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I declare that this **Critical Cultures Research Project** is all my own work and that all sources have been fully acknowledged.

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I interviewed Dr Aoife Long, who is a journalist who writes for N magazine and has a special interest in Irish craft and wool production. Her words on the Irish Wool trade have provided a valuable insight into the world of Irish wool today and I would like to thank her for her help with this project.

I would like to thank Blátnaid and Niall Gallagher of the Galway wool co operative who played a very important role in the primary research carried out for this project. I was lucky enough to be given a tour of their farm in Galway, where I met their sheep and learnt about her work. I also carried out an interview with Blátnaid later on. The research opportunity that Blátnaid and Niall provided has formed a huge part of this research project, and I could not be more grateful.

I would also like to thank David and Ruth Wilkins of Rampisham Hill Mill in Dorset who played pivotal roles in the primary research for this project. I visited Rampisham Mill twice and was given an extensive tour of their property. David was also kind enough to give his time to be interviewed about his work and his thoughts on the wool trade today. Again, I want to express my utmost gratitude to David and Ruth.

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Introduction

This essay is a broad discussion about the significance of wool and the wool trade in Britain and Ireland. It examines the physical properties of wool and subsequent desirability of the material, the history of the wool trade in Britain and Ireland, and the potential for wool in today's society.

There are three parts of primary research in the form of interviews that have been carried out for this project. Firstly, Dr Aoife Long, a journalist who studies Irish Wool, was interviewed and her thoughts on Irish Wool today are included in this essay. The second piece of research was with Blátnaid and Niall Gallagher, of the Galway wool cooperative. Their sheep farm in co. Galway, Ireland was visited and a follow up interview with Blátnaid was carried out. Finally, Two visits were made to Rampisham Hill Mill in Dorset, UK. These visits provided an introduction to their work and a tour of their mill. Later, David Wilkins, who runs the mill was interviewed about the British wool industry today. The transcripts of these three interviews are appended to this essay. It is beyond the scope of this essay to discuss all the issues raised by Aoife, Blátnaid and David, however they have offered valuable insights and have raised interesting thoughts that may inspire further research. The other forms of primary research that are included in this essay include the examination of six wool related bronze age artefacts, as well as three pieces of historical writing - 'The Irish Naturalist' by R.F Scharff published in 1922, Thomas Wright's translation of 'The topography of Ireland' written in 1187 by Giraldus Cambrensis which is mentioned when discussing the significance of wool in 12th century Ireland. Lastly, The Irish Linen Trade Hand-book and Directory written by F W Smith in 1876, has been used to better understand the political dynamic between the Irish and British wool trades. This specifically helped in understanding the implementation of the 'wool act' of 1698.

The secondary research for this essay has been carried out through the reading of an extensive and varied number of resources, including, but not limited to - books, scientific studies, articles and other research papers. A few of the secondary resources that have informed this work have included a study entitled 'Does it matter? Comparison of Environmental Impacts of clothing Based on Fibre type' by Kirsi Laitala, Ingun Grimstad Klepp and Beverly Henry, 2018. This study looks into wool fibres alongside a selection of other fibre types in order to determine the environmental

impact of the materials. The information found in this has been used, alongside other resources, to formulate an idea of why wool is the way it is, and what makes it favourable, from an environmental perspective, to other textile alternatives. The Victoria and Albert Museum website has provided access to an archive of woollen products, notably a woollen cap from the 15th century. The detailed analysis of the works found in the museum and the historical research that has been conducted by the V&A has been invaluable in understanding the history of the wool trade in Britain. Lastly, the Irish Rare Breeds society website has helped in the understanding of the Irish wool producing sheep breeds and has offered detail about the Cladoir sheep and it's history. This website has supplemented the aforementioned reading of 'The Irish Naturalist' by R.F Scharff.

This essay will be split into three chapters, the first chapter will be on the properties of wool. It will use secondary research methods (outlined above) to understand the science behind the properties of wool. Through this chapter, it will be explained, from a scientific point of view, what makes wool such a unique and useful material. The second chapter will give a brief, chronological history of the wool trade in Britain and Ireland. It will explain the rise of the wool trade, and go on to discuss how wool has been pivotal in the economic, societal and political development of the two countries, and it will discuss the reasons for the decline in significance of the trade in recent years. The third and final chapter of this essay will discuss the ways that wool can continue its role in society today. It will use information from the first hand interviews with Aoife Long, David Wilkins and Blátnaid Gallagher.

Chapter One - The physical properties of Wool.

This first chapter examines the physical properties of wool fibres and the qualities that these properties give to wool. The science behind the chemical and physical structure of wool will be used to explain what makes wool a long-lasting material, why it requires less washing than other textile alternatives, what makes it such a brilliant insulator, its fire resistant quality and finally it's biodegradability. There will be brief explanations as to why these qualities make wool such a useful material. The research for this chapter has been carried out through secondary research methods. The concluding arguments are a culmination of a varied range of studies into the structural properties of wool.

What makes wool a long-lasting material.

Each wool fibre is coated in microscopic scales, these scales have a waxy, lipid coating made up of a substance called lanolin. This lanolin coating repels water in its liquid form - it is hydrophobic. (HD Wool, n.d) The fact that wool has this hydrophobic quality means that the material is actually shower proof. The fisherman's Gansey is an example of how people have utilised this shower proof quality to produce weatherproof knitwear, perfect for fishermen working at sea. Ganseys have been referred to as 'fisherman's iron' (Reid G, 2021). This phrase refers to the hardiness of the garments, including the waterproof nature of the wool from which they are knitted.

