

# Oats – a Biography of Scotland’s Ancient Grain – from Weed to Health Food

## 2024 Robert Burns Celtic Festival Presentation

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### Introduction:

The Latin name for oat is *Avena*, a genus of Eurasian and African plants in the grass family.<sup>1</sup> Dr Samuel Johnson (1709-1784) outraged many Scots in the 18<sup>th</sup> century when he defined oats in the first edition of his landmark dictionary as “a grain which in England is generally given to horses, but in Scotland supports the people.” English food historian Pen Vogler asserts that what offended the Scots was not that they didn’t grow and eat oats, but that the long held separation between the food for animals and humans had broken down.<sup>2</sup> Dr Johnson gained his knowledge of Scottish eating habits from travels in Scotland with his friend James Boswell in the late 1700s. He was often rude, opinionated and wrote disparagingly about food that was not to his taste. However, with respect to his famously impolite definition of oats, he was essentially correct.<sup>3</sup>

The Greeks and Romans relied heavily on oats for their horses which played an essential role in military campaigns, but in Mediterranean cuisines, wheat and barley were generally preferred for human consumption. Oats thrived as a weed in the wheat fields of the colder areas of Europe, but wheat struggled, so many farmers in these regions were forced to change to cultivating oats. This was the case in Scotland where the cold, wet climate made the cultivation of wheat difficult. As a consequence, the Scots developed a range of ways to consume oats, which sustained both the poor and the wealthy alike for centuries. Agricultural historian Allen Walker Read claims, “The most notable association of a country with a certain food is that of Scotland with oats.”<sup>4</sup> This paper will consider the origin and history of oat cultivation and the unique role which this cereal has played in feeding the population of Scotland. It will examine the place of oats in Scottish cuisine, through recipes from historical cookbooks and references in literature, in particular the

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<sup>1</sup> Atlas of Living Australia, “*Avena* L.,” Atlas of Living Australia, <https://bie.ala.org.au/species/https://id.biodiversity.org.au/taxon/apni/51435654#overview> (accessed May 31, 2024).

<sup>2</sup> Pen Vogler, *Scoff: A History of Food and Class in Britain* (London: Atlantic Books, 2020), 334.

<sup>3</sup> Catherine Brown, *Scottish Cookery* (Edinburgh: Birlinn Ltd, 2013), 1.

<sup>4</sup> Allen Walker Read, “The History of Dr Johnson’s Definition of ‘Oats’,” *Agricultural History* 8, no.3 (1934): 81.

poetry of Robert Burns. The paper will also consider the current status of oat cultivation in Scotland, at a time when this ancient grain is considered a nutritional “super food” with a range of well recognised health benefits.

### **The Origin of Oat Cultivation in Scotland:**

Oats have a very long history as a grain for both human and animal consumption. Recent research has found what is believed to be the earliest evidence of preparation of oats for food. At Grotta Paglicci in Apulia, Southern Italy, starch residues have been found on a primitive stone grinding tool. The starch was identified as having come from a species of *Avena* or oats. The significance of the find is that long before cereals were cultivated, Upper Paleolithic hunter-gatherers in about 32000BCE were processing oats for preparation into some kind of food.<sup>5</sup>

No doubt there were numerous locations where wild grains were collected for food, but this paper concerns the history of oat cultivation in Scotland. For this it is necessary to consider first the broader transition from hunting and gathering to agriculture, a process which began during the Neolithic period of human history. Cereal cultivation most likely spread to Scotland over a long period of time from the first farmers who lived in the Near East, a region referred to as the Fertile Crescent. The term came from the writings of James Henry Breasted (1865-1935), an American early twentieth century Egyptologist. He defined it in 1916 “as the crescent of fertile land between the desert and the mountains that curved from Palestine in the west, across the upper courses of the Euphrates and Tigris rivers in northern Syria and Iraq, and then down the western foothills of the Zagros Mountains of Iran towards the head of the Persian/Arabian Gulf.”<sup>6</sup> This region includes parts of Anatolia, Iran and Syria. The practice of cultivating plants such as lentils, peas, chickpeas and broad beans and raising animals such as sheep, goats, pigs and cattle domesticated from the Eurasian aurochs, began in about 8500 BCE across this region.<sup>7</sup> The main cereal crops grown were various early forms of barley (genus *Hordeum*) and emmer

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<sup>5</sup> Ravi Menon, et al, “Oats – From Farm to Fork “, *Advances in Food and Nutrition Research*, 77 (2016): 2.

