Understanding the place of animals and animal-related industries in twentieth century Dublin City between c.1910 and c.1973.

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December 2024

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ACKNOWLEDGEMENTS

ABBREVIATIONS

CSO   Central Statistics Office

DATI   Department of Agriculture and Technical InstructionI

DCDA   Dublin Cow-keepers and Dairymen's Association

DSPCA   Dublin Society for the Prevention of Cruelty to Animals

DLGPH   Department of Local Government and Public Health

GIS   Geographic Information Systems

HMSO   His Majesty's Stationery Office

IAOS   Irish Agricultural Organisation Society

ICMS   Irish Clean Milk Society

RDS   Royal Dublin Society

WNHAI   Women's National Health Association of Ireland

WWI   World War One

WWII   World War Two

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ABSTRACT

Understanding the place of animals and animal-related industries in twentieth century Dublin City between c.1910 and c.1973.

Ann Marie Durkan

This thesis explores Dublin's relationships with horses, cattle and pigs in the twentieth century, a period of profound political, social and physical transformation. Using a 'collage' methodological framework involving Geographic Information Systems (GIS) technologies, oral histories and archival material, this thesis examines the locations, roles and functions, and reasons for the eventual disappearance of these animals from the city. Despite the proliferation of animals across the city identified at the beginning of the twentieth century, the spatial distribution of animal housing and animal-related businesses revealed distinct zones shaped by their presence. The impact of the animals on the rhythms of city life along with the concentration of infrastructure supporting both local urban agricultural practices and national agriculture undermines the concept of Dublin City as entirely urban during much of the twentieth century. To meet the demands of the city, the flow of animals and products such as milk into, around and out of the city emphasised the city as a 'space of flows' with porous boundaries which hampered the autonomous authority of Dublin Corporation. This resulted in the Corporation's inability to effect public health improvements related to milk within the municipal district. Furthermore, the importance of animals to Dublin City's urban ecosystem connected the city with rural Ireland, Britain and beyond and, unsurprisingly, the impact on Ireland of the major political and economic upheavals of the twentieth century directly affected the city's animal-based urban metabolism with widespread social and economic consequences. As attitudinal landscapes were evolving alongside physical, social and political landscapes during the twentieth century, Dublin City also functioned as a network hub for modern ideas flowing into the country which informed reforming groups such as the Irish Clean Milk Society and the Dublin Society for the Prevention of Cruelty to Animals. Human-animal relations evolved as these groups successfully shaped local and national policy regarding the treatment of animals and their products. Meanwhile, oral histories and memoirs revealed that, throughout the research period, human-animal relations in the city were nuanced and uneven and strongly determined by factors such as gender and socio-economic status. Ultimately, this research contributes to the literature by revealing what has previously been overlooked by scholars of twentieth century Dublin – the importance of animals to the fundamental fabric and functioning of the city.

1.0 Chapter 1: Introduction

'The lives, experiences, and deaths of animals become a powerful lens to understand and explain human histories, ideas and practices that affect human relationships to each other and to other animals. Animals... are inseparably intertwined with human history and present exceptionally strong prisms for the study of history and its complexities' (Roscher, Krebber and Mizelle, 2021, p.3).

Over the last hundred years or so, humans have relegated certain animals to certain places and today few animals are seen as appropriate in urban space. Cats and dogs are among the few exceptions as are wild birds, while other animals such as rats and foxes occupy liminal spaces in our towns and cities. However, images of urban places around the world show that this has not always been the case and in recent years academics have increasingly turned their attention to how livestock animals in urban settings historically blurred the boundaries between urban and rural space. My research examines how, for most of the twentieth century, livestock animals such as cows, horses and pigs, which are today firmly associated with rural life, lived (and worked), in large numbers within Dublin City's urban core. At the same time thousands of animals moved through the streets of Dublin on their way to or leaving from the Dublin Cattle Market.

1.1 Focus and scope

Acknowledging the unique nature of each place, this thesis aims to identify what was unique and particular about human-animal relations in Dublin City between c.1910 and 1973. The start date of the research period was chosen based on the availability of sources when this research began in 2020, coinciding with the Covid-19 pandemic when archives were closed indefinitely. They included a pdf of Thom's Street Directory 1910 and online data for the 1911 census. The end date coincides with Ireland's changing outlook when Ireland joined the European Economic Community in 1973. The research area is defined by the municipal

boundaries which expanded in 1930, 1942 and 1953, and the focus is on the animals and animal-related activities which occurred in the urban landscape. Animal spaces can be understood in a number of ways: places where animals were housed such as stables, sheds, piggeries; places where animals were killed and their body parts processed and transformed into new products such as slaughterhouses, hide and skin works, the knackers' yard; places where animal products were sold such as dairy retail outlets and butcher shops. Understanding 'the place' of animals involves examining their impact from multiple angles: they were an integral part of the urban landscape and how humans experienced it – as commodities they fuelled the economic life of the city, as vectors of disease they threatened public health. This thesis explores how animals impacted on the human residents of Dublin City at a range of scales – from individuals woken at the crack of dawn by the neighbour's cockerels or kept from enjoying their back gardens because of a nearby piggery, to the wider population who were exposed to the bothersome summertime explosion in flies feasting on the mountains of manure generated by urban horses, cows and pigs.

Scholars utilizing animals as a lens through which to better understand human history typically use the term human-animal relations to understand how humans perceive, interact with, use/exploit and co-exist with animals in historical contexts. This research accepts Adelman's (2020) premise that human-animal relations in Dublin up to the beginning of this research period were largely based on human exploitation of horses for their draught energy and cows and pigs for food.

This thesis is informed by the fact that, in the nineteenth century, cities across Europe and North America faced a common set of challenges associated with horses, cows, pigs and other domestic livestock (Kheraj, 2015). It builds on more than twenty-five years of research which has highlighted the important roles and functions that livestock animals performed contributing to the growth and development of industrial cities (Wolch, 1998; Philo and Wilbert, 2000; McShane and Tarr, 2007; Atkins, 2012; Brown, 2016). It finds that Dublin Corporation introduced legislation similar to that introduced in other European and American cities, where municipal authorities had often responded to the broadly similar

challenges posed by animals in a similar fashion through the development of restrictive by-laws, public health regulations and pound systems to control urban livestock keeping (Kheraj, 2015). As with other cities internationally, these regulations would fundamentally alter the relationship between urban dwellers and animals. This research is inspired by nineteenth and early twentieth century studies of European and American cities where animals feature front and centre such as *Animal Cities: Beastly Urban Histories* (Atkins, 2012), *Beastly London, a History of Animals in the City* (Velten, 2013), *The City is More Than Human, An Animal History of Seattle* (Brown, 2016) and *Animal City, the Domestication of America* (Robichaud, 2019). It follows on directly from Adelman's (2020) *Civilised by Beasts, Animals and Urban Change in Nineteenth Century Dublin*. However, despite the proliferation of literature about animals in cities in the nineteenth century, which often includes the first two decades of the twentieth century, very little literature focuses exclusively on the twentieth century.

The purpose of this research is to write animals into the historical and geographical literature of twentieth century Dublin City. In so doing, it supplements the extensive existing literature on Dublin which largely ignores the contribution that animals have made to the city. It aims to breathe life into Dublin's historical animals through summoning their sights, sounds, smells and movements. Other than Juliana Adelman (2020), Mary Daly (1984) Liam Clare (2002) and Declan O'Brien (2021) are the only historians to have considered Dublin's animals and in all cases their coverage of animals largely related to those passing through the Dublin Cattle Market rather than those animals residing in the city. Perhaps a more accurate vision of the city can be gleaned from oral histories and memoirs where references to Dublin's animals are more prolific. For example, one refers to the Smithfield/Stoneybatter area as having an 'agricultural air' (Crosbie, 1982, p.41). Similarly, David Dickson (2014) alludes to the city as a strange hybrid place because of the large number of animals moving through the market and on to Dublin Port. This thesis is deliberately broad in its scope and, if a picture were being painted, the brush strokes would be wide. A 'collage' methodological framework is used (further explained in Chapter Three) which can accommodate

swatches of different types of data, some holes, and data which occasionally overlaps the border. The aim is to provide a broad overview highlighting several features: the geographical location of animal spaces within the city; the continuous flow of animals, animal products and information into and out of the city; the recycling systems within Dublin's urban ecosystem; the city's urban metabolism linking the city to near and faraway places.

1.2 Questions and objectives

To accurately locate and place animals and animal-related businesses in Dublin at the beginning of the research period required the construction of maps using a novel methodology devised for this research (discussed in Chapter Three). Multiple methods were utilized to collect new data including mapping and oral history recording and these were combined with primary data sources ranging from official Dublin Corporation publications to personal memoirs. Mapped data was utilized to determine the spatial distribution of variables such as stables and cow houses. This provided new information about areas in Dublin which was analysed at different scales – from street level to city level. Clusters of business types were identified such as butchers and slaughterhouses in the Moore Street area and surrounding lanes. When interpreted alongside existing literature, as well as memoirs and oral histories, it was clear that the presence of clusters of certain types of businesses and/or animal housing conferred an area with a very particular character.