Figure 1: A traditional fisherman's Gansey. (Wick's Heritage Museum, n.d)

The hydrophobic quality of the lanolin coating of the fibres also means that wool resists water-based stains, as the staining liquids are less likely to penetrate the fibre and cause a long-lasting damage. The fact that wool is innately resistant to water-based stains and can be worn in the rain, means that products made with wool have the ability to withstand much wear and last a long time.

Woollen garments are more likely than other textile alternatives to be handed on and reused, rather than disposed of. This may be a result of the aforementioned qualities that make wool such a hardy material - woollen clothes are made to last. In the study, 'Does it matter? Comparison of Environmental Impacts of clothing Based on Fibre type' by Kirsi Laitala, Ingun Grimstad Klepp and Beverly Henry, it was found that 50% of people were likely to hand on woollen garments, for reuse rather than disposing of them (2018, p.14), further lengthening the longevity and lifespan of woollen clothing. In a modern climate where over-consumption is understood to be detrimental to the environment, a material like wool that lasts a long time presents a desirable, green alternative to other materials.

Why wool requires infrequent washing.

Although the outer lipid layer of wool is hydrophobic, wool fibres are also 'hygroscopic,' meaning they can absorb and hold up to 40% of their dry weight in water vapour. (Anon, Thermafleece, n.d) This process is a result of tiny pores found in the cuticle cells of the fibres. Wool absorbs evaporating water vapour from the skin which keeps the skin dry and prevents the growth of odour producing bacteria. It was found that wool is one of the best materials to prevent the build up of body odour (Anon, Woolmark, n.d).

The fact that wool resists staining and body odour build up, means that woollen garments require infrequent washing. In comparison to cotton, it was found that wool is likely to be worn for twice the amount of time between washes. Less washing means less energy is used in the upkeep of the garment, which has both financial and environmental benefits. The other benefit of needing less washing is that there is a reduction in the use of chemicals used that could have negative effects on the environment. (Laitala, Klepp, Henry, 2018, p.8)

Wool as an insulator.

Not only does wool absorb water vapour from the skin, but also from the surrounding atmosphere. The process of absorption of water vapour produces heat and keeps you warm. This quote from New Zealand's 'Science learning hub' exemplifies why this is such a desirable quality -

> "If you go from a warm room into a cold, damp night wearing a wool jersey, the wool picks up water vapour from the air, keeping you warm. The reverse occurs when you go back into the warm room – the moisture in your jersey passes into the atmosphere, cooling you down. (Anon, Science Learning hub, n.d)

The inner structure of wool is called the cortex, this is made up predominantly of two different types of cells - orthocortical and paracortical cells. These are arranged in certain patterns to create certain crimps. Crimps differentiate between each different type of wool and are distinctive to different breeds of sheep. The resulting affect of a crimp in the fibre is that wool becomes bouncy as air becomes trapped between the crimped fibres. This means that wool acts as an effective insulator. The air pockets help reduce heat loss as conduction happens less efficiently. (Anon, Science learning hub, n.d)

Thus, wool is a good thermal insulator, helping to maintain a comfortable temperature. This means that the material is suitable for clothing as well as home insulation. Considering a modern world in which energy costs are highly volatile, materials such as wool that are able to regulate our body or home temperature have become even more desirable.

Fire Resistance.

Wool fibres are fire resistant. This is due to the high nitrogen content of wool (nitrogen is not flammable) and ability to absorb water vapour. Nitrogen and water work together and prevent the fibre from catching alight.

> "Even if you do manage to set it alight, which is impressive, as wool only lights at around 570 - 600 degrees Celsius, it tends to smoulder and char rather than flame." (Coulthard, S, 2020)

Wool's natural fire resistance means that whatever use it ends up in, there is a benefit as it resists fire. This means that when wool is used in a home setting, the house will be less likely to sustain serious damage. If worn on the body, wool may help to prevent burns as the material is unlikely to catch fire.

The biodegradability of wool.

Because wool is a natural material, it biodegrades easily, it takes between 4-9 months to degrade. The decomposition of wool can actually have a positive effect on soil. Wool is made up predominantly of keratin. Keratin is naturally broken down by specialised bacteria and fungi found in soil, through which process nutrients within keratin substances are released back into the earth. Because of this, wool wastage actually enhances soil quality as it slowly releases carbon, nitrogen, potassium, phosphorus and sulphur into the earth, making these elements usable for uptake by plant species. It is quoted to 'act like a slow release fertiliser' in this way. (Daria, M, Krzysztof, L, Jakub, M, 2020). Fabrics made of synthetic fibres, such as polyester, are not generally biodegradable. The process of disposal of such fabrics leads to a build up of micro-plastics in the environment. "Micro-plastics are of concern because of their widespread presence in the oceans and the potential physical and toxicological risks they pose to organisms." (Plymouth University, n.d). The fast degradation time and benefits of the process of wool biodegrading means that wool, compared to synthetic fabrics, is a desirable material for the environmentally conscious consumer.

This chapter has explained the science behind the properties of wool that make it such a desirable material. Wool is a hardy material that lasts, it requires less washing than other materials, it is a very effective insulator, it is fire resistant and it is biodegradable. These qualities come together to make wool an environmentally friendly material with a range of qualities that make it desirable for use.

Chapter Two: A brief history of the wool industry in Britain and Ireland.

This chapter will give a brief chronological history of the wool industry in Britain and Ireland, exploring the ways that wool has significantly shaped the political, social and economic structure of the two countries. The chapter predominantly uses secondary resources, as well as a few primary sources - such as the examination of historical texts.

