BE INTERPRETED ONLY COMPARITIVELY – UNLIKE SIMILAR DWELLINGS AT SKARA BRAE, THIS WAS ROOFED WITH GORSE AND HEATHER LASHED TO BRANCHES.

When the last ice age ended about 13,000 years ago, the Northern Hemisphere's temperate zone was left with a bedrock of ridges and hollows with very little soil cover. The hollows gradually filled with water, and vegetation grew and died alongside these lakes, only partly decomposing as it sank to the bottom and accumulated there. Over time, the lakes became shallower as they infilled, eventually forming today's peat fields and bogs.

South Ronaldsay, Orkney has just enough of a soil covering to have supported farming from about 3400 B.C. Peat existed only in areas too wet or rocky for cultivation. Moreover, from well before 3400 B.C., peat was harvested as fuel.

Liddle Burnt Mound, on South Ronaldsay, was a single dwelling, probably of the Bronze Age, and similar in design inside and out to those at Skara Brae – with one exception. Its roof was made of heather and gorse lashed to a frame of branches and whalebone, and probably fell in during the first significant storm after the dwelling was vacated. With no peat-covered roof to protect its contents, Liddle Burnt Mound disappeared until the 1960s, when life-long landowner Ronald Simison grew tired of breaking plough blades on the rocks in his fields and started digging them out. Only careful ongoing excavation and comparison with sites such as Skara Brae has allowed Mr. Simison and archaeologists

PEAT PROVIDES AN IDEAL GROWTH MEDIUM FOR WILD GRASSES AND FLOWERS, IN TURN A HABITAT FOR A VARIETY OF SMALL MAMMALS—AND FALCONS THAT PREY ON THEM—AND DEER. EVERYTHING THRIVES ON THE FOUR-METRE-THICK PEAT UPHOLDING LEWIS' CALANAIS I STONES, RAISED ABOUT 2200 B.C.

to determine the dimensions, layout and contents of Liddle Burnt Mound.

"With a peat roof, we'd have had standing walls, and everything else would be in better condition, too," Mr. Simison says. "Compare this to the tomb..."

"The tomb" is the other site discovered on his property. After years of speculating about the single-car-garage-sized symmetrical mound covered with peat, he dug down and discovered one of the best-preserved burial mounds ever unearthed. Tomb of the Eagles was virtually intact. Human and animal bone bundles, the eagle talons which gave the site its name, stone axes, buttons and ards (primitive ploughshares) were neatly stacked in chambers inside the tomb. All were in prime condition because of a strong, water-tight one-and-one-half-metre-thick peat roof.

Peat at ground level is as valuable to archaeological sites as it is covering rooftops.

The Ring of Brodgar, Europe's largest ring of standing stones (110 metres in diameter), was erected around 2500 B.C., sunk into about one metre of peat. Only 27 of the original 60 stones are upright; Orkney weather has felled the rest. Calanais I, on Lewis in the Outer Hebrides, comprises a ring of 13 stones with four stonelined avenues running true to the compass. The stones are taller and heavier than those of Brodgar, but, after 4,300 years, all remain upright, sunk into as much as four metres of peat.

A YEAR'S SURFACE DAMAGE TO THE PEAT AROUND DWARFIE STANE, IN HOY, ORKNEY WILL TAKE AS MANY AS TEN YEARS TO MEND.

The world has been building peat dwellings and using peat for fuel for about 5,500 years. Ireland has a covering of peat from two to five metres deep. Some early dwellings there were built entirely of peat, with stone hearths located under hide shelters outside.

In the Ukraine, the peat is anywhere from one to five metres deep. Late Stone Age dwellings there were similar to those throughout Scotland, but with roof arches made of timber rather than whalebone. Settlers were building the New World equivalent—the soddie—on the Canadian and American prairies as recently as just before the First World War. Many are still in use today for storage.

Peat is harvested year-round in Scotland. Shetland, Orkney and the Outer Hebrides all are home to peat companies whose main, though not sole, commercial market is the distilling industry.