<sup>6</sup> Peter Bellwood, *The Five Million Year Odyssey* (Princeton NJ: Princeton University Press, 2022), 154.

<sup>7</sup> Bellwood, 153.

wheat (genus *Triticum*).<sup>8</sup> These grains were used to produce basic types of bread, but along with the development of agriculture, an essential prerequisite was the invention of some form of mill to grind the grains into flour. A mortar and pestle was the most primitive form, but later two stones grinding against each other became an early mill. The first breads were unleavened, cooked on flat stones heated directly over a fire. The development of leavened bread, where a rising agent is used, is credited to the Egyptians. Probably by accident a batch of dough became infected with wild yeast spores from the air causing the bread to miraculously rise. Bread ovens were a later development with early examples uncovered in Egypt and Mesopotamia.<sup>9</sup> Wild grains were gathered and used to make simple breads long before they were cultivated. Culinary historian Rachel Laudan claims that “about ten thousand years before the development of farming, cooks had mastered a wide array of culinary techniques, including those for dealing with roots and grains that were the first plants to be domesticated.”<sup>10</sup> The advantage of planting, weeding and harvesting nutritious grains close to settlements was realised and the Neolithic agricultural revolution spread out from its Near East centre over many centuries along nine main routes, beginning in around 7000BCE:

1. Greece, Italy and Spain, across the northern Mediterranean
2. Eastern Europe, the Balkans, Danube Valley and across the North European Plain to Britain and north to Scandinavia
3. East towards the Pontin Steppes along the northern coastline of the Black Sea
4. North along the Atlantic Coast through France
5. Across the top of the Fertile Crescent
6. Eastwards to central Asia to Turkmenistan
7. Eastwards to Baluchistan
8. South into Egypt
9. Westwards across the northern coast of Africa to Morocco<sup>11</sup>

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<sup>8</sup> J.P. Murphy & L.A. Hoffman, “The Origin, History and Production of Oat,” in *Oat Science and Technology*, ed H.G. Marshall & M.E. Sorrells, 2 (Madison WI: Wiley, 1992).

<sup>9</sup> Alan Davidson, *The Oxford Companion to Food* (Oxford: Oxford University Press, 2006), 97.

<sup>10</sup> Rachel Laudan, *Cuisine & Empire – Cooking in World History* (Los Angeles: University of California Press, 2013), 13.

<sup>11</sup> Bellwood, 224.

Australian archaeologist Peter Bellwood argues that these movements “formed the greatest combined episode of documented population dispersal in the *sapiens* prehistory of Western Europe and Africa. Nothing since has come anywhere close.”<sup>12</sup> Until recently there has been uncertainty as to whether Neolithic agricultural practices were spread through the migration of people or through the transfer of knowledge. However, recent research conducted by a team from the British Natural History Museum appears to have settled this debate. Their research examined DNA evidence from the Mesolithic period and compared it with the Neolithic, to see if there was any substantial difference across the period in which agriculture is thought to have begun in Britain (c4000BCE). The result showed that wherever Neolithic farming appeared across Europe and later in Britain, new genetic ancestry also appeared, mostly from the areas around the Aegean Sea. The DNA evidence also showed a mix of new farmer DNA with the local hunter-gatherer DNA suggesting that these segments of the population were interbreeding. Museum researcher Tom Booth observed: “The Aegean ancestry nearly always dominated because farming allowed these people to maintain larger population sizes.”<sup>13</sup> This means that agriculture was spread by the migration of people, not just ideas, migration which for whatever reason took around 3,000 years to reach Britain. Bellwood asserts that the replacement of Mesolithic hunter-gatherers with Neolithic farmers occurred “with almost clinical efficiency.”<sup>14</sup> For these new farmers, wheat and barley remained the main crops, but other cereals would have been encountered such as oats (genus *Avena*) and rye (genus *Secale*) as weeds. Cereal pollen remains have been dated to 6000BCE in the Danube Valley, 4000BCE in the western Mediterranean and 3500 BCE in Ireland. It is likely that Neolithic farming overlapped with the earlier Mesolithic hunter-gatherer lifestyle, which persisted until about 3000BCE and later if game was plentiful. Pottery was made from the 7<sup>th</sup> millennium BCE in the near east and used for storing and cooking grains as porridge, bread and beer. Archaeologists have uncovered pottery fragments which give us a record of this period.<sup>15</sup>

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<sup>12</sup> Bellwood, 221.