Sheep were one of the first animals to be domesticated. There is a Neolithic settlement, 'Asikli Hoyuk' in Turkey, where archaeological findings demonstrate the shift from hunting and gathering into farming around 8450 BC. Soil samples from the site were found to have high concentrations of sodium, nitrate and chlorine salts. These figures mirrored those found in modern sheep farms, and sheep urine was concluded to be responsible for these concentrations. This proved that people had begun to domesticate animals and that sheep were some of the first to be farmed. It is widely considered that the animal from which all modern sheep evolved is the Asiatic Mouflon, a dark, horned animal that is thought to have migrated west into Europe following the last Ice Age. (Australian Persian Sheep association, 2019) These sheep would have been kept for meat and the skins and fleeces used for clothing and primitive craft. The findings of Asikli Hoyuk demonstrate the importance of ovine pastoralism in the agricultural revolution. (Anon, Popular Archaeology, 2019)

Figure 2: Asiatic Mouflon. (Anon, Animal Spot, n.d)

Neolithic settlers are thought to have introduced sheep to Britain and Ireland around 4000 BC. (British wool, n.d) These sheep would have been similar to the Asiatic Mouflon. (Animal Spot n.d) There is evidence to suggest that the Celtic people were producing woven wool craft in the Bronze Age. Figure 2 shows a spindle whorl which was excavated from Tipperary. This instrument would have been used in the production of woollen yarn. It would have been attached to a spindle stick to produce a drop spindle - the whorl would help to maintain a spinning motion in the process, spinning raw fibre into yarn to be woven. (McQuade, M, Moriarty, C, n.d)

Figure 2: Bronze Age spindle whorl excavated from Tipperary, Republic of Ireland. (McQuade, M, Moriarty, C, n.d)

Figure 4 shows a set of five middle Bronze Age loom weights discovered in Buckinghamshire. Loom weights were used when weaving on a vertical loom, they would be hung from the base of the woven fabric to add tension to the vertically hanging threads. These findings provide evidence of Bronze Age wool weaving in Britain and Ireland.

Figure 3: Five bronze age decorated loom weights found in Milton Keynes. UK. (Chapman, A, n.d.)

The Roman invasion of Britain in 45 AD, brought the Spanish Merino sheep to Britain while the later Danish invasion brought a black faced sheep breed. These species were interbred and this interbreeding came to produce a typical 'British sheep.' The combination of this cross breeding process as well as the sheep-friendly climate of the Britain proved ideal for rearing sheep with high quality wool - " The inner fibres were soft and dense, offering warmth and insulation. While the outer fibres were long which made them easy to spin." (Anon, Sir Gordon Bennett, n.d)

'Topography of Ireland' by Silvester Giraldus Cambrensis, written in the 12th century, touches on the use of wool in Ireland at the time, 'for they wear little but woollen, and all they wear is black, that being the colour of the sheep in this country.' He describes people as wearing 'woollen rugs.' This piece of writing, translated from latin is a fascinating insight into how 12th century Ireland was utilising wool. (Cambrensis G, translated by Forester, T, 1186-1188, p. 69)

Following the Roman invasion, there was a growth in the exportation of goods from Britain into the global market. Wool and woollen craft began to be exported - marking the beginning of a global wool trade that would shape the British economy for centuries. The high quality raw British wool was sought after by master weavers and craftspeople, many of whom were in Flanders. The relationship forged through the wool trade between Britain and Flanders was so important that King Edward III went to war over the territory with

France in a bid to maintain this trade. This war came to be known as the hundred year war and lasted between 1336-1453. (Johnson, B, n.d)

Britain's wool trade thrived and grew for centuries, with exports of wool and woollen cloth being instrumental in the growth of the country's economy. The incredible wealth associated with the success of the trade is exemplified in the 'wool churches' seen around the UK today. These elaborate churches were built on the fortune of the country's wool merchants, they were a lavish display of inordinate wealth. Another, slightly bizarre display of the importance of the wool trade in Britain is the 'Wool Sack'. This is a large red cushion situated in the House of Lords and is the seat of the Lord Speaker. The wool sack, stuffed with wool, was put into the House of Lords in the 1400s and is a symbol of the political importance of the wool trade for Britain. (Anon, UK Parliament, n.d)

Figure 5: The wool church of St Peter & St Paul, Northleach. (Britain Express, n.d)

Figure 6. The Wool Sack in the House of Lords. (UK Parliament, n.d)

By the 1500s, knitting was well established in Tudor Britain. Evidence of this was the introduction of the 'Cappers Act':

> "The Cappers Act of 1571 stated that every person above the age of six years (except for "Maids, Ladies, Gentlewomen, Noble Personages, and every Lord, Knight and Gentleman of 20 Marks Land") in England on Sundays and holidays should wear (except when travelling), "a Cap of Wool knit, thicked and dressed in England, made within this Realm, and only dressed and finished by some of the Trade of Cappers, upon pain to forfeit for every Day of not wearing three Shillings four Pence." (Anon, Victoria and Albert Museum, n.d)

Figure 9 shows an example of one of the hats that was to be worn, from the Victoria and Albert Museum collection. This hat would have been knitted in the round and dyed using madder root. This act is one of the first examples of large-scale hand knitting in Britain, and the craft was encouraged through this political act as a way of sustaining the wool industry on which the wealth of the country depended. (Anon, Victoria and Albert Museum, n.d)

Figure 7: Knitted cap from 16th century England, Knitted in the round and dyed with madder root. (Victoria and Albert Museum, n.d)