The research seeks to determine whether specific social conditions could be directly attributed to concentrations of animals and animal-related businesses. A cluster of animal spaces in the Smithfield/Stoneybatter area corresponded with the presence of the cattle market on Prussia Street and the historic horse and hay market in Smithfield. On the other side of the River Liffey, the Liberties contained the highest concentration of animals and animal-related industries identified as offensive trades such as tanneries, glue works and boiling houses which traditionally processed animal body parts. In contrast to Smithfield/Stoneybatter which was relatively prosperous, the Liberties housed some of the poorest

residents in the city at the beginning of the twentieth century (Daly, 1984). For this reason these two areas – Smithfield/Stoneybatter and the Liberties – were chosen as focus areas for in-depth analysis . They contained the highest concentrations of animal-related activities in the city although these areas differed significantly because of the nature of animals and businesses present. This is discussed in more detail in Chapter 3, Sources and Methodology. Again, multiple methods were used alongside the maps to determine the impact of animals on the socio-economic life of these two areas.

Much work has been done on public health initiatives to remove animals from cities at the turn of the century (Atkins, 2012b; Brown, 2016; Robichaud, 2019; Adelman, 2020). Animals represented major sources of pollution through their faeces and urine, threatening public health, and anti-animal sentiment was mobilised in the pursuit of a sanitised modern state. Moral naturalism and spiritual satisfaction portrayed 'dirty environments as bad and their inhabitants as dangerous' (Hamlin, 1985 in Atkins, 2012a, p.27). This research sought to determine how successful similar public health initiatives were in Dublin City. This involved the examination of the Annual Public Health Reports for the City of Dublin which recorded details of outbreaks of disease such as typhoid which could be directly related to adulterated milk, as well as comprehensive information about animal life in the city. For example, the number of registered cow-keepers and milch cows in the city were recorded as was detailed information about animal keepers and milk sellers fined for breaking laws relating to hygiene around milk and meat. Prunty (1998) noted that poverty was geographically widespread in Dublin and that debates about poverty in Dublin echoed contemporary international concerns such as identifying slums as 'fever dens'. This thesis suggests that there was a direct link between poverty, slum dwelling and disease, and high concentrations of livestock animals.

Central to this research was understanding how animals shaped the urban environment at the scale of the city. The daily flow of animal products such as milk, and the weekly flow of animals to the Dublin Cattle Market identified the city as a 'space of flows' (Castells, 2004) with porous boundaries. Taken alongside the

animal-related rhythms dictating much of city life and the large number of agricultural businesses located in the city which were identified in the mapping process, the concept of Dublin City as entirely 'urban' in nature was undermined. This research aligns with Cronon's (1991) rejection of the rural/urban binary recognising Dublin City's interdependence with rural Ireland and beyond and adds to understandings of the city determined by scholars such as Daly (1984), Brady and Simms (2001), Dickson (2014) and McManus (2021). Dublin is presented as a 'space of flows' and a major network hub for Irish agriculture.

Understanding Dublin City's interdependence with rural Ireland required questioning how animals and animal-related businesses affected the functioning of the city. The multiple approaches taken through the use of several different methods uncovered a myriad of relationships within the city and stretching beyond the city. The connected and relational nature of cities can be interpreted through viewing cities as urban ecosystems connected with other ecosystems at scales ranging from local to global (Grimm, Baker and Hope, 2003). An ecosystem consists of a community of organisms who interact with one another and their shared physical environment (Rogers, Castree and Kitchin, 2013). As a metaphor, the manufacturers, consumers and waste disposal infrastructures in a city can be compared with the producers, consumers and decomposers in a natural ecosystem (Zhang, Yang and Yu, 2015). A distinct animal-based urban ecosystem was revealed, with an urban metabolism connecting actors within Dublin City with each other as well as connecting the city with a multitude of other places. For example, similar to nineteenth century New York City where spent grain from the city's breweries was channelled directly into cow houses creating the notorious swill dairies (Robichaud, 2019), this research reveals that Dublin City's breweries and distilleries relied on the city's milch cows and pigs to consume their waste until the 1960s.

An example of connections between urban animals and actors beyond the city's border was identified by McShane and Tarr (2007). They viewed the recycling of horse manure from the city in the surrounding countryside as an exchange of energy between the city and country. According to Atkins (2012b), manure linked

urban and rural economies, creating an area of sustainable fertility. The soil within a 'radius of convenient cartage' was manured with urban waste and protected from over-production, creating a 'virtuous circle of fertility and prosperity' (Atkins, 2012b, p.66). Animal wastes were seen as carrying creative and regenerative potential which was crucial to the cycle of fertility. However, the introduction of artificial manure in the 1870s, at a time when horse numbers were increasing, killed the market for natural manure and changed its perception from good to bad (Turvey, 2000). Daly (1984) refers to this cycling of materials between Dublin City and surrounding areas but suggests that it had ceased entirely c.1900 when a thriving artificial fertilizer industry had developed in the city. However, testamentary evidence from oral history collection and memoirs suggests that animal faeces continued to be considered as a valuable commodity in Dublin City. Residents regularly collected horse and cow droppings from the street to fertilize their gardens during WWI and WWII, when artificial fertilizer was not available, cow-keepers and horsemen were contracted to collect their animals' waste for use by allotment holders and farmers.

When Massey (2007) noted that cities are composed of vast geographies of dependencies, relations and effects, she was not suggesting that all of these effects are necessarily positive. This research questioned how Dublin City was affected by the continual flow of animals and goods into and out of it over time. It has shown that established networks were reoriented in reaction to the major political upheavals such as WWI, the Economic War with Britain (1932-1938) and WWII which occurred during the research period. This thesis reveals how Dublin City's relationships with the rest of Ireland and the British Empire were manifest through the city's changing urban metabolism. For example, during WWI the flow of horses and fodder from Ireland to aid the British war effort reduced the number of both of these commodities in Dublin City limiting economic activity in the city due to decreased haulage. This challenges the conventional understanding of the impact of WWI on Ireland which claims that large swathes of Irish agriculture were booming at this time (Durney, 2014). In contrast, the drop off in fuel supplies

coming into Ireland from Britain during WWII had the opposite effect, with horses being brought from across the state to power the city's transport system.

How was public health in Dublin affected by the unbounded nature of Dublin City's ecosystem? The discovery of the *Minute Book for the Irish Clean Milk Society 1926-1936* provided great scope to determine the porosity of Dublin City's municipal boundary to disease originating in sick animals or dirty milking parlours located outside the borders of the city. This research found that, although the boundary was porous to flows, it was not porous to place-based legislation such as that instituted by Dublin Corporation to combat milk-related disease. New laws brought in by Dublin Corporation were not enforceable beyond the Dublin City jurisdiction so cleaning up the city's milk supply eventually required national-level acceptance and support of the clean milk movement. Ultimately it shows that Dublin Corporation did not have the autonomy to implement important public health measures within its own jurisdiction. To date, although scholars such as Greta Jones (2001) have examined the tuberculosis epidemic, no scholars have examined Ireland's clean milk movement and the part that it played in making milk safe for consumers in Dublin City and nationwide.

This thesis questions how human-animal relations in Dublin City changed in response to the modernising forces which swept Europe over the course of the twentieth century. While scholars have examined how modernisation affected Dublin from different angles – urbanisation and suburbanisation (Brady, 2014, 2016, 2017; McManus, 2021), agriculture (Daly, 2002) and the economy (Ó Gráda and Hjortshøj O'Rourke, 2021), none have taken account of the roles and functions of Dublin City's animals and animal-related businesses. Through archival sources such as veterinary reports and official government publications, examining changing human-animal relations in Dublin City in the context of these themes contributes to a broader understanding of how Dublin City evolved. For example, this research suggests that the emptying out of the city which occurred through suburbanisation, leaving the poorest residents behind (McManus, 2021), likely opened up more spaces for animal housing through dereliction. This further distanced the better-off working and middle-classes from animals while bringing

the poorest classes closer to animals. This thesis suggests that the continual flow of rural immigrants into Dublin City 'bringing their country ways' (Connolly, 2022) further normalised the agricultural activity carried on in the city. Furthermore, this research places Dublin City at the centre of Ireland's agricultural economy through the presence of the Dublin Cattle Market, Dublin Port and the annual Royal Dublin Society shows all of which drew animals from across the country to the capital.

Dublin City had long served as a gateway for new ideas from around the world into the country. This research demonstrates that Dublin was firmly planted on the (pre-internet) information superhighway receiving modern scientific discoveries and ideas with surprising rapidity. Reformers in Dublin were up to speed with modern thoughts on public health implementing initiatives within a short time of them being implemented in Canada, America and Britain. For example, in 1912 Medical Officer for Health Sir Charles Cameron introduced a 'beware of flies' campaign within a year of a similar campaign in Canadian cities, while Irish delegates attended clean milk conventions in London, Copenhagen and Berlin in the 1920s. Finally, evolving attitudes regarding what constituted acceptable treatment of animals was tracked over time through the Dáil Debates and Dublin-centred media outlets such as the *Irish Times* and the *Irish Independent*. This research identified a significant gap in knowledge about the development of animal welfare organisations such as the Dublin Society for the Prevention of Cruelty to Animals, with no previous literature looking at its blossoming in Ireland from the 1930s onwards.

1.3 Overview of the thesis structure

This chapter has introduced the subject and timeline of the research project along with its aims and objectives. In Chapter Two the core literature pertinent to the study of human-animal relations in historic urban environments is reviewed along with literature regarding the evolution of public health and studies of twentieth century Dublin. Chapter Three outlines the chosen methodological framework based on the artistic practice of collage (layering and overlapping of disparate pieces of information) and the novel methods used to uncover animals in Dublin

City. Particular attention is given to the production of the data sets which were central to the creation of the maps using ArcGIS so that this methodology could be utilized by other scholars. Oral histories were collected to supplement the comprehensive collections of oral histories collected by geographer Kevin C. Kearns (1989, 1991, 1994) and published memoirs about growing up in Dublin City. The importance of other primary data sources is introduced including: the veterinary reports within the public health reports for the city; occupation and industry data from historic census reports; brochures from the annual shows held at the RDS.