<sup>13</sup> Josh Davies, “Neolithic Britain: Where did the first farmers come from?” Natural History Museum, <https://www.nhm.ac.uk/discover/news/2019/april/neolithic-britain-where-did-the-first-farmers-come-from.html> (accessed February 10, 2024).

<sup>14</sup> Bellwood, 228.

<sup>15</sup> Murphy & Hoffman, 3.

Recent research using highly sensitive organic residue analysis (ORA) has detected cereal and animal derived proteins in ceramic vessels found in early Neolithic Hebridean crannog settlements in Scotland, dating from 3600-3300BCE. The birth of agriculture which occurred during the Neolithic period, led to the establishment of permanent settlements and later cities. This research provides a date for when this transition most likely occurred in parts of Scotland. The cereal residues detected were from wheat, not barley as had been previously assumed. However, the ORA tests were possibly unsuited to barley, so both grains may have been present at that time. The animal residues were dairy lipids, suggesting that the cereals may have been consumed with milk, rather like porridge today.<sup>16</sup>

A team of researchers from Durham University also investigated the origins of agriculture in Scotland to determine whether the transition from hunter-gathering occurred at a similar time to the rest of Britain. The research showed that agriculture was widespread across Scotland through both the early (c4000-3300BCE) and late (c3300-2500BCE) Neolithic periods. In many cases it co-existed with wild food gathering and hunting. More settled agricultural communities existed in the north east and Atlantic Scotland, with many sites associated with stone structures such as found in Orkney and Shetland, rather than timber structures on the mainland. Whether the stone structures were a pre-cursor to agriculture or a result of it is unclear. The two main crops cultivated in Neolithic Scotland were found to be emmer wheat and naked barley. All other cereals such as oats and rye were rare and probably only existed as weeds in the wheat and barley crops, as found elsewhere.<sup>17</sup>

The date for the first instance of the domestication and cultivation of oats is unknown but the history of the grain is inextricably linked to the spread of cultivation of barley and wheat. The cultivated oat is thought to have originated in two centres of domestication, one in the Fertile Crescent of the Near East (Iran, Iraq, Syria and Turkey) and the other in North Africa and along the Iberian peninsula of southern Spain. At some point in time in the slow spread of agriculture, farmers in the wetter and colder part of Europe must have come to the realisation that oats were

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<sup>16</sup> Simon Hammann et al, "Neolithic culinary traditions revealed by cereal, milk and meat lipids in pottery from Scottish crannogs," *Nature Communications* 13, no.5045 (2022): 1.

<sup>17</sup> Rosie R. Bishop, Mike J. Church and Peter A. Rowley-Conwy, "Cereals, fruits and nuts in the Scottish Neolithic," *Proceedings of Society of Antiquaries of Scotland* 139 (2009): 84.

better suited to their climate than wheat and barley. It is suggested that the common oat first migrated to north-central Europe around 1200-600BCE.<sup>18</sup> However, British historian Richard J. Moore-Colyer proposes that as a cultivated crop, oats were only present on a significant scale towards the end of prehistory (c50CE) and then only in the northerly regions of Western Europe. While wheat was the dominant grain in the Roman Empire used for bread production, oats were cultivated and used in the Mediterranean region, but only as a fodder crop. The military successes of the Romans could be attributed to the nutritional benefit of feeding oats to their horses. Oats would have followed the expansion of the Roman Empire to Britain after 43CE, primarily as feed for cavalry horses. Amongst ten notable northern sites in Britain where oat grains have been found, five are in the vicinity of Roman military bases. Oats thrived in the colder, wetter conditions of Scotland making them superior to barley and wheat for farming. Rye also preferred these colder conditions, but was primarily grown in northern Europe.<sup>19</sup>

During the Medieval period from the 5<sup>th</sup> century CE to the Renaissance in the 15<sup>th</sup> century, oat production continued, particularly in northern Europe. Oats were ranked fourth in importance in Europe after wheat, barley and rye, but in certain areas such as Scotland and Ireland, oats were the dominant crop, increasing markedly in the 18<sup>th</sup> century.<sup>20</sup> In England oats were grown primarily as stock feed but in Scotland it was human consumption that was driving demand for the crop. From 1750 to 1850 oats remained the leading crop in Scotland, accounting for up to 50% of recorded crop land in some cases.<sup>21</sup> In many districts the Scots ploughman ate oatmeal three times daily with many commentators attributing the sound constitution of the labouring classes to oats, particularly porridge.<sup>22</sup> Prior to the 17<sup>th</sup> century *Avena strigosa* was the most common oat species grown in Scotland, but later *Avena sativa* was introduced from England and progressively became the main crop of oat. *Avena strigosa* continued in the higher elevations in central Scotland, Orkney, Shetland and the West Coast Islands.<sup>23</sup>

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<sup>18</sup> Menon, et al, 7.