Up to the late 1600s, Ireland had a successful, consistent wool trade. They were exporting their wool to Europe where it was seen as a valuable commodity. Irish Wool was becoming competition for England's wool trade, which led to the creation of the 'Wool act.' Implemented in 1698, this agreement essentially blocked the exportation of Irish Wool, under the pretence of Ireland being 'given' the linen trade which the British would steer clear of. Unfortunately, this act led to the subsequent demise of the wool trade in Ireland. (Smith, F.W, 1876, p. 30)

In the 17th century, British Longwool sheep such as Cotswolds and New Leicester were imported into Ireland under the British. These animals were crossbred to produce a new breed that became known as Roscommon sheep. In 1923, a selection of pedigree Roscommon ewes were chosen and these sheep were named 'Galway sheep.' The breed survives today in small numbers and is considered to be Ireland's only native sheep breed. The British origin of these sheep and the transfer of the animals into Ireland while the country was under colonial rule begs the question as to what extent these animals really are 'Ireland's only native sheep breed.' As previously stated, wool craft in Ireland began much earlier than the creation of the

Galway sheep, so what was the true Irish sheep breed that predated the Galway? In recent years, there has been a beginning of a conversation about an older breed - named the Cladoir, a small sheep with very fine wool fibres. (Irish rare breed society, n.d). According to Scharff, these sheep were established in Ireland 'apparently from time immemorial.' (Scharff, R.F, 1922). Irish Wool craft is known to have existed since the bronze age, and the Cladoir sheep would have likely been a part of older Irish Wool craft. Despite this, during the time of the booming wool trade, the Cladoir were considered to be commercially useless as despite their fine wool, they did not produce the same quantity and quality of wool as the British breeds. As a result, they were disregarded as a breed that was not worth farming. In recent years there has been conversation about the significance of the breed and, using new scientific advancements, there is a hope for the breed's resurgence. The political associations and possibilities for the breed today will be discussed in the next chapter.

Figure 8: Galway sheep from Blátnaid and Niall Gallagher's farm. (Kulukundis, K, 2022)

Figure 9: Cladoir Sheep (Irish rare breed society, n.d)

The industrial revolution pushed the wool industry into a new age, with industrial mills being built around Britain and Ireland. Cities such as Leeds were created on these mills. With British colonial expansion, materials such as cotton started to become part of the global market, but wool continued to thrive. It wasn't until around the 1960s, that the wool industry began to see a decline. The increasing affluence of people in the West led to the rise of synthetic textiles, such as nylon and polyester led to the growth of the fast fashion movement. The ease of industrial plastic-based textiles and growing consumerist attitude favoured quick, cheap clothing that was easily expendable and easier to wash in machines. British and Irish pastoralism began to focus more heavily on meat - the wool trade, and the extensive craftsmanship associated with it began to suffer as a result. (British wool, n.d) Nowadays, the vast majority of Irish and British wool is seen as a waste product of meat production. Since the Covid-19 pandemic, there has been a further drop in the value of fleeces across the islands, bringing in a shockingly low average of just 32p per kilo, barely cover shearing costs. (Turner, A 2022) Chapter three will discuss the place and potential for wool in today's society.

Chapter Three - The British wool trade today.

This final chapter will discuss the relevance and potential for the British and Irish wool trade today. It will firstly discuss the modern political relevance of wool, then it will go on to discuss how heritage craft and innovation are coming together to provide a future for this ancient fibre.

As has been understood in the second chapter, wool has played a huge political role in British and Irish history. Galway wool and the potential to use wool from the Cladoir sheep in Ireland opens up a topical discussion, considering Ireland within a post-colonial narrative. The 'Galway Wool Cooperative' is a cooperative of farmers working to promote Irish Wool and the 'Irish' breed - the Galway. Following the historical research that has been carried out in chapter two, it has been argued that promotional story behind this work is somewhat undermined by the British origins of the Galway sheep. The forced movement of species around the world as a result of British colonialism has created a false narrative about which species are truly native to a post-colonial nation. The Galway sheep is an example of this. Blátnaid Gallagher of the Galway Wool Cooperative was interviewed on the subject. Her thoughts were as follows:

> "I am in no doubt that the breed would have had to come from the British Longwool breeds, it was the British landlords, they were doing what they were doing. Wool as a bio-fibre was there to generate money. The fact that they got 4 different British breeds and brought them together to produce what became known as the native breed of Ireland, I think that's a wonderful thing. I think it's a testimony to the people out there in the 19th century that they could actually breed the best sheep there are, and in my opinion they're Galways." - (Gallagher, B, 2023)

Blátnaid does not ignore the political and colonial association of the history of the Galway, however her thoughts and frankness on these associations offer the idea that whilst the Galway may represent a colonial movement of sheep by the British, this is not necessarily a bad thing. Ireland *is* a post-colonial country and *has* been shaped by this narrative, to ignore that, and to consider that the Galway is not truly Irish, ignores a huge part of Irish history, which is British colonialism. The Galway's status as a native breed in Ireland should not be ignored.

Blátnaid was then asked about what she thought about the possibility of the revival of the Cladoir -

> "They possibly existed as the native breed before the Galway, but unfortunately to get the native breed status [for the Galway] took over 40 years of both academic and on farm research. The Cladoir is what they call an emerging breed. It [the breed] does exist but to finalise having them officially recognised as a native breed, they are years and mammoth mounds of work away from getting there." (Gallagher, B, 2023)

If the Cladoir is revived and their wool starts to be used in Ireland, this could change the whole idea of what Irish wool is, however it is not there yet. Right now, the Galway is the only known native breed of Ireland but this doesn't undermine the future possibilities of the Cladoir, the two are not mutually exclusive. The ongoing work to reintroduce the Claidor and increase the profile of the Galway shows the continuing and potential political relevance of the wool trade in Ireland.