In Chapter Four a series of maps is used to illustrate the place of animals and animal-related businesses in Dublin City in 1911 and their spatial distribution, patterns and relationships are analysed. Distinct zones of animal-related activity are identified which call into question previous understandings of the nature of Dublin's urban environment. Dublin's position as perhaps the most important network hub for Irish agriculture challenges the urban/rural divide.

Chapter Five examines how networks supporting Dublin City's urban ecosystem and urban metabolism were reoriented due to the political upheaval between 1914 and 1936 changing the city's relationship with rural Ireland and Britain. This was particularly evidenced during WWI when animals flooded out of Dublin to aid the war effort and during the Economic War with Britain when live animal exports leaving Dublin Port dropped. Between 1926 and 1936 the success of the Clean Milk Supply social movement in Dublin was hampered by the interdependencies between urban Dublin and rural Ireland.

Chapter Six reveals how human-animal relations evolved in Dublin City between 1930 and 1973 to the point where animals were effectively banished from the city, although a few stragglers would remain until today. Both nationally and internationally this time-period was shaped by powerful modernising forces driving scientific and technological innovation, urbanisation, suburbanisation and social reform. At the same time attitudes towards animals and how they should be treated were changing and reforming slaughter techniques and animal treatment

was championed in Ireland by the Dublin Society for the Prevention of Cruelty to Animals. Chapter 7 concludes this thesis, detailing the main research findings and their contribution to knowledge of the place of animals in Dublin City in the twentieth century. It outlines the limit of the research and identifies future avenues for investigation.

2.0 Chapter 2: Literature review

2.1 Introduction

Although Ruddick *et al.* (2023) suggest that up until recently scholars have all but ignored the roles and functions of urban animals, separating animal activities from human activity and urban from nature, this researcher would disagree and instead suggests that the seeds for the current explosion in literature about animals were sown in the early 1980s. Since then historians and geographers have been incrementally building a bank of knowledge that has resulted in new histories of cities being written which include London (Velten, 2013; Almeroth-Williams, 2020), New York and San Francisco (Robichaud, 2019), Seattle (Brown, 2016) and Dublin (Adelman, 2020). These studies recognise that the 'lives, experiences, and deaths of animals have become a powerful lens to understand and explain human histories, ideas and practices that affect human relationships to each other and to animals themselves' (Roscher, Krebber and Mizelle, 2021, p.3). These works draw on themes and topics revealed by scholars contributing to the interdisciplinary field of Historical Animal Studies which seeks to illuminate human-animal relations from a broad range of perspectives. Answering the questions posed by this research has involved understanding how animals and animal-related industries were entirely interconnected with the social, political and economic life of Dublin City until they were eventually removed. This involved embracing and carefully weaving together a broad range of literatures from multiple disciplines.

The first section of this literature review outlines the main themes identified by scholars of Human Animal Studies which have guided the approach to this research. The second section explains how scholars have challenged the urban/rural binary so that the city can be understood as a space of flows, with an urban ecosystem and urban metabolism which linked it to a multiplicity of other places. The third section turns to the local scale and examines how scholars have made sense of the major social, economic and political issues affecting Dublin City during the late nineteenth and twentieth centuries. The central themes which

intersect with animals and animal-related industries include public health, poverty and housing and major political events such as the two world wars.

2.2 Themes from historical animal studies

Central to understanding human-animal relations is understanding how humans have historically viewed animals, how that has changed over time, and how it was spatially mediated. Historically the lives and practices of animals have been seen as inferior to, and separate from, humans (Kean and Howell, 2020). Several works are regarded as fundamental to understanding human animal relations. In the seminal work, *Man and the Natural World,* Keith Thomas (1984) analysed historical sources and interpreted shifting attitudes and behaviours towards nature. He explored the changing perceptions of animals between 1500 and 1800 from simply viewing them creatures to be dominated and controlled to recognising them as sentient beings deserving of compassion and respect. Thomas coined the phrase 'human dilemma' which describes how society operates in a space of tension between the desire to exploit natural resources for economic gain and the recognition of the need for environmental conservation. This concept has guided scholars examining urban animals ever since.

Inspired by Thomas, over the last thirty-five years Harriet Ritvo's work has been 'enormously generative' to historical animal studies (Roscher, Krebber and Mizelle, 2021 p.4). Published in 1987, *The Animal Estate: The English and Other Creatures in the Victorian Age*, is regarded as a foundational text in the field. Her study explored a range of Victorian attitudes towards animals delving into how they were conceptualised and classified, which in turn dictated their domination and exploitation in society. She discussed how a broad range of human-animal encounters reproduced and reinforced existing social hierarchies. This concept has been important to urban geographers and historians. This classic text established a new framework for understanding the roles and functions of animals in human society and inspired subsequent generations of scholars to view human history through an animal centred lens.

Historians and geographers have taken different approaches to exploring how their discipline intersects with animal studies. Historical animal geography has been described as 'the exploration of how spatially situated human-animal relations have changed over time' (Rutherford and Wilcox, 2018, p.309). Historical animal geography utilizes the theory and methodology developed by cultural geographers to form a 'more than human geography' (Kean and Howell, 2020, p.20). Until recently animals were not credited with historic attachment to place even when they were credited with placemaking – 'people have history; other creatures do not' (Tuan, 1977, p.4).

Examining human-animal relations, historical geographers have attended to the *place-specificity* of these relations and how they form particular animal spaces and landscapes. To develop the field of historical animal geographies, geographers needed to diverge from the humanistic approach, and this largely began with the placing of animals in human history. Here geographers examined animals in relation to the development of agriculture and food systems, the industrial livestock industry and industrialised slaughter (Atkins, 1987; Laxton, 2012). Along with historians, geographers have considered animals in colonial and imperial history (Smalley, 2017). This research builds on Adelman's (2020) study which tells the story of nineteenth century Dublin through human-animal relationships. It aims to identify what was unique about Dublin as a space where animals were allowed to remain when they had been removed from many European and North American cities. Although poultry and sheep are mentioned, the research focuses on horses, cows and pigs as poultry was generally kept for personal use, contributing little to the broader agricultural economy while sheep passed through but did not reside in the city.

'Animals and the relationships humans have with them surface not only as powerful lenses for unpacking history, but as powerful forces in shaping history in the first place' (Roscher, Krebber and Mizelle, 2021, p.1). The animal histories that have inspired this research have generally examined the exploitation of urban animals in the nineteenth century. Urban historians have shown that human-animal relations are mediated by class. The environmental impact of animals and

nuisance animal-related industries often fell most heavily on the poorest city residents (Gugliotti, 2009). Efforts to reform and regulate animal keeping practices often resulted in class conflict between the middle and lower-classes (McNeur, 2011). Examining human-animal relations in Dublin, Adelman (2020) suggests that they can be used to provide a new perspective on class relations where access to animals is determined by social class.

Historical accounts of human-animal relations are often the result of an interdisciplinary effort characterized by a 'diverse and ambitious plurality of methods and approaches' (Roscher, Krebber and Mizelle, 2021, p.11). Because the scope of this research is urban, the emphasis is on domesticated animals such horses, cows and pigs who – together with humans – have historically co-created cities as 'hybrid' spaces (Gillespie and Collard, 2017) and how these spaces have changed when forces of modernisation transformed the geography of the city (Atkins, 2012a).

2.2.1 How the delegation of certain animals as edible and killable shaped human-animal relationships

Scholars have noted how human-animal relations have been shaped by humans placing animals into categories, with the most crucial grouping determining whether an animal is edible. How animals are treated under the law and in everyday social practice has been shaped by their designation into distinct groups – pets, food animals, wildlife (Tuan, 1984; Philo and Wilbert, 2000). Thomas (1984) recognised that not all animals are viewed the same way in human consciousness. He classified animals according to their perceived usefulness to human societies: domesticated animals, wild animals, exotic animals, pets and companion animals and mythical animals. These classifications directly shaped human-animal relations allowing some animals to be killed and/or eaten while those with whom emotional bonds were formed were often named, decorated and rarely eaten.

The designation of certain animals as 'killable' and the history of slaughter has been of great interests to scholars. The modernisation of animal husbandry in the 1840s was followed by the beginning of industrialised slaughter in the 1860s

allowing the harvesting of animal bodies on a massive scale in a centralised space (Perren, 2006). For those countries which industrialized slaughter – which includes Ireland – a reciprocal cycle arose which saw the declaration of meat as constituting the greatest nutritional value food for humans, the creation of a meat supply infrastructure, and the growth in demand for meat in urban areas (Perren, 1978).

Humans slaughtering animals constitutes an important part of human-animal relations and Noélie Vialles (1994) differentiates the concept of slaughter from murder or killing, because the taking of life is specifically to transform an animal body into meat, to turn an *Animal to Edible* as she titled her book. New custom-built abattoirs with their regulations and routines enabled cities to transition towards modernity and away from the chaos of the urban cattle markets and slaughterhouses which were perceived as a threat to social order (Joyce, 2003). No part of an animal's body went to waste after slaughter and the vast array of products produced from them ranged from food to ammunition to hair conditioner (Meindertsma, 2007). However, people wished to be protected from the environmental dangers to their bodies associated with the waste products of slaughter as well as the sights, smells and sounds (Nash, 2008).