<sup>19</sup> Richard J. Moore-Colyer, "Oats and Oat Production in History and Pre-History," in *The Oat Crop: Production & Utilization*, ed. Robert W. Welch, 3 (London: Chapman & Hall, 1995).

<sup>20</sup> Murphy & Hoffman, 6.

<sup>21</sup> Moore-Colyer, 14.

<sup>22</sup> Moore-Colyer, 15.

<sup>23</sup> Murphy & Hoffman, 7.

During the 19<sup>th</sup> century oat production and consumption continued to increase, particularly as livestock feed. The acreage under oats in England reached a peak in the late 19<sup>th</sup> century due to “the insatiable demand for oats from urban horses in London, Birmingham and other major cities.”<sup>24</sup> In the same period, human consumption began to decline as oats formed less of the national diet in Britain. Across much of Britain a transition to wheaten bread occurred, accelerated by lower wheat prices, although this did not occur until the last decades of the century in Scotland. Catherine Brown and Laura Mason assert: “With the industrial revolution and the extension northwards of the English diet of cheap white bread accompanied by tea, the old oatmeal traditions of porridge, brose and oatcakes were seriously under threat.”<sup>25</sup> The consumption of potatoes also increased, replacing at least in part, oat carbohydrates. Scottish historian T.C. Smout observed that by 1903 oatmeal had become a luxury for the working class, the price of wheat having fallen dramatically compared to oats.<sup>26</sup> While the consumption of oats declined in general in Britain during this time, oats remained in the diet for enlightened mill owners such as New Lanark, Derbyshire miners, the army, poor houses and prisons.<sup>27</sup> Curiously, when British nutritionists during World War II devised a basic ration scheme, they included a coarse brown bread but not oats. It would appear that scientific opinion at the time supported the nutritional value of wheat over oats.<sup>28</sup> Several decades later this view would be revised in favour of oats. The survival and widespread consumption of oatcakes and porridge is largely due to the establishment of a better understanding of the nutritional value of oatmeal, elevating it to health food status today. This will be explored in more detail in a later section of this paper.

### **The National Larder - The Place of Oats in the Scottish Diet:**

The concept of a national cuisine is often debated, but cuisine and culture are closely related. Australian food historian Barbara Santich argues that “tastes become part of a region’s identity, the mainstay of its gastronomic character. The substrate, the ingredients produced and available

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<sup>24</sup> Moore-Colyer, 18.

<sup>25</sup> Laura Mason and Catherine Brown, *From Petticoat Tails to Arbroath Smokies – Traditional Foods of Scotland* (London: HarperPress, 2007), 156.

<sup>26</sup> Quoted in Robert H.S Robertson, “The Place of Oats in Scottish Nutrition,” *Nutrition and Health* 17 (2003): 258.

<sup>27</sup> Robertson, 260.

<sup>28</sup> Robertson, 259.

in the region, will almost certainly evolve.”<sup>29</sup> F. Marion McNeill, who wrote the definitive book on Scottish cuisine in 1929, proposed that “it is the natural conditions and products that determine the general character of the national cuisine.”<sup>30</sup> McNeill wrote that despite certain natural disadvantages, Scotland has always been a food-producing country. These “disadvantages” are soil that is in general, poorer than that of England combined with a wetter and colder climate; a challenging environment for agriculture. McNeill coined the term *The National Larder* to describe the Scottish diet and asserted that “the means of sustenance were on the whole plentiful”, particularly in older times when the population was small.<sup>31</sup> Some of the earliest documents relating to the Scottish diet were written by travellers during the period from the 14<sup>th</sup> to the 17<sup>th</sup> century. They commented on the robust health of the majority of the Scottish population, attributing this condition to their mostly varied diet, which included a heavy reliance on oats.