Heritage wool craft is well respected today, and there is a market for this age old traditional industry. David Wilkins, of Rampisham Hill Mill, UK has made his business by processing wool traditionally - providing a bespoke washing, carding and spinning service for people with their own fleeces. He has had constant work since opening his mill, this success alone being a mark for the value of the heritage wool craft industry in the United Kingdom. In a first hand interview with David he stated that:

> "There is a growing desire for people to buy locally or process their own fibre, and get away from synthetic materials. We identified this trend and need over the last 15 years and subsequently expanded our farm enterprise to include the wool processing facility, to serve the local and national small scale fibre producer and user … The driving force is peoples' desire to use their own or local fibre for projects or to sell on. We can see continued demand and growth in our mill for our services and already have a waiting list for machine spinning slots." (Wilkins, D, 2023)

David expresses that he has seen a growing demand for locally produced fibre. The fact that he already has a waiting list for his service is testament to the fact that there is a valuable market for traditional processing of wool into spun yarn. This introduces the idea that there is relevance and potential for the British and Irish Wool trade in traditional, heritage wool craft.

Blátnaid Gallagher of the Galway wool cooperative has found that the wool she produces is being used predominantly for heritage craft, though she believes that the real opportunity for the fibre is in innovation.

> “It’s [her wool] finding itself there [in heritage craft] but that is not where we had intended to be. We want an innovative solution, and we wanted a close link ideally towards tapestry and the applications that it can go into. As opposed to the applications that I personally believe that its least suited to [the clothing industry] I never saw it as an apparel yarn. I’ve always seen it as a sustainable home interior yarn. Or alternatively if it was to go into fashion, that it would go into a non next to skin solution.” (Gallagher, B, 2023)

Blátnaid believes that in order for the Irish Wool trade to become more relevant today, innovation is the way forward. She believes that the education system is at fault and that the solution exists within colleges. She questions why more isn’t being done in the way of educating students on the possibilities that wool offers.

> “I feel we are being let down by industry and by education, we haven’t put more effort into the the kilos and kilos of wool that we have…you know you’re not being taught [in colleges] to explore various different applications of the fibre. I find that really really sad.” - (Gallagher, B, 2023)

When interviewed, David Wilkins said that

> “It’s [the market for British home-grown wool] only going to increase as people want to move away from synthetic materials, and become 'greener'. This can be from clothing / garments, packaging, insulation, compost or felts etc.” (Wilkins, D, 2023)

David and Blátnaid have explained that whilst there is a place in today’s society for heritage wool craft, this does not present a full solution, and they both believe that innovation is necessary if wool is to gain relevance in modern day Britain and Ireland.

As discussed in the first chapter, wool has a range of qualities that make it a versatile and incredibly useful material. Whilst traditionally, these qualities have been used predominantly in the clothing industry, the material has the potential to be used in many more innovative ways. With wool prices at an all time low in Britain and Ireland, it can be argued that innovation is the way forward for the trade. Dr Aoife Long believes that -

> “Probably the future of it [wool] is not just in fashion but also in interiors, insulation, even for biosciences, fertiliser - stuff like that” (Long, A, 2023)

Aoife believes the revival of Irish wool may lie in innovation. An example of some of this innovation is a company over in the UK, called Wool Cool - Wool Cool takes advantage of the thermal insulation quality of wool and uses it as packaging, they work with the food and pharmaceutical industries to help in the shipment of temperature sensitive products. They use 100% British wool as as an alternative to the environmental evil that is plastic packaging. (Wool cool, n.d) Not only is wool an incredibly effective natural insulator, but the material also offers a biodegradable option for something that has become a necessity in today’s world.

Another example of wool innovation is in Kildare, Ireland, Peter and Peter McGlynn (a father son duo) have been converting wool into a natural fertiliser, they have been making the wool into pellets that can be used agriculturally to fertilise soil. Wool presents a sustainable alternative to chemical fertilisers. These two examples show how modern innovation is creating markets for the British and Irish Wool trades.

This final chapter has offered examples of the ways in which the British and Irish Wool trade has continued relevance and potential in today's society. The question of the Cladoir and the Galway proves that wool is still a highly political topic that has the potential to represent societal change. Interviewing David, Blátnaid and Aoife has shown that there is impetus for heritage wool craft and innovation to together to revive this industry. It can be concluded from this research that it is neither tradition or innovation that will save British and Irish Wool, but instead a combination of the two is what is needed.

Conclusion

The above has looked at the British and Irish Wool industries from three different angles: the physical properties of wool, the history of the trade and the ways homegrown wool is being used in British and Irish society today. This has been achieved through an examination of a wide range of both primary and secondary resources, including first hand interviews and the examination of a variety of different resources that talk of the wool trade of the two countries.

The first chapter looked at the physical properties of wool and at how these create unique qualities in the fibre. Secondary research methods were used to understand the scientific explanations of these qualities. The chemical and physical makeup of wool fibres was examined in detail. Through this research, it has been understood that wool is a versatile material that provides many benefits and potential uses, both to the environment and the consumer.

The second chapter of this essay discussed the history of wool and its use in Britain and Ireland. Wool was found to have been in use since the Bronze Age in both countries. The chapter looked at the role of wool in the British and Irish economies and briefly discussed how it played a part in their political dynamic.