According to Otter (2008), the *principle of agglomeration* when applied to animal slaughter improved inspectability. The agglomeration of slaughter away from a multitude of locations across the city into one large location, the abattoir, allowed for much improved oversight and inspection of the animal both before and after slaughter. Abattoirs designed to facilitate inspection at all stages appealed to local urban authorities but were resisted by butchers. Locating them on the edge of urban space rendered animal death invisible to all bar veterinary inspectors and slaughtermen, mitigating the public's uneasiness associated with the exploitation of animals. The moral taint associated with the slaughterhouse was absent in the abattoir. However, the standardisation and centralisation represented by the abattoir system was not unilaterally embraced – it was fiercely resisted by vested interests in the meat trade who inhibited the modernisation of the industry and the cleansing of the city for varying lengths of time (Atkins, 2012c).

Just as the presence of slaughterhouses in urban areas contributed to the formation of urban space, so too did their removal. In time, according to Brown (2016), the industrialisation of slaughter removed it from urban cores, making it invisible, and distancing living animals from their flesh in the minds of human consumers. In 2020 Dorothée Brantz examined how the everyday practices in urban slaughterhouses played a crucial role in the metropolitan transformation of Paris, Berlin and Chicago. Leiderer (2021) maintained that, ultimately, the practices around the slaughter of animals embody social norms and hierarchies with societies restricting what can be slaughtered, who can slaughter and the space, place and times of slaughter.

Many of the animals living in Dublin City and moving through the Dublin Cattle Market were slaughtered in the city to feed the local market. Humans slaughtering domestic livestock represents the pinnacle of human-animal exploitation, and this research sought to understand how the place and method of slaughter of animals in Dublin City, was shaped by changing attitudes towards animal welfare in the twentieth century.

2.2.2 Defining human-animal power dynamics through the commodification of animals

The literature overwhelmingly indicates that the nature of the relationship between humans and domesticated animals tends towards the exploitative/companionship binary and the commodification of animals. Although humans often develop strong attachments to domesticated animals (Thomas, 1984; Serpell, 1996), emotional bonds rarely stretch to livestock animals. Hribal (2007) likened the asymmetric relations between humans and domesticated animals living in everyday symbiosis to that of masters and indentured servants. However this was not universal, as was demonstrated when Native Americans who 'conceived of their relationship with animals in terms of balance and reciprocity' clashed with Christian European settlers who viewed animals in this binary fashion (Anderson, 2004, p.7). Livestock animals have been designated as living commodities from which value is extracted through capitalist exchanges and relations (Collard,

2014). Being constituted as a commodity legitimises their exploitation and justifies their slaughter so value can be extracted from their bodies both before and after death (Torres, 2007; Collard and Dempsey, 2013; Gillespie, 2021). Alves (2021, p.43) conceptualised livestock animals as sentient beings which humans have gradually reduced to 'machines of production'. Economic historians have examined the place of animals in the western capitalist system of production. Miller (1998) referred to traded animals as 'lively capital' in that they were valued by the capitalist economic system in the same way as other traded commodities. The function of livestock is to fulfil 'specific production targets' with the greatest profit extractable from animals whose bodies have been specialized to fulfill one production target (Settele, 2021, p.528). Humans have a long history of employing practices to standardise animal bodies for their benefit, with aristocratic horse breeding a good example (Leiderer, 2021). In economic terms, the surplus value extracted from animals' bodies through labour, reproduction and other agricultural processes is calculated by the excess after the cost of inputs is measured against the cost of outputs (Lang, 2021). This research aims to uncover the attitudes of Dubliners towards the domesticated livestock in their midst – whether the cows, pigs and horses in Dublin were viewed merely as commodities to be exploited or whether attitudes towards them were more nuanced. The use of oral histories and memoirs presenting a variety of different voices – from the animal trader to a child on the street – is central to achieving this aim.

2.2.3 Human-animal interactions socially differentiated

Scholars have pondered on how different social groups often experience animals differently. In *Animal Cities, Beastly Urban Histories*, Atkins (2012) slightly tweaked Thomas' (1984) categorisations by suggesting that the directional nature of human imaginaries has seen animals classified into four categories: useful animal such as horses and livestock; animals to be enjoyed such as wild songbirds; animals desired for companionship; transgressive/marginalised animals such as rats and bugs which need to be cleansed to keep the urban landscape pure. Examining the place of animals in Seattle, (Brown, 2016, p.xi) suggested that, to make sense of animals in the city, urbanites have sorted them into binaries – 'human-animal,

wild-domestic, pet-livestock'. Furthermore, he posited that the process of sorting animals into categories in the city was socially differentiated. Class, gender and race all determined how urbanites interacted with animals. He explained the tension which existed between the desire to control animals through sorting and categorising them, versus the reality experienced by urban dwellers who recognised that the boundaries between categories blended and blurred.

According to Adelman (2020), urban animals in nineteenth century Dublin provided a lens through which to study class relations, as social class determined humans' experiences of the natural world. She suggested that social status could determine an urbanite's subjection to animal-related nuisances, with the lower-classes most likely to experience the negative impact of pollution from animal exploitation. Importantly, access to animals was socially mediated so the types of animals available to exploit differed across social class. This research examines how human-animal relations in Dublin City continued to be socially and spatially uneven throughout the twentieth century.

2.2.4 Placing animals

Importantly, classifying animals designates each animal a 'proper place' in a 'conceptual space' which is separate from and does not overlap with other beings (Philo and Wilbert, 2000, p.6). The place of animals in cities during the nineteenth and twentieth centuries has been a key concern for geographers and historians. An important theme for animal geographers is the theme of inclusion/exclusion – who is included/excluded from particular human places and landscapes. This builds on the concepts of place identity and the power of a privileged few to define the presence of certain people as 'out of place' or transgressive (Cresswell, 1992). Philo and Wilbert (2000) explored animals and place-making where animals transformed places into 'beastly spaces'. Mac Con Iomaire (2002) notes how the place of the pig has long been established in Irish topography – the words *torc* (boar) and *muc* (pig) are recorded in place names around Ireland such a Kanturk in Cork and Ros Muc in Galway and the importance of the pig is embedded in

Hiberno-English in terms such as 'on the pig's back', a term indicating economic prosperity (Fitzgerald, 2005).

Animal studies has pioneered understandings of how animals have been formative in the making and unmaking of places and landscapes and frequently revolves around how relationships with animals shape human identities and a sense of place (Wilbert, 2009). Straying beyond the realm of domesticated animals, geographers have described how wild animals are involved in place-making and shaping landscapes (Matless, Merchant and Watkins, 2005). Alice Hovorka (2008) has demonstrated the complex social and cultural meanings attached to chickens in African cities where they fulfil multifaceted roles with ownership being associated with status and prestige. Ito (2010, p.189) argued that the geographical transformation of London during the nineteenth century reshaped the 'spatial and cognitive frame in which people perceived and interacted with animals'. The boundary between humans and animals was redefined and animal spaces in the city which were visible, and which evoked negative reactions from people, were relocated.

According to Barles (2010) animals made places hazardous – horses could transmit glanders to humans, rabid dogs could kill, pedestrians were frequently injured by horse drawn vehicles. To make places safe, animals were controlled through legislation which, for example, required dogs to wear collars identifying their owner, allowed for stray dogs to be captured under anti-rabies laws, or limited the gait at which a horse could proceed through the city to a walk or trot. Tom Almeroth-Williams (2020) suggests that animals existed in a place of tension and conflict regarding disease management and public safety where urban authorities sought to control and regulate animal populations. The danger posed by animals, and the constraints imposed on them to minimise that danger has been addressed by scholars writing animals into urban histories such as Brown (2016), Robichaud (2019) and Adelman (2020) to name but a few.

Finally, given the omnipresence of animals in urban environments, Atkins (2012) denied any 'great separation' between humans and animals places in most urban

environments of the Western World until the beginning of the twentieth century. Bolla and Hovorka (2012) have theorised a more-than-human geography where spaces, places and landscapes are seen as the products of multiple species. However, urban animal spaces have changed in reaction to the forces of modernisation witnessed in the nineteenth and twentieth centuries which transformed the geography of the city (Atkins, 2012). Robichaud (2019, p.10) noted how the ideas and organizations that characterized urban animal reform across cities internationally created a 'remarkable degree of simultaneous policymaking'. Because governments struggled with the same animal-related problems, ideas and regulatory methods to deal with animal nuisances were shared and copied then adapted to fit the uniqueness of individual places. However, not all ideas moved seamlessly from place to place. For example, according to Adelman (2020), when reformers sought to integrate evolving concepts of animal welfare into the minds of Dubliners in the 1840s, the burgeoning Dublin Society for the Prevention of Cruelty to Animals failed to prosper having become mired in class, political and religious struggles. Their reforms were interpreted as the minority middle-class protestants seeking to control the majority poor Catholic population. Historically, scholars who have studied how Dublin has modernised over the twentieth century have rarely paid any heed to the animal residents. For example, in Killen's (1992) discussion of the evolution of Dublin's transport system there is no sense that horse-drawn vehicles existed in large numbers in the city until the 1950s. Indeed some of the most important biographers of Dublin in the twentieth century, such as Mary Daly (1984), Joseph Brady (2014), David Dickson (2014) and Ruth McManus (2021), have largely overlooked the animal residents whose importance to the city this research seeks to understand.