One of the earliest written references to oats in Scotland is from Jean de Froissart (1333-1400), a European medieval poet and court historian who travelled to Italy, France, the Iberian Peninsula as well as Scotland. In his *Chronicles* for the year 1328 he observed the Scots army and was impressed by their mobility, advancing seventy miles a day on horseback, enabling them to launch surprise attacks in the north of England. Feeding an army is logistically challenging and Froissart accounted for the Scot’s mobility with their self-reliance on food. Each soldier would carry a bag of oats and a flat metal plate kept between the saddle and the saddle cloth. The soldiers would make a form of brose, or uncooked porridge, mixing their oats with cold river water. If they had time, they could lay their flat plate over a fire and cook the oat slurry into a thin oatcake. With whatever game meat they could find, this diet would provide minimum sustenance on their campaigns, without the need for supply carts.<sup>32</sup>

When agriculture was introduced to Scotland in Neolithic times, barley and wheat were the principle grain crops. Oats may have been first cultivated in Britain by the Romans primarily as fodder for their animals, but over the centuries that followed, oats slowly gained favour as food

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<sup>29</sup> Barbara Santich, *Looking for Flavour* (Kent Town SA: Wakefield Press, 1996), 18.

<sup>30</sup> F. Marian McNeill, *The Scots Kitchen* (London: Blackie & Son, 1929), 13.

<sup>31</sup> McNeill, 13.

<sup>32</sup> Colin Spencer, *British Food – An extraordinary thousand years of history* (London: Grub Street, 2011), 183.



for the people. By the 18<sup>th</sup> century, oats had become the main crop for most of Scotland with barley more often used to make beer and distil whisky. The exception was in the Highlands, Islands and among the lower classes in the Lowlands where barley flour was used for making bannocks, a type of un-yeasted bread.<sup>33</sup> Catherine Brown, author of *Scottish Cookery*, defines the Highland diet of the 18<sup>th</sup> century: “Their frugal, largely meatless, diet was based on broths made with vegetables, dried beans and peas, barley and lentils; brose and porridge made of oats and barley; and everything supplemented with milk, cheese and butter.”<sup>34</sup> Sheep were valued for their wool and cows for their milk, accounting for the lack of meat in the diet. This “frugal” Highland diet that Brown describes reflected the harsh nature of that particular environment. However, it would not have been too different for the lower classes in other parts of Scotland, although in some regions access to fish and game may have reduced the general monotony of the diet. Captain Burt who accompanied General Wade to Scotland in 1724 wrote in his *Letters from the North of Scotland*, that while in some parts he found no decent food in others he was offered delicacies such as grouse, partridge, salmon, trout and excellent honey.<sup>35</sup> The rich may would have had greater access to meat, but this would not have made their diet necessarily any healthier, perhaps even the opposite. One thing that is very clear from historical documents, particularly since the Middle Ages, is that oats have played a key role in the diet of all classes of people in Scotland over many centuries. Dr Johnson may have expressed himself ungraciously with his dictionary’s definition of oats, but essentially he was correct in asserting the grain’s importance for the survival of Scotland’s people.

Oats have been consumed in Scotland in a variety of ways. When Scotland’s Bard, Robert Burns wrote in 1789, “Hear, Land of Cakes, and brither Scots” in the opening line of his poem *On Captain Grose’s present peregrinations through Scotland* the cakes were not the sweet variety but rather oatcakes.<sup>36</sup> In the Highlands, barley bannocks were the common form of bread and oatcakes played a similar function in the Lowlands. The difference between bread, bannocks and cakes tends to be blurred but the latter two are flatter and usually unleavened. Because wheat was difficult to grow in Scotland and therefore expensive, wheaten bread, until relatively recent

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<sup>33</sup> Brown, 5.

<sup>34</sup> Brown, ix.

<sup>35</sup> McNeill, 27.

<sup>36</sup> Note: Quotations from the poetry of Robert Burns sourced from Robert Crawford & Christopher MacLachlan (editors), *The Best Laid Schemes – Selected Poetry of Robert Burns* (Edinburgh: Polygon, 2009).

times, was the preserve of the wealthy classes. In their most basic form, oatcakes were made with ground oatmeal, salt, a little dripping and water to mix. As most houses had no oven, they were usually cooked on a girdle, a thin cast iron plate, suspended over a fire. There were regional variations with the Hebridean oatcake rolled out to between one to one and a half centimetres. Highlanders preferred a thinner, crisper variety and Lowlanders would sometimes add some wheat flour making the texture less brittle.<sup>37</sup> Oatcakes were often eaten and still are today, with butter or cheese.