The final chapter of this essay discussed the significance of wool in today's society. It looked at how the revival of the ancient Cladoir sheep as an Irish wool breed could have political importance in post-colonial Ireland. This chapter questioned whether either the heritage craft sector or innovation will be more significant in the revival of the trade. It was concluded that a growing respect for heritage wool craft can come together with innovation for the material to help to bring the Irish and British wool trades back into their former importance. The research for this chapter was made up of interviews with people involved in the modern British and Irish wool trades and research into some of the new ways that wool is being used today.

These three chapters have concluded that wool is a unique material that has been incredibly important in the shaping of Britain and Ireland today. Whilst there has been a decline in the trade

in both countries, in recent years there has been a change in attitude to the way in which people want to conduct their lives, largely as a result of the growing environmental movement - people and businesses are looking for greener alternatives to live and work and with this in mind, wool is a material that has a lot to offer. This essay opens up avenues for further research into the role of wool, on a political, social and economic perspective. For centuries, wool has played a part in these perspectives for Britain and Ireland and the people interviewed have confirmed there is still an active interest in the material, and that wool might continue to play an important role in an environmentally conscious future. Whilst their work remains fairly niche at the moment, Blátnaid, David and Aoife are three examples of people who can see strong potential for the revival of the trade. It is work like theirs that is starting to inspire and educate the general public, and perhaps, as Blátnaid says, the education system will also start to play a role in this growing movement.

Appendices

Appendix 1 - Interview with Dr Aoife Long conducted by Kalika Kulukundis.

KK: What was it about Irish wool that led you down this path ?

AL: I grew up in Donegal, I was surrounded by sheep on hills and knew a lot of people who were doing sheep farming and stuff like that. I always knew that it wasn't particularly profitable but it wasn't until I got a little bit older and started asking where do the fleeces actually go and then realised that they were simply being discarded across the west coast, there were just barns full of discarded fleeces. They literally don't pay to be collected. So obviously that's a massive problem and if you link that to everyone wearing cheap polyester clothing, obviously there is a massive problem there.

KK:In what ways do you feel that modern technology is helping to revive the traditional Irish wool industry ?

There is a researcher with Tallaght university and she essentially is developing technology to actually be able to definitively say where wool or a wool product on the shelf, which farm it came from. So essentially by using chemometrics they will be able to tell you down to the field. So obviously that sort of technology would massively decrease the Ability for brands to falsely claim that they are using Irish Wool and claim that they are using certain breeds and stuff like that. Obviously the Galway wool co op, they need to get geographically protected status under the EU and make sure no one else.

3. Do you feel that there is a growing place for Irish wool in todays society ?

Yes and no, I think trends are changing, a lot more people are looking to be more sustainable and looking at things closer to home and that's not just in fashion, that's in terms of a lot of other things. Like art and and a lot of places in peoples lives they're trying to be a little bit more sustainable and I think Irish Wool has a great opportunity to say hey we produce like 5 or 20 million tonnes of this stuff and we're not using it. Its a pretty strong argument and I think probably the future of it [wool] is not just in fashion but also in interiors, insulation, even for biosciences, fertiliser - stuff like that.

4. Would you say that traditional wool craft is a major driving factor for your work ? Or has modern innovation played a greater role in supporting the wool trade ?

It's hard to say, traditional craft verses industrial uses. So for the wool industry in Ireland, the vast majority is exported supposedly to make carpets, but I'm not sure I actually believe that, because there are very few wool carpets to be found on the market for the quantity of wool that's produced in Europe. For actually the wool and woollen industry in Ireland which are producing things, its difficult to say because they're all using traditional methods. Sure, McGee's and stuff are using computer looms but a lot of it is still very traditional, like the process of actually milling the wool and I have a lot of love and a lot of time for traditional crafts here in Ireland. I think they're a really important part of marketing and bringing Irish Wool forward into the future.

5. Do you have any thoughts on the historical origin of the Galway sheep as being originally bred from British long-wool breeds such as the Improved Leicester?

Ha, Yeah the Galway sheep, so this is where you get into the question of what is Irish. There were sheep here for quite a while and when the Brits arrived they were very rough, they had evolved quite rough coats and stuff and obviously when the British agricultural revolution took off you know in the 1780s, they looked at that and they thought, hm … we should breed these and mix them in and that's where the different British breeds were entered. Ireland you know, before that in the 15 and 16000s was actually famed for its wool productions and the Brits actually had to ban Irish wool exports because it was crushing their own industry back at home. So the story is a little bit more complicated but uh, yeah its definitely a mixed breed and there's even some merino in it which is ironic, ha.

Appendix 2 - Interview through email dialogue with David Wilkins conducted by Kalika Kulukundis.

KK: What is it about wool that led you down this line of work ?

DW: Wool is natural product that throughout history has played a very important part in the economics of the UK. Although now the part wool plays is almost unmeasurable, there is a growing desire for people to buy locally or process their own fibre, and get away from synthetic materials. We identified this trend and need over the last 15 years and subsequently expanded our farm enterprise to include the wool processing facility, to serve the local and national small scale fibre producer and user.

KK: Do you feel that there is a growing place for homegrown, British wool in today's society ?

DW: Definitely, and it's only going to increase as people want to move away from synthetic materials, and become 'greener'. This can be from clothing / garments, packaging, insulation, compost or felts etc.

KK: In what ways do you feel that modern technology is helping to revive the traditional British wool industry?

DW: Firstly social media and the the internet means any one can sell any where.... so the world becomes a small place and your products more accessible. Our modern machinery is quicker and more adaptable than the older machines so it is also giving the customer more choice and options to the products available.