2.3 Understanding Dublin as a networked urban space

As mentioned previously, historical geographers have been particularly attentive to the *place-specificity* of human-animal relations and this research is primarily about human-animal relations in twentieth century Dublin City. However, during

the course of the research it became apparent that to understand the importance of animals to the city, the unique nature of Dublin City could only be understood when the city was viewed as a network hub with an urban ecosystem and urban metabolism which connected it with the rest of the island of Ireland, Britain and beyond.

While Brantz (2021, p.243) argued that a nature-culture dichotomy has traditionally undergirded most scholarly thinking about the urban, there is a long history of thought challenging the bounded nature of the city. In the early twentieth century, Mumford (1937, p.185) defined the city as a 'geographic plexus' which functioned as a network hub. Wirth (1938) was perhaps the first to recognise that urban and non-urban territory is not sharply delineated and Dyos (1973) was not convinced that town life differed markedly from country life. William Cronon's *Nature's Metropolis: Chicago and the Great West* has heavily influenced this researcher's understanding of how Dublin City functioned during the twentieth century. Cronon (1991) identified urban/rural interdependencies between the city of Chicago and the surrounding natural landscapes in the nineteenth century, challenging the traditional narrative that urban and nature are separate and distinct. He argued that the city was fully dependent on its interaction with its rural hinterland through social and economic relationships and that these interdependencies enabled it to grow into a critical network hub. Likely inspired by Cronon, Desmond Gillmor (1992) explored how the countryside surrounding Dublin City was affected by the processes and interactions which bound urban and rural Dublin together and produced both problems and opportunities for the countryside which could be mitigated through good forward planning. Massey (2007, p.14) challenged the isolated and bounded nature of a city further suggesting that a city is composed of a 'vast geography of dependencies, relations and effects', as well as being the product of processes which range from 'internal interactions... to global flows'. Adopting this approach allowed for Dublin City to be considered far larger and more important than the bounded physical space that it occupied. Instead in this research Dublin is considered as a network hub and a space of flows through

which capital, people, commodities (in this case animals and animal products) and ideas flowed in and out of continuously.

In this thesis Dublin City has been conceived of as an urban ecosystem and the place of animals in its urban metabolism has been examined. The concept of urban metabolism was developed by Wolman (1965) as a framework to understand how urban development impacted the wider natural environment. The framework conceived of the city as akin to a living organism with metabolic processes which required energy inputs and produced waste products. Odum (1989) identified that urban environments require more energy (in the form of food, fuel etc) than they produce and, since then, scholars have sought to understand urban metabolism both quantitatively and qualitatively – where it is used to explore urban socio-economic systems as a metaphor, as in this research. This approach has been criticized by Warren-Rhodes and Koenig (2001) who emphasised that, although urban systems and living beings may have similarities, they are different. Intersecting the concepts of urban metabolisms and urban ecosystems, the humans, animals and plants present in cities turn them into hybrid systems more like an ecosystem than an individual organism (Golubiewski, 2012; Pincetl *et al.*, 2014). Looking at the city as an ecosystem and examining how the city interacts with surrounding local and global ecosystems emphasises the connected nature of cities (Grimm, Baker and Hope, 2003). Sabine Barles (2007) identified the connected nature of cities with the agricultural systems which sustain them. She noted how the city's demand for surplus energy in the form of food put pressure on surrounding agricultural systems, although as Marald (2002) pointed out, they also nourished them through the provision of urban excreta which functioned as nitrogen fertilizer. This powerful metaphor which views Dublin City as an urban ecosystem with an urban metabolism has been very useful in illuminating how and where Dublin City fitted in relation to other places until the middle of the twentieth century. The research also demonstrates how Dublin City's dependence on rural Ireland to sustain its energy requirements could be potentially detrimental to the city, as ultimately the unbounded nature of the city could not protect its citizens from disease entering the city's ecosystem. The desire to improve public health in

urban environments would be a powerful driver of changing human-animal relations in cities such as Dublin.

2.4 Public health

Historians and geographers have identified evolving ideas around public health as particularly important constituents defining the nature and experience of urban environments. Scholars have shown that public health reformers targeted urban animals because of the potential for disease outbreaks associated with their bodily wastes. Urban authorities responded in the nineteenth century by introducing modern water infrastructures such as fresh water supplies and sewerage systems. Scholars have demonstrated that the sanitary improvement of poor areas was accompanied by efforts to improve the morality of the poor by separating them from animals and dirt. This was accomplished through greater legislation and surveillance of animals' bodies, especially through the replacement of small private slaughterhouses with large abattoirs.

The environmental degradation seen in many European and North American towns and cities in the early nineteenth and twentieth centuries had resulted from rapid urbanisation and immigration which overwhelmed existing infrastructure (Melosi, 1999). Scholars examining the roles and functions of animals in historical urban environments have noted how living animals have intersected with public health problems associated with environmental degradation. Animals are central to the history of urban waste, both detracting from and contributing to the urban environment. For example, Cronon (1991) revealed how the byproducts of urban slaughter polluted local ecosystems and Philo (1995) suggested that living animals defecating while they moved through urban spaces was polluting and considered environmentally offensive. On the fly problem associated with urban waste, Tarr (1996) suggested that late nineteenth century urban reformers understood the interconnection between flies and dangerous spaces and things (stables, dairy yards, horses, cows, manure, rubbish) while Gandy (2002) argued that it was modernist fantasies which drove these progressives to reorder urban nature. Morgan (2002) attributed the growing house fly population seen on both side of the

Atlantic to the increase in urban horse populations intensifying bacteriological flows. Osborne (1996) maintained that installing window screens protected the sanitary integrity of the home and allowed the state to separate homes from urban nature. Minnett and Poutanen (2007, p.34) observed how flies were vilified and recoded from 'playthings' to 'germs with legs'. The use of children in campaigns to promote public health measures was central to their success. Biehler (2010, p.78) suggests that the new science of medical entomology remade the familiar fly into a dangerous 'other'. This then required the state to remake urban space and 'modernised the borders of domestic space' by separating citizens from the flies which fed on the city's organic waste.

How sanitary services such as the provision of a water supply and waste water sewage removal were implemented reveals how contemporary environmental thought and a city's investment in technical networks were synonymous with embracing modernity. According to Corcoran (2005), scientific developments which demonstrated how water contaminated with human and animal waste spread disease drove the development of urban public water and waste infrastructures. Atkins (2012b) argued that the fervour for building sewers which arose in the mid-nineteenth century was a crucial turning point in the perception of filth and waste with consequences for how animals were placed in the contemporary vision of modern urbanism. He suggested that what would end up as the 'great separation of urban and rural, of culture and nature' (Atkins, 2012b, p.21) can be traced to the sewering of cities and the removal of food-producing animals from the city. In relation to Dublin, Corcoran (2005, p.47) described the Varty water scheme built between 1861 and 1868 to modernise Dublin's water supply as 'one of the greatest benefits ever conferred' on a city whose population had mushroomed over the course of the century. He also acknowledged the necessity for improved water and drainage infrastructure to tackle the 'horrors' associated with urban animals and slaughter facilities (Corcoran, 2005, p.43).

The physical safety and morality of people who lived in degraded environments was open to question. According to MacLachlan (2005), promoters of municipal abattoirs advocated that women and children were particularly vulnerable to the

danger posed by private slaughterhouses. Noxious animal products such as manure and rotting offal were constituted as environmental hazards which posed a danger to the permeable human body and from which it needed protection (Nash, 2008). According to Atkins (2012, p.27), the process of civilizing has been echoed by an evolving concept of cleanliness and 'association with animals… brought with it a moral stain' while Rawcliffe (2013) noted that before germ theory the miasmatic theory of infection conflated poor environmental living conditions and immoral behaviour with a weakened resistance to disease. The Enlightenment idea of 'civilizing progress' guided nineteenth century public health policy which aimed to improve the deeply rooted sanitary and social problems of urban life (Laxton and Rodger, 2014). Sanitary improvement was accompanied by cultural initiatives such as museums and art galleries, public lectures, sermons and public missions. Adelman (2020) suggested that, during the nineteenth century, to distinguish human from animal lives, middle-class reformers sought to use public health initiatives to imbue Dublin's animal-like poor with middle-class understandings of what constituted civilized. By the beginning of the twentieth century, public health policy increasingly focussed on mother and child, introducing district nurses, midwifery services, infant welfare services and milk depots. Dublin City had entered the twentieth century with the highest rates of child mortality in Britain and Ireland (Prunty, 1998) and increased life expectancy is a useful indicator of the progress of public health policy over time and urban space (Rodger, 2019).

Regulations enacted as a result of advances in the scientific understanding of disease during the second half of the nineteenth century broadened the physical and spatial reach of sanitary reformers. There was a shift of emphasis in public health from sanitary strategies to specialist initiatives including mental health, the compulsory notification of infectious disease, regulation of food and slaughterhouses, and public laboratories to control the adulteration of food (Sheard and Power, 2000). Slaughterhouses were also associated with disease while abattoirs were associated with modernity. Chris Philo (1995) noted how slaughterhouses were classified as dangerous, alongside public institutions such

as asylums and cemeteries, because of their association with death. Fear that they spread disease saw them removed from the Victorian cityscape (Otter, 2008). However, optimism in the benefits of modernity and scientific methods characterized the Victorian period (Fealy, 2009). According to Biehler (2010), dangers (such as slaughterhouses) that could not be removed were subjected to heavy surveillance whereas controlled and monitored abattoirs adhered to the new science of hygiene (Atkins, 2012c). Referring to Dublin City, Daly (1984) suggested that the lack of sanitary oversight of rural dairies diluted the incentive to remove dairy yards from Dublin's urban core where they could be more tightly controlled. Efforts to abolish private slaughterhouses in Dublin at the end of the nineteenth century were first scuppered by a problem of geography – the public abattoir had been erected just outside the municipal boundary – and then by powerful vested interests who profited from their retention. According to Adelman (2020), public health surveillance in Dublin was used as a tool of municipal power. The need to control killing required a significantly increased labour force to implement regulation.