In his 1786 poem *The Cotter's Saturday Night*, Burns included the lines, "But now the Supper crowns their simple board, The halesome *Porritch*, chief of SCOTIA'S food." Porridge is what most people think of in relation to oats, but porridge can be made with many grains, including wheat, barley and corn. The first unequivocal reference to porridge in Scotland was by an English traveller Richard James in 1615, referring to "pottage they make of oate meale floure boiled in water, which they eat with butter or ale."<sup>38</sup> There is a mythology surrounding porridge which was eaten by Scots at almost any meal during the day. It was traditionally made only from oatmeal, water and salt, stirred in a clockwise direction with a tapered stick called a spurtle and eaten in a wooden bowl with a horn spoon. Leftover porridge from breakfast was sometimes poured into the "porridge drawer" in the Scotch dresser. The cold porridge sets and can be sliced and eaten later for supper, in a manner similar to how the Italians make polenta.<sup>39</sup> For the Scottish preparation of porridge, salt is an essential addition, whereas in the English version, sugar is added, a heresy according to the Scots.

Brose is uncooked porridge. Burns wrote in his bawdy song *Brose and Butter*, "O gie my love brose, lasses: O gie my love brose and butter:" To make brose, oatmeal is mixed with cold or preferably boiling water to make a basic, but nutritious gruel. Milk, butter or even cooking water from vegetables or meat could be added for flavour. Farm workers could make a bowl of brose in the morning with basic ingredients while in the fields. It is said that a garrison of British soldiers cut off from supplies at the Siege of Mafeking in the Boer War survived by making a gruel from

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<sup>37</sup> Brown, 7.

<sup>38</sup> A. Gibson and T.C. Smout, "Scottish Food and Scottish History 1500-1800." In *Scottish Society 1500-1800*, ed. R.A. Houston and I.D. Whyte, 59 (Cambridge: Cambridge University Press, 1989). 66.

<sup>39</sup> Brown, 13.

the scrapings of the horse feed boxes.<sup>40</sup> Legend has it that a Zurich doctor saw a shepherd in the Swiss mountains making a form of brose and decided to give it to his patients. This was the ancestor to muesli, a word of Swiss/German origin meaning “mashed dish”, which is based on uncooked oats, but in recent times has been mixed with a host of other grains, dried fruit and nuts.<sup>41</sup>

Sowans is a type of gruel made from “sids”, the inner husks of the oat grain. The sids are mixed with twice their volume of lukewarm water for approximately a week until the mixture is slightly fermented and becomes sour. The liquid is separated from the sids by straining the mixture, squeezing any remaining goodness out of the sids before discarding them. A little cold water is added to the reserved liquor and allowed to stand until the starchy matter sinks. The sediment is the sowans and after the clear liquor on top is poured off, the sediment can be boiled with a little water and eaten like porridge with milk or even made into pancakes. This might sound a little unpalatable but many nations have fermented foods and the process is not that dissimilar to making yoghurt. In his 1785 poem *Hallowe'en*, Burns wrote, “Till butter'd sow'ns wi' fragrant lunt, Set a' their gabs a-steerin”, translated roughly as, “Till buttered sowans with fragrant steam set all their mouths watering”.<sup>42</sup>

Haggis is often identified as the quintessential Scottish specialty, but it was a dish made mostly for special occasions. Even today, it can evoke strong feelings ranging from patriotism to fear and loathing. The haggis is the ceremonial focus of the Burns Supper and has acquired a special significance for Scots and Scottish descendants. The Supper always includes a recital of Robert Burns' poem *To a Haggis* written in 1786, which has the famous opening line, “Fair fa' your honest, sonsie face, Great Chieftan o' the Puddin-race!” Pudding is the original name for the innards of an animal. Pudding Lane in London acquired its name because it was where the butchers washed out the innards of the animals they slaughtered.<sup>43</sup> Haggis is part of the sausage family and is made from a sheep's pluck consisting of the liver, heart, kidney and lungs. The offal is minced and mixed with beef suet, oatmeal, onions and spices then stuffed inside the

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<sup>40</sup> G.W. Lockhart, *The Scots and their Oats* (Edinburgh: Birlinn Limited, 1997), 3.

<sup>41</sup> Brown, 15.

<sup>42</sup> McNeill, 202.