KK: What would you say are the driving forces for the success of your business? And do you predict a further growth in demand for your work?

DW: The driving force is peoples desire to use their own or local fibre for projects or to sell on. We can see continued demand and growth in our mill for our services and already have a waiting list for machine spinning slots.

KK: Would you say that traditional sheep farming communities have been a major source of demand to drive your business?

DW: A lot of our business comes from individuals, and designers as well as traditional sheep farmers, and as most of our business is commission processing on behalf of the client using their supplied fibre, you can imagine they are vital to our business model being successful. But as most of our work is commission based we also listen and adapt to changing requirements from the clients

Appendix 3 - Interview with Blátnaid Gallagher conducted by Kalika Kulukundis.

KK: What is it about Irish wool that led you down this line of work ?

BG: The way I got down this path was through my own research and discovering that the Irish grown wool industry was in such dire straights that something had to be done with it. So what led me down this path was because of the horrendous situation that Irish grown wool has found itself in, that's exactly how I got down this path. Do you want me to expand more or

When I discovered that most Irish Wool comes from the southern hemisphere, and all that happens to it is that its labelled here in Ireland, that gave me a really really really pain in my side, just the piercing sensation that this big fib was being told.

KK: So is that Galway sheep then in the Southern Hemisphere or that's just what is being branded as Irish Wool?

BG: All the wool that we get here in Ireland, from the yarns form the mills that says its Irish actually comes from the southern hemisphere.They bring that wool in as from the southern hemisphere, they bring that wool in as wool and once that goes through the mills, the three of them here in Ireland, they're then labelling it as Irish. Because it comes from a factory in Kilkenny or a factory in Donegal - they don't actually clearly identify that the wool itself came from the southern hemisphere. From an industrial scale based farm and that really annoyed me, that really pissed me off. Its not truthful and there's a very strong knitwear manufacturing business here in Ireland and there are about four or maybe five knitting manufacturers that are thriving you, know, all you have to look up is [inaudible] registration and you'll see the savage profits that they're making which wool, some of it not even sheep wool, some of it can be acrylic in some cases. They're churning out these Irish crafts, you know there's the obvious one which is the Irish sweater, the Aran sweater. Well its not just the Aran sweater, its this vibrant industry. It's the tourist shops. I just kept thinking why is it then that the farmer doesn't have a chunk of that. I discovered that it was then down to the micron one the wool and the Irish wools weren't suitable for this multimillion euro industry which was the knitwear manufacturing. And then I said, well if the consumer doesn't want it in their knitwear, of which there is a thriving business, where else can it go ? It can go into rugs, it can go into carpets, tapestries, it can go into so many other various applications some of those applications we may not even have heard of yet. And then I discovered that well was there ever a wool industry in Ireland - well yes. In the British wool act it was taken away, our ability to be able to produce wool as a product. I feel that we were ham-stringed. We didn't have control over the market destination and I think at that stage we started to weaken. That cumulated with the fact that in the 1950s and 60s when we became a part of the EU, and rapidly started to produce food for our European neighbours, the production of lamb and the quality of that lamb and how the breeds that would provide that lamb became way more important than the wool production. So you have two disasters - then along comes the polyesters of the world and that's just the third disaster and then number four is this lie that we're being sold and the public not being aware that their products are actually being grown in a country as opposed to the country of Ireland and that they believe that its coming from. So all of this led to the disastrous wool prices that were being received at farm gate and then the farmers contributed themselves, and because they were getting such little money for the wool, they decided to have little respect for the wool and then this churned down to the merchants, because the merchants were getting this really low quality wool, not suitable for textiles, not suitable for these applications and all of a sudden you had a situation that led me to the path that I'm on today.

KK: The wool that you are producing now, is the way that you're marketing that as Galway wool, has the wool got a higher value because of how you're marketing it?

BG: We have put together a marketing campaign that hasn't existed prior to date, and its farmer run and it comes twitch a list of its provenance, that being 100 year old so you know, artists working with this product that we've added value to - we couldn't compete with the micron of the merino, so what we decided was that what we had that merino didn't was heritage, culture. And a distinct positive role within our biodiversity and in our quest to slow down the climate change catastrophe that we have. We realise that our Galway had all of these things that the imported Merino didn't, and if we told that story we could command a price good enough for the farmer to be able to start respecting his wool produce again.

KK: I remember you mentioned wool as an insulation material, do you have any thoughts on how innovation is playing a role in reviving the wool trade today?

BG: That would apply to what I call the national clip, so that would be the 10 million kilos of Irish grown wool, it goes across to the UK as a category three waste material. That type of wool could be brought back and used in insulation. I believe that even within the fashion industry there are various other applications that the students, through lack of direction at third level direction have found no solution as to how we can either soften the wool or blend it with other fibres. I'm a farmer, you know. But I don't believe it's been addressed at college. I believe that there's a distinct lack of leadership within the art colleges, and within you know the design applications. I thin that's where we've been neglecting the story as well. We are blaming it all on the agricultural side of things, but innovation and technology and art and design and creativity within Ireland, has not come up, with the exception of tweed, has not come up with any other application in the last two centuries.

KK: So you feel that there is still a lot of space for innovation of how we can use Irish Wool?

BG: I know there is, I am confident that there is, I am confident in your generation. I am confident that your generation will have more respect for it, maybe so much as a wool or a yarn but most definitely as a bio fibre. There's so little bio fibre that's actually grown here in Ireland, in the abundance that it is, its just your generation will have the respect for it.