Oak and ash, hardened over peat fires, are used in the manufacture of whisky barrels. Spring water naturally leached through peat is the springboard of whisky, giving the finished product that "drap of the auld sod" so sought after by single-malt connoisseurs.

Russia and Ireland harvest peat commercially as fuel for electrical generating stations. The peat is stacked indoors for drying until its water content is 45 percent, the optimum level at which a steady burn can be maintained. In this age of electricity and fossil fuels, a substantial number of northern homes worldwide are heated by peat-fired furnaces or boilers. Peat provides a slow-burning, hot fire, ideal for both cooking and heating.

At Loch nam Madadh, North Uist, peat cutter Gerry Fallon slices off and sets aside the surface green growth and about 30 cm of the peat supporting it. He cuts out the underlying peat in brick-sized blocks to a depth of no more than one-third of the total depth. Conscientious harvesters such as Gerry—most are—replace the living layer, which suffers no ill effects from the harvest.

"I sell this locally and in Stornoway," he says. "I don't get much for it—it's free, you see—but I make a bit on the cutting and stock my own pile."

Fallon designs and builds peat-fired stoves. The three-bedroom home he, his wife Maudie and their two children share is heated by three peat-fired stoves, in the kitchen, living room and upstairs hallway. Their boiler is also fired by peat.

"Cooking takes a bit of getting used to, like gas," Maudie says. "But you'll not find a more even heat, and easy to control once you've got the smooring."

Smooring is banking the fire and regulating the air flow to achieve a steady, long-lasting smoulder.

Peat can withstand freezing, flooding—fresh water or salt—and drought. On the ground, peat will smoulder but not burn; it holds more than its weight in water. About the only thing peat can't survive is humankind in tourist form.

Sheep and deer, the predominant animal traffic across most peat fields in Scotland, cause minimal damage. Both consistently follow paths between shed and water, copse and water. Grazing is done at random, and sheep and deer trails traverse rather than climb hillsides, making water run-off minimal.

NEAR LOCH NAM MADDAH, NORTH UIST, PEAT CUTTERS WHO HARVEST TOO DEEP LEAVE PITS THAT FILL WITH WATER, TO THE HAZARD OF WALKERS AND THE DELIGHT OF DEER.

Human traffic, on the other hand, is often mapped and in volume.

Dwarfie Stane is located about two kilometres off the only road crossing the island of Hoy, Orkney. It's a 5,500-year-old tomb carved in a monolith, one of only two such "natural" tombs in the UK. As such, about 2,000 visitors a year are enticed to make the long, uphill climb across a wet peat field to visit the site.

Historic Scotland and Scottish National Trust, the two government organizations responsible for most historical and archaeological sites in Scotland, and the European Economic Community's Hillclimbing Association govern and maintain the site. They've laid a boardwalk half-way from the road to the site, and most visitors use it, but severe damage has been done to the peat-turf between the end of the boardwalk and Dwarfie Stane.

Because humans, unlike sheep and deer, have an aversion to walking on a sunken, muddy path, about 50 paths fan out from the end of the boardwalk to Dwarfie Stane. The turf around the stone is worn down to sun- and wind-killed peat, which rots quickly because it's wet. The resulting fungi spread through the peat, damaging it and the plant life it supports. Such damage can take 10 years or more to mend.

Most tourist sites in Scotland have signs politely requesting that visitors use the already established paths, and many sites are now maintained by environmentally minded organizations whose common aim is to reintroduce and preserve peat and the vegetation and wildlife it supports.

At Skara Brae, after excavation was completed in 1973, after the carbon dating and reassembling of sherds, the walls were straightened for safe passage and recovered with half a metre of peat.

"It protected our site here for about 5,000 years," Alvin Christie says. "Now, it will again, from the weather and acid rain and all the things the modern world throws at it. And it'll do the job when it comes to tourists, too." ■