Environmental degradation relating to animals was not experienced evenly by all social classes. According to Ritvo (1987) reforms aimed at improving a degraded environment were often resisted by lower-class urbanites who were financially dependent on the thing causing pollution. At the same time, pollution from animal exploitation was felt most heavily by the poor (Cruikshank and Bouchier, 2004). 'Poverty and pollution went hand in hand' in areas where the byproducts of animal slaughter were rendered (Atkins, 2012c, p.91). Biehler (2011) has demonstrated that poor urban residents were exposed to different animal-related hazards than suburbanites. Babies from lower-class households were more likely to be exposed to contaminated cows' milk (McNeur, 2014). Hustak (2017, p.191) situates cows' udders and human breasts within the wider context of 'historically specific anxieties over urbanization and the contamination of the milk supply', suggesting that, when milk was framed as a potentially lethal substance, contaminated cows' bodies and the unclean breasts and feeding practices of the lower-classes resulted in 'entangled surveillance of human and cow mothers'.

Regarding Dublin City, according to geographer Jacinta Prunty (1998), private slaughterhouses and dairy yards were intrinsic components of Dublin's slum districts and sanitation problems in the nineteenth and early twentieth centuries. Scientific measures of basic physical requirements were calculated in cubic feet for slum dwellers and animals alike. Their lives and deaths were recorded as part of the statistical revolution which collected data to improve future policy. Locational separation from dairies and slaughterhouses saw Dublin's elite less exposed than the city's poor to the environmental hazards generated through insanitary practices.

This research examines how public health reformers and officials in Dublin City closely followed their contemporaries across the western world during the nineteenth and early twentieth centuries. As mentioned previously, when faced with similar problems due to the presence of animals or animal-related business in cities, governments often responded in a similar fashion introducing similar legislation and initiatives. According to Adelman (2020), in the nineteenth century middle-class improvers concerned with poverty and public health sought to change human-animal relations in Dublin City through regulation and surveillance and this research demonstrates how this approach continued into the twentieth century. However, it also examines how important sanitary concerns were weighed against economic concerns at multiple scales. Similarly, the geographically uneven nature of the level of concern for sanitation, along with the ability to implement the most up to date sanitary practices are questioned.

2.4.1 Dangerous food

2.4.1.1 Adulterated milk

Examining the exceptionally high mortality rates in Dublin City due to diarrhoeal diseases transmitted through the consumption of dirty water or adulterated milk, Daly (1984, p.255) described typhoid as a disease of 'dirt rather than poverty', suggesting that the most important factor affecting child mortality was social class. Campkin (2007) pointed out that because of the order in which dirt was perceived and then eliminated, beginning with smells and visible dirt, milk drinkers were not protected for a long time. Atkins (2010, p.xix) described the efforts

undertaken at the end of the nineteenth century and into the twentieth century to ensure a clean milk supply as 'representative of efforts to redraw boundaries between nature and society'. He claimed that the sanitary drive to clean up the milk trade was part of a larger social movement towards creating a purified urban environment which matched the ideals of a modern society. This required the exclusion of the production and processing of animal foods, and the separation of natural substances of the country, from the purified social realm of the urban.

Atkins (2010) suggested that consumers needed to be protected from the unethical and immoral practices common within the dairy industry. This required demystifying nature through technology and ascertaining the natural composition of milk. At the same time, the rising market demand for milk in growing cities increased the span of the spatial draw of milk towards the city which was assisted by the growth in transport infrastructure. Meanwhile, tighter regulation and surveillance in cities compared to rural areas meant that town milk was likely to be cleaner and fresher than country milk. According to Obladen (2014), infant nutrition was compromised by industrialization and urbanization. Modern milk production regulations were required so that the traditional trust which had existed between dairyman and consumer could be replaced by trust in government inspection and certification (Brown, 2016, p.97). The new science of food safety developed by veterinarians and doctors was based on germ theory and recognised that an animal-based food chain was 'only as clean as its dirtiest link' (Claflin, 2018, p.119). However, Rodger (2019) insists that it was a combination of civic initiatives, including public analysis to monitor food quality, which together achieved appreciable improvements in morbidity and mortality rates.

Milk consumption had increased as cities modernised during the industrial revolution and breastfeeding was recast as primitive. As a result, more babies were exposed to contaminated cows' milk and died (Kurlansky, 2019). According to Earner-Byrne (2013), maternity and child welfare set the agenda for public health policy in Dublin between 1922 and 1960 and its success was intimately connected with cows' milk. Infectious diseases were treated as a 'communal concern' which enabled the state to encroach on the private place of the family (Earner-Byrne,

2013, p.5). Despite the exceptionally comprehensive services available for mothers and babies in Dublin in comparison to the rest of the country, up until the 1940s Dublin City still had a soaring infant mortality rates resulting from gastro-enteritis. McManus (2021) suggested that poor housing was an important contributing factor to Dublin's appallingly high morbidity and infant mortality rates.

2.4.1.2 Bovine tuberculosis

In the 1970s Thomas McKeown challenged the accepted assumption that the decline in tuberculosis was due to science and public health systems suggesting instead that it was improved nutrition due to rising standards of living which increased people's resistance to disease. In turn, Atkins (1992, p.207) challenged this opinion as 'bordering on the deterministic' contending that it 'oversimplifies a very complex web of forces'. He used data to demonstrate that milk substantially contributed to the rate of food-related morbidity and mortality associated with diarrhoeal disease, infant mortality and bovine tuberculosis. Since then, approaches to understanding tuberculosis epidemics have placed the role of science alongside other 'complex social and economic determinants' (Jones, 2001, p.4). Examining the tuberculosis epidemic in Ireland, Jones (2001) suggested that up until the 1960s, the slow and spatially uneven implementation of, and acceptance of, public health measures across the country, along with the limited resources available, hindered the campaign to eliminate bovine tuberculosis in Ireland.

According to Waddington (2006), when Robert Koch identified the zoonotic nature of bovine tuberculosis in 1883, the bodies and bodily products of cows became dangerous to humans. Food was now perceived to be an agent of disease contributing to fears about the condition of urban cowsheds, human health, national degeneration and child health. Measures to reduce the spread of bovine tuberculosis centred around regulating the meat and milk trades. While the science of pasteurization was contested, measures to promote disease-free herds were not (Phillips and French, 1999). Peter Koolmees (2000) suggests that the threat to farmers' income, and the farming industry as a whole, was also an important driver in the eradication of the zoonotic disease in the twentieth century.

Unlike in continental Europe and North America, where bovine tuberculosis was managed as an economic problem, in Britain (and Ireland) the disease was still defined as a public health concern and Waddington (2004, p.31) suggested that the fight against bovine tuberculosis focused on the identification and slaughter of diseased livestock through 'state-supported schemes linked to market incentives'.

Ignoring the impact of bovine tuberculosis, Jones (1999), suggested that the approach to slowing the spread of the disease in humans in Ireland at the beginning of the twentieth century resulted in new rules of hygiene in public spaces such as places of work or worship, and in intimate spaces where oral contact (kissing) was discouraged. Unsurprisingly both TB sufferers and many medical professionals resisted segregation, disinfection and compulsory notification. In a subsequent publication, Jones (2001) reported that bovine tuberculosis was responsible for approximately 23% of deaths from tuberculosis in Ireland between 1901 and 1911 and that milk and cows were seen as potentially deadly. In Ireland, as in Britain, little could be done to prevent a farmer selling an infected cow at the market (Hardy, 2003) at a time when farmers could not afford, and did not have faith in, professional veterinary surgeons (Woods, 2011 p.1946). Scholars have therefore established the important contribution of cattle and cow's milk to disease and public health reform in the late nineteenth and early twentieth centuries. As a consequence, this research examines how Dublin's doctors, scientists and public health officials continually aimed to track international best practice in regard to animal-based food safety practices and procedures to combat the transmission of bovine tuberculosis from animals to humans.