KK: Have you seen over the course of the time that you have been working with the Galway wool co operative, have you seen a change in people's attitude towards wool?

BG: I think the same people, are the same people that are changing their attitudes. I think we can talk about this story to either the creative, or we can talk about it to the crafter - when I refer to the crafter, I am talking about you know your home knitter or your home needle filter. I think these people are willing to listen to the story of the fact that their wool that is marketed as being Irish, is not actually Irish. They're starting to look at it and that's wonderful and that's been part of the aim of the co op has been education so that's brilliant. But your average Joe who's walking into you know Dunnes stores or Brown Thomas and they're picking up their xyz Irish designer knitwear, they have no idea that that is probably not even wool and no clue that that Irish designer has created something with wool from the southern hemisphere. The general public still hasn't got the idea that the wool on the sheep in the fields, is not the wool in their jumper.

KK: So do you feel that the work you are doing is staying within a niche?

BG: Correct. I believe it's staying within that niche. Probably the reason is that outside of the co op which represent 40 sheep farmers that are breeding this beautiful native breed, but there are over 30 thousand sheep farmers in the country and there's probably a population of nearly 5 million people and that 5 million believe that the 30 thousand sheep famers are producing their wool for their carpets, rugs, blankets, coats. They actually still believe that and at national level there's no desire or willingness, given the climate crisis and given what wool can do there doesn't seem to be a link there. It's constantly being kicked back to the department of agriculture. When it's really a bigger picture that nobody seems to take on. And I don't, Kali, I don't have the energy or resources to start telling the story of the bigger picture. The Galway is my passion, you've been here and you've seen it. Im just one woman. I can't be the Erin Brockovich of Irish Wool. Somebody else has to go out there and start trying to educate the public that this wool that they're wearing is actually being imported from the southern hemisphere.

KK: Do you feel that craft is where most of your business is ending up ?

BG: It's finding itself there but that is not where we had intended to be. We want an innovative solution, and we wanted a close link ideally towards tapestry and the applications that it can go into. As opposed to the applications that I personally believe that its least suited to. I never saw it as an apparel yarn. I've always seen it as a sustainable home interior yarn. Or alternatively if it was to go into fashion, that it would go into a non next to skin solution. So at the moment im looking at wadding, which is the trend within the fashion scene to pad, wad and puff clothing. But that's all being filled with either goose down or polyester. So there's no reason why we can't introduce wool wadding. Next week I am talking with the sustainability team from Vivienne Westwood, say can I convince them can we pilot a project. Now if we did that we wouldn't need to

insulate our homes, we wouldn't need to try to compete in an environment where we're not good. We will be able to insulate each individual. Everyone could have either a gilet or a full length coat that's either puffer, or north face or whatever bleedin' brand that's on it. That would all be added with wool. Now why do I have to come up with all of this myself, why are there not kids like you coming out of college because you're not being taught you know to explore the various different applications of the fibre and I find that really really sad. I really really do. I believe that innovation starts in the mind, the mind of a student is the most absorbent and why the colleges aren't looking at you know how can we do five things with one thing. Crochet, knitting, weaving, felting. Four. That's four applications that you probably get an opportunity to work with in college. If we can make the finest most luxurious material in the world out of petrol and plastic, how come we haven't yet discovered how to do that from wool. The ideology I'm trying together into my head, if you take the wrapping off a large bouquet of flowers, you know that plastic crinkly type, that stiff plastic. If you cripple that up and told me tomorrow that you're going to create a satin like lingerie id believe you. I know its been done, but yet we can't take a natural bio fibre that grows out of the earth, holding carbon and restoring biodiversity within farming systems. And you know, bringing in money to people in rural communities which has so many other benefits because you're taking this whole, all this congestion out of cities. There's just so many benefits that this one product can do. How come we're not using your generation to do the thinking as to how this bio fibre, this animal hair can do all the things that we did from the plastic wrapper form the flowers. That's where I stand on that question - I feel we are being let down by industry and by education, we haven't put more effort into the the kilos and kilos of wool that we have. And that's before we even start taking about the lanolin, and that's for another story because all this wool that we export to Asia, some of it gets made into carpets but more and more of it is being used for the extraction of the lanolin which is one of the most expensive active ingredients in the pharmaceutical and cosmetic industries. Lanolin is where we need to be at.

KK: You have somewhat answered about the question of what role traditional wool craft plays in the story of Irish wool, do you have any other thoughts on that?

BG: I think it's too cliched. I don't believe it's got the turnover to handle the problems or the solutions. The raw material, I think for me, I don't believe that modern innovation has but it must do but it hasn't in my opinion to date.

KK: Do you have any thoughts on the historical origin of the Galway sheep as being originally bred from British long-wool breeds such as the Improved Leicester?

BG: I am in no doubt that the breed would have had to come from the British Longwool breeds, it was the British landlords, they were doing what they were doing. Wool as a bio-fibre was there to generate money. The fact that they got 4 different British breeds and brought them together to produce what became known as the native breed of Ireland, I think that's a wonderful thing. I think it's a testimony to the people out there in the 19th century that they could actually breed the best sheep there are, and in my opinion they're Galways. But you know that anyway Kali, I'm a little bit biased.

KK: I became interested in the Cladoir sheep, have you heard of that breed?

BG: They possibly existed as the native breed before the Galway, but unfortunately to get the native breed status took over 40 years of both academic and on farm research. The Cladoir is what they call an emerging breed. It [the breed] does exist but to finalise having them officially recognised as a native breed, they are years and mammoth mounds of work away from getting there.

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