<sup>43</sup> Brown, 22.

sheep's stomach to make the "pudding". The dish is served hot with tatties (creamed potatoes) and neeps (mashed yellow turnip).<sup>44</sup>

There are many other traditional Scottish dishes with oats as a key ingredient including mealie puddings (intestine sausage skins filled with oatmeal, suet, onion and spices), skirlie (a skinless mealie pudding mixture fried in a pan), cloutie dumplings (a type of Christmas pudding), Cranachan (sometimes called cream-crowdie, a berry fruit and cream dessert) and Atholl Brose (whisky, oatmeal and honey based aperitif). Enthusiasm for traditional Scottish fare has risen and fallen over the centuries since Robert Burns celebrated the haggis. However, interest has never totally disappeared in Scotland, with "oatcakes, porridge and brose, the staple items of the peasant diet."<sup>45</sup> By the end of the 20<sup>th</sup> century, nutritional science had confirmed the health-giving benefits of oats leading to widespread consumption and the development of new recipes based on this ancient grain.

Before oats can be used in any recipe, the grain must be milled in order to separate the husk or outer shell from the groat or inner kernel, the part which alone is oatmeal. In early times, the farmer or more commonly the farmer's wife, would grind the oat grain using a stone quern, essentially two circular stones rotating against each other. This labour intensive milling method was replaced progressively with larger water powered mills and steam mills, a precursor to modern factory mills with electric motor driven grinding wheels. A range of oatmeal 'cuts' or grades are produced:

Pinhead – used for haggis, oatmeal loaves

Rough – used for porridge or brose, sometimes rough oatcakes

Medium/Rough – used by butchers for mealie puddings

Medium/Fine – porridge, brose, skirlie, baking

Super-fine – used in baking and in oatcakes along with a coarser grade<sup>46</sup>

Rolled oats was a new product developed in America by the Quaker Oat Company in 1877. They are made by steaming and rolling pinhead oatmeal resulting in quicker cooking times, but with

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<sup>44</sup> Brown, 230.

<sup>45</sup> Mason and Brown, 156.

<sup>46</sup> Brown, 3.

some loss in flavour and nutrients. The convenience helped to spread the practice of cooking porridge for breakfast around the world, a trend that has continued with the more recent development of ‘instant’ oat porridges, which are partially cooked. Some varieties are even suitable for cooking in a microwave oven, for the benefit of time-constrained families.<sup>47</sup>

### **Oat Cultivation and Production in Scotland Today:**

Richard J. Moore-Colyer claims that the land area in Scotland dedicated to growing oats peaked in 1885 at 424,920 ha (1.05 million acres), 76% of the total cereal crop. With the invention of the motor car reducing the number of horses in the cities, the oat acreage dropped to 372,311 ha (920,000 acres) by 1914.<sup>48</sup>

The land area dedicated to oat production in Scotland is significantly lower today, although the yield (t/ha) would be much higher. In the June Agricultural Census 2023, the Scottish Government gave the annual oat production as 158,000 tonnes from 26,333 ha (65,071 acres). Production fell by 7% compared with 2022. This represents only 5.5% of the total acreage in Scotland used for growing cereals and oil seeds. By comparison, barley made up 62% of the total cereal and oil seed area and wheat 23% of the total. Both barley and wheat are mainly used for whisky distillation.<sup>49</sup>

Putting these Scottish statistics into context, the total world oat production for the 2022/2023 year, was 25.32 million tonnes. The European Union (mainly Finland, Poland, Sweden, Germany and Spain) is the world’s largest oat producer at 5.92 million tonne/annum (30.8% global prod.), Russia second at 3.3 million tonnes/annum (17.2%), Canada third at 2.64 million tonnes/annum (13.7%) and Australia fourth at 1.1 million tonnes/annum (5.7%). The United Kingdom was the

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<sup>47</sup> Brown, 4.

<sup>48</sup> Moore-Colyer, 20.

<sup>49</sup> Environment and Forestry Directorate, “Cereal and oilseed rape harvest: final estimates 2023,” Scottish Government, <https://www.gov.scot/publications/cereal-and-oilseed-rape-harvest-2023-final-estimates/pages/decrease-in-oats-yield-and-production/> (accessed May, 28, 2024)

sixth largest oat producer with 830,000 tonnes/annum (4.3%). Scottish oat production comprised 19% of the UK total in 2023.<sup>50</sup>

The large quantities of oats produced by Finland, Poland, Sweden, Germany and Russia are not surprising, as these cold climate countries were very early cultivators of oats following the Neolithic agricultural revolution. What may be surprising however is the continuing, strong identification of Scotland with the crop, given the comparatively modest quantity of oats produced in that country. It should be remembered that Scotland is a small country with only 10% of its total agricultural area in 2019 considered to be arable land, defined as land used for crops, fallow and set aside land.<sup>51</sup> The quantity of oats may be small in global terms, but the symbolism is large and persistent.