2.5 Twentieth century Dublin City

The performance of agricultural practices and activities involving animals in Dublin has been largely ignored in the literature about the twentieth century western city and Dublin City in particular. Although the city's animal residents are invisible in the literature, they were intrinsic elements of the fabric of Dublin City's landscape inevitably feeding into the social and economic life of the city. Chief among the social ills experienced in Dublin City at the beginning of the twentieth century was

high morbidity and mortality. Daly (1984, p.276) suggested that local and national officials accepted the appalling death rates in Dublin City with a stoicism reflecting the belief that to remedy the city's ills was beyond their power. Carroll (2011) contradicted this view suggesting that, despite the opposition from within Dublin Corporation as well as from Dublin landlords, food traders, animal traders and butchers, Chief Medical Officer Sir Charles Cameron's endeavours were very successful when judged against similar efforts in other cities. The most pressing issues in early twentieth century Dublin – public health, housing and poverty – were all inextricably linked. According to Prunty (1998) the modern town planning movement based around garden city ideals presented a new context within which to address the city's slum problem and, directly correlating public health and housing conditions transformed the meaning of the state's social responsibilities. However, Prunty suggested that this emphasis ignored the problem at the heart of the Dublin slums – that of grinding poverty related to inadequate and insecure incomes. O'Shea and McManus (2012) identify the high degree of spatial mobility associated with the poorest tenement dwellers, suggesting that poverty and casual employment fed into unstable living arrangements. According to McManus (2021), efforts at alleviating poor housing conditions in the late nineteenth and early twentieth centuries did little to relieve the hardship of the poorest who could not afford to rent the newly built accommodation. This ultimately led in the 1930s to the spatial separation of those who could afford to purchase a home or pay rent in the suburbs and the poorest who were accommodated in local authority flat complexes in the inner city. Examining the outward growth of urban areas around Dublin in response to an increasing population between 1936 and 1988, Horner (1990) suggested that the movement of people out of the densely-populated city centre in favour of suburban development resulted in decreased population density within the city centre and increasing densities in suburban areas. This is in line with international trends which saw densities in urban areas converging towards a 'pivotal' or uniform density (Horner, 1990 p.54). This research places animals in the heart of slum areas where their presence further degraded the environment and was vehemently opposed by Sir Charles Cameron. However,

while they would be allowed to remain in the city's urban core, animals were not welcomed into the new suburbs so the density of animals such as cows, pigs and horses across urban Dublin increased towards the centre where the poorest residents remained densely packed in poor quality housing.

According to Kearns (1994, p.50) the burden of slum living was felt most heavily by the women – 'multiple childbirth, poor diet, the strain of poorly paid manual work, and financial worry took a visible toll on women'. Ó Gráda (1994) noted that the vulnerability of this class of working women saw them disproportionately represented in institutions such as workhouses, hospitals and asylums. The lack of widespread manufacturing in Dublin saw a large proportion of women employed in poorly paid casual work such as dealing and charring (Daly, 1984). Four-fifths of women charring were married or widowed and Cullen (2002) has shown that the acute poverty experienced by women resulted from their low earning power in comparison to men. McCabe (2020, p.216) suggested that although charring was 'the most poorly paid work' for women, occasionally gifts of waste food from the kitchen were bestowed on charwomen. This research illustrates how access to food waste allowed poor women to earn money from keeping pigs.

Bourke (1987, 1990) has demonstrated the gendered nature of human-animal relations in Irish agricultural settings with men taking over dairying roles at the beginning of the twentieth century. This reduced farmers' wives' access to money. Poultry and pig rearing was considered a more suitable occupation for women. In one section of *Women's household work in Ireland, 1922-1961,* Clear (2000, p.163) suggested that the working lives of farming and non-farming women were 'almost completely different'. However, an account of a town-dwelling women in another section, which describes a woman supplementing her husband's income through keeping a cow, hens and turkeys contradicted that first assertion of urban/rural binaries. This research suggests that the patterns established in rural areas and towns around Ireland were replicated in Dublin with women playing prominent roles in pig rearing, poultry keeping and dairy retail outlets while men milked and fed the cows.

As mentioned above, scholars have examined how the physical presence of animals living in and moving through a city shape the landscape creating 'beastly places' (Philo and Wilbert, 2000). The Liberties and Stoneybatter were chosen as focus areas to examine the place of animals in Dublin and Kearns (1989, 1994) has provided the best analysis to date of the impact of animals on these areas. Kearns (1989) highlights how the needs of the large British army contingent stationed in barracks proximate to Stoneybatter fuelled a booming trade in general supplies, food and animal fodder for their horses. He referred to Stoneybatter as a 'true urban village' with its own 'unique history, geographical territory, deep ancestral roots, cherished customs and traditions, urban lore and social character... and a central roadway' (Kearns, 1989, p.45). After Independence from Britain in 1922, Stoneybatter's economy remained very healthy due to the presence of the Dublin Cattle Market and the employment generated by the economy which built up around it. However, according to Clare (2002) the export orientation of the market and the underuse of the abattoir impeded the development of traditional 'spin off' industries such as tanning and bone works in the area which instead remained clustered in the Liberties.

Kearns (1994, p.25) noted that some of the worst slums were to be found in the Liberties, although the communities in these slums 'existed in a communal system of mutual dependency'. This research examines the interdependencies between the physical environment, the traditional industries based in the Liberties and the animals who lived there. The Liberties had long been the most important manufacturing district in the city where brewing and distilling thrived because of the ready supply of fresh water (Goodbody, 2014). This area has also been the traditional centre for nuisance industries such as tanning and curing. Little has been written about the Liberties in the twentieth century and much of what has been written has been in the form of memoirs. Although Kearns (1994) accepted that some, such as Maírín Johnston's *Around the Banks of Pimlico* (1985) are extremely accurate, he suggested that many are overtly nostalgic and omit the brutal poverty and suffering characteristic of the Liberties' tenements.

Understanding Dublin City requires understanding the place of the Dublin Cattle Market and the industries supporting it and supported by its presence within the city. Clare (2002, p.180) suggested that the construction of a modern cattle market in Stoneybatter in 1863 signified Dublin Corporation's response to the growing market for meat in Dublin and urban Britain. Clare attributed the success of the cattle market to its strategic location with access to Dublin's important infrastructural hubs including railway stations and Dublin Port. Examining the Dublin Cattle Market in the decade preceding its closure one hundred years later, O'Brien (2021, p.7) identified the market as 'a very rural enterprise in an urban setting', and 'an interface between country and city', suggesting that the urban-rural divide was 'far less pronounced' in the 1960s than it is today (O'Brien, 2021, p.50). To date, Clare (2002) and O'Brien (2021) remain the only scholars who have addressed the importance of the Dublin Cattle Market.

2.5.1 Political backdrop

This research period encompasses the Irish Revolution, the Civil War and two world wars, all of which contributed to a volatile political backdrop with impacts on human-animal relationships and on human and animal life in the city. The impact of food shortages during WWI and WWII has been studied but this thesis looks more specifically at this in the context of animal businesses in Dublin. Similarly, scholars have agreed that the new Irish Free State was focussed on rural life but the impact of this on animals in Dublin City has not been examined. Looking at economic life in Ireland after the Emergency, scholars have noted the state's focus on agriculture and have acknowledged the importance of the Dublin Cattle Market but have failed to acknowledge the broader animal-based agricultural economy which existed in Dublin City up to and beyond the end of the research period in 1973.

According to Yeates (2011), although food production remained strong in Ireland during WWI, continually increasing food prices (including meat) and food shortages undermined support for the war in Dublin right from the outset. That food shortages directly stimulated the growth of allotment gardening reviving

primary production in the city has been studied. Forrest (2011) noted how the allotment movement which had been established as a form of self-help for the unemployed or those in casual employment broadened to include those in regular employment during both world wars. Benefits attributed to allotment keeping went beyond food provision, to encompass public health and recreation. This research examines the place of Dublin's animals in food production systems for the city, how WWI altered networks and flows of animals through Dublin City during this time, and how these altered flows affected Dubliners.

Foster (1989, p.538) suggested that metropolitan Ireland was ignored in the 1920s and 1930s by de Valera because he considered it Anglicised. Instead like many in the independence movement, his focus was on rural Ireland. Despite this, Ireland's urban centres experienced increasing prosperity (Neary and Ó Gráda, 1991) and the diets of Dubliners improved during the 1930s (Johnson, 1989). According to Daly (2002, p.161) the ethos behind Fianna Fáil's self-sufficiency programme in the 1930s envisaged Irish people sustained by a 'less commercial, more peasant-based form of agriculture' representing a U-turn in ten years of Department of Agriculture policy. Horgan (2004, p.38) agreed that, after Independence in 1921, the newly liberated Free State was rife with anti-urban sentiment, propagating the image of Ireland as a 'romantic rural idyll'. Contrary to what was happening in cities in Britain and America from which industries such as tanneries were being removed, they were viewed as indicators of progress in urban Ireland, including Dublin (Bielenberg and Ryan, 2012) where they formed part of a strategy to increase self-reliance (Ó Gráda and Hjortshøj O'Rourke, 2021). This research suggests that it was precisely because government was so focussed on this idealised rural identity that Dublin City failed to modernise (and remove livestock) in line with other British and North American cities whose progress in implementing public health improvements it had largely mirrored until Independence.

Looking at Ireland during the Emergency between 1939 and 1945, Evans (2014, p.12) questioned the extent to which market restrictions and shortages which saw Ireland return to a 'horse and cart economy' caused the re-emergence of a moral

economy in Irish society. In an effort to prevent starvation, and discourage a black economy, the Government exerted an unprecedented degree of control over Ireland's agricultural sector. Daly (2002) suggested that the legacy of the war years was an increasing involvement of the Department of Agriculture in subsidising farmers' incomes in an effort to improve prices and standard of living. This caused friction among urban dwellers who believed their living standards had suffered a greater fall during the war years. Judging Ireland's experience, Evans (2014) agreed with Milward (1977) who concluded that people in rural areas in occupied countries during the war commonly had greater access to food than urban dwellers. This research questions whether the difference in access to food between rural dwellers and urban Dubliners may have been less than previously imagined since the number of inspections of piggeries in Dublin during WWII remained similar to pre-war levels at a time when commercial pig production in Ireland had collapsed.