### **Health benefits of oats – new research:**

When Dr Johnson defined oats as “a grain which in England is generally given to horses, but in Scotland supports the people,” his friend James Boswell replied, “that’s why England has such fine horses and Scotland such fine people.”<sup>52</sup> For centuries people have believed that oats were good for human health, but it is only in recent times that modern nutritional science has been able to confirm why. Oats are often classified as a ‘super food’, but a growing body of research now supports the claim. Oats contain about 60% carbohydrate with unique properties compared with other cereal starches. Compared to wheat and rice, oats are higher in protein (11-15%). With a low glycemic index (GI 51), the nutrients in oats are absorbed more slowly, helpful in the management of blood glucose levels. Oats provide one of the richest sources of water soluble dietary fibre, particularly beta-glucan (2.3-8.5%), a plant polysaccharide known to lower cholesterol levels. Oats also contain more lipids (5-9%) than other cereal crops, which are excellent sources of energy and unsaturated fatty acids. Oats contain unique antioxidants, called avenathramides, as well as the vitamin E like compounds, tocotrienols and tocopherols known to

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<sup>50</sup> Foreign Agricultural Service, “Production – Oats,” U.S. Department of Agriculture, <https://fas.usda.gov/data/production/commodity/0452000> (accessed May 31, 2024)

<sup>51</sup> Agriculture and Rural Economy Directorate, “Arable Farmer-led Group: climate change evidence,” Scottish Government, <https://www.gov.scot/publications/resas-climate-change-evidence-arable-farmer-led-group/pages/2/> (accessed May 31, 2024)

<sup>52</sup> *Chicago Tribune*, “Oatmeal truly deserves warm spot in the heart,” January 15, 1987.

play a role in protecting the body against cancer. Oats also contain trace minerals calcium and iron and are a good source of vitamins thiamine, riboflavin and niacin.<sup>53</sup>

In summary, what these properties mean nutritionally is that regular consumption of oats is beneficial for the prevention of a range of diseases including coronary heart disease, diabetes, bowel disease, various cancers and for the maintenance of satiety/weight and healthy blood pressure. Over 50 clinical studies have documented the benefit of beta-glucan in reducing total and LDL cholesterol levels. Beta-glucan has been found to form a barrier on the surface of the intestinal tract, slowing the absorption of nutrients, resulting in a decreased rate of glucose absorption and attenuated blood glucose and insulin responses. Oats are also gluten-free, making them a suitable food for people managing celiac disease. The form of oats consumed is irrelevant to these well-documented health benefits. In a report from the Quaker Oats Company, optimum health benefits can be achieved with the consumption of  $\frac{3}{4}$  cup of uncooked oatmeal per day.<sup>54</sup> The recent marketing of oat milk as a healthy alternative to cow's milk is also leading to a significant growth in demand for oats as will other recently developed, value-added oat-based products such as probiotic drinks, mueslis, granola bars, oat breads and biscuits.

### **Conclusion:**

When Dr Johnson defined oats so insultingly in his dictionary, he did not appreciate that the Scots were onto something very important. With Scotland's challenging climate, through necessity, oats have sustained the Scottish population for centuries. Oat-based foods in the traditional Scottish diet may have been preferred primarily for their taste, but the nutritional science behind the cereal's health giving properties is now well understood and appreciated. The term 'super food' is overused, but in the case of oats it has proved to be justified.

Given the long history of growing oats in Scotland and the cereal's suitability to the country's climate and soil, oats should be recognised as a legitimate cultural icon and symbol of Scotland,

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<sup>53</sup> Prasad Rasane, et al, "Nutritional advantages of oats and opportunities for its processing as value added foods – a review," *Journal of Food Science Technology* 52, no.2 (2015): 664.

<sup>54</sup> David L. Katz, *A Scientific Review of the Health Benefits of Oats*, Quaker Oats Company Publication, September 2001, 1.

on an equal footing with whisky, tartan and bagpipes. For too long, Scottish cuisine has been the subject of ridicule, but now that the true health benefits of consuming oats is recognised, Scots can be proud of their historical reliance on this remarkable grain.

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