What followed after WWII has been described as the 'golden years of economic growth' in Europe (Crafts and Toniolo, 1996, p.2). The Dublin Cattle Market was thriving as Holland and Belgium joined the British in buying significant numbers of cattle (and horses as this research shows) (Clare, 2002). However, by the mid-1950s, observers of the Irish economy, which had reached its nadir, were questioning its future viability (Ó Gráda and Hjortshøj O'Rourke, 2021). Public spending in Dublin was constrained until the end of the 1950s when the Irish economy changed course away from 'a Third World economy to something approaching the industrial Western economy it is today' (Brady, 2016, p.20). The gradual demise of the Dublin Cattle Market during the 1960s reflected modernising changes in Irish agriculture with the development of a network of local livestock marts around the country and the growth of the meat processing sector bringing an end to the weekly urban-rural gatherings (O'Brien, 2021). This research demonstrates the existence of an important animal-based agricultural economy in Dublin at this time including pig-keeping, slaughtering and the processing of animal bodies including skins and bones for fertilizer which shaped life in the city but which remains to date largely undocumented.

2.6 Conclusion

The literature reviewed in this chapter has shown how a broad interdisciplinary approach is required to understand the place of livestock animals in cities. The general absence of animals from the literature about Dublin has provided the opportunity for this research which represents an extensive overview of human-animal relations in Dublin between c.1910 and c.1973. This thesis adds to the literature by scholars such as Kevin C. Kearns (1989, 1991, 1994) and Declan O'Brien (2021) whose oral histories have touched on the importance of the presence of animals and animal-related industries to the city. Approaching the research questions from so many angles has required accessing a wide range of international literature from different disciplines. This has allowed me to represent the uniquely evolving nature of the local human-animal relations occurring in Dublin City at this time within the wider context of the evolution of Western human-animal relations, while accepting that these relations were largely built on exploitation. Finally, this research has identified the absence of any scholarly research into the growth of the animal welfare movement in Ireland in the twentieth century. While efforts have been made to analyse the importance of the movement in areas such as legislating for the introduction of humane killing methods and legislating for the prevention of the live export of horses for food, this represents an area of study that would warrant far greater research.

3.0 Chapter 3: Sources and Methodology

This chapter outlines the key sources and methodologies used, explaining the rationale behind their choices and indicating both the advantages and challenges associated with them. It begins by explaining the choice of a collage framework and the use of GIS to construct maps of animal spaces in Dublin in 1910/1911. The sources for the creation of the maps are introduced and the methods used to create and analyse the maps are described. Next the research area is defined, and the focus study areas outlined. The following section establishes the important role that oral histories play in shaping this research. Finally, the usefulness of other primary sources is established including occupation and industry data from the census, brochures from the annual Royal Dublin Society shows, official government reports and newspaper reports.

3.1 Methodological framework

This research utilizes a framework described by Freeman (2020) as 'collage' which mirrors the artistic practice of creating an image from scraps of material. The pieces of material often overlap and spill outside the frame itself and small gaps may appear. This framework appealed because it offered the most logical way to weave together all the data from disparate sources that would be gathered over the course of the research period to create a coherent representation of the importance of animals in the Dublin City landscape. It was also attractive because collage is an iterative process which can aid the researcher to conceptualise ideas on the hoof (Roberts and Woods, 2018). Furthermore, a flexible research framework was vital because the extent of the research area changed three times in line with the expansion of the municipal boundary during the time period under research. The collage framework both loosely bounded the research area and allowed for the natural porosity of the city's boundary, taking into account the fact that the city was a place into and out of which people, animals and animal products flowed on a daily basis.

To get a clear view of a large research area over almost half a century required multiple methods of investigation and a research framework which was both

flexible and robust. Triangulation initially seemed like the most obvious framework, this has fallen out of favour among many social science and geography researchers in recent decades; the *Journal of Mixed Methods Research* had gone so far as to formally dissociate itself from it (Fetters and Molina-Azorin, 2017). Among the reasons Freeman (2020) proposed collage as an alternative to triangulation was the banality of coding and categorization which Lather (2013, p.639) described as the 'habitual reading of data'. Collage differs from triangulation in two main ways. Firstly, the research topic being triangulated with multiple combined methods is generally precisely defined from the outset whereas collage utilizes multiple methods to investigate a broad research area. Secondly, while collage is 'open to spontaneity and the shifting of the frame of research' (Freeman, 2020, p.11), when using triangulation, the multiple methods to be triangulated are decided at the outset of the study. As a framework, collage was chosen for this research as it is flexible enough to incorporate the broad research questions and area while remaining similar enough to triangulation to render the findings valid and reliable.

Collage is ideal when there are multiple sources of information each providing a different view and perspective on the research area. 'No one method reveals single truth' and, because 'that truth is messy... one could argue that only multimodal research can do justice to a truth's complexities' (de Rijke, 2024, p.301). Whereas triangulation begins with a very precisely framed research area whose rigidity does not allow for shifts mid-research, a collage framework is ideally suited to coping with unforeseen changes as it can absorb them. The frame surrounding the research area 'can be expanded or contracted, and new areas can be brought into the frame, while others are removed' (Freeman, 2020, p.6). This is an invaluable feature because it allows the researcher to be more intuitive and follow new unexpected routes of enquiry as they appear.

The idea that the research area within the collage framework has many identities and may stray beyond the bounds or frame initially envisaged well suits geographic research. Massey (2008) challenged the notion that places have single, essential identities and that boundaries are possible. This perfectly fits with Cronon's (1991)

conception of the city as inextricably connected to the rural area surrounding it recognising the continuous flows of ideas, commodities, living beings and capital between them.

Finally, this research was started during the Covid 19 lockdown in 2020 which meant that libraries and archives were closed for an indefinite period. It was very important to begin working with a methodological framework that could be adapted to the changing conditions of the pandemic. It was also very important to work with a framework that could cope with and absorb the challenges and limitations of each of the primary source materials as discussed below. The first method utilized for this project investigated the spatial distribution of animals and related industries such as butchers and dairies through the creation of maps, as the materials required to collate the spreadsheets for the maps were freely available online. As George (1969) noted, the presence of animals in certain locations has been recorded by mapmakers for millennia but images of animals on maps were often considered by those interpreting them to be purely decorative. This interpretation overlooks the efforts that mapmakers took to emphasise the roles that animals played in placemaking. Today animal picture atlases are popular education tools for children (Maskell and Edwards, 2008) but the benefits of mapping and visualising the historic presence of animals in cities has been underutilized by scholars of urban history and historical geography.

3.2 Historical GIS mapping of animal spaces in Dublin in 1911

In order to fully understand the importance of animals in Dublin in the early twentieth century, including their geographies, it was decided to undertake a mapping project using a Geographic Information System (GIS). For the first time, the location of animal spaces in the city would be identified and represented in cartographic form. This section explains the rationale behind the key decisions made pertaining to this mapping project, recognising the advantages and limitations of the sources available and the methods employed.

Central to this thesis is the construction of vivid and detailed maps of the city foregrounding the spatial distribution of animals within it at the start of the period under investigation. Vaughan (2018, p.1) described the use of maps for social investigation as social cartography where 'maps represent aspects of society at a given time and place'. Recognising how animals were central to the functioning of human society in Dublin City at the beginning of the twentieth century is at the core of this research. The maps created represent the spatial distribution of animal-related businesses in Dublin, the spatial variation in Dubliners' dependence on horses, cows and pigs in 1911, as well as the social impact of animals and animal-related businesses on an area. Creating these maps was made possible because of the availability of three important historical sources from the same period – the 1911 Census of Great Britain and Ireland, Thom's 1910 Street Directory and the highly detailed 25-inch Ordnance Survey Ireland map surveyed for this area in 1908.

Using GIS to study historic landscapes is invaluable when it comes to analysing and communicating historical research because it allows for the integration of multiple sources which can then be interpreted thematically based on the spatial distribution of phenomena (Lelo, 2014). Furthermore, a basic tenet of geographic data is that it is spatially dependent and that things that are situated close to each other tend to be more closely related than things that are further apart (DiBiase, 2008). This simple principle guided the exploration of the interdependencies between animals housed in Dublin and the businesses that they supported and were in turn supported by. The creation of the maps is recorded below in detail to guide other researchers should they wish to replicate the methodology.

There are several major advantages to using GIS database technology, as outlined by Lelo (2014). Firstly, it allows the scholar to examine phenomena occurring at precise locations as well as exploring broader spatial patterns and spatial distributions. It also allows for the integration of data from different sources and/or different dates by the use of layers within the GIS database. This facilitates the foregrounding of different data, the use of different basemaps or even the creation of a visual image of change over time.

Historical GIS can be used to advance historical geography scholarship by providing a new lens through which to examine and challenge existing orthodoxies, by providing a new way of tackling unresolved questions and by providing new approaches which allow researchers to ask new questions. Stanford University's *Spatial History Project* hosts some wonderful examples of how spatially visualising data with GIS can greatly enhance existing knowledge and create new knowledge. Research projects range from using GIS to map conservation histories of California, landscape change in Brazil to mapping US post offices in the nineteenth century. In an effort to understand the roles that animals played in nineteenth century cities and the urban spaces they inhabited, Robichaud and Steiner (2010) used Stanford's Spatial History Lab to map the evolution of slaughterhouse space in San Francisco between 1852 and 1870. This research aims to build on the enormous potential for historical GIS to advance knowledge of urban historical geographies and perhaps especially historical animal geographies since, according to Lelo (2014), using GIS to analyse spatial relationships allows for a deep and sophisticated comprehension of studied phenomena.

The maps for this research were created using multiple historical sources: animal-related business listings in Thom's 1910 Street Directory, the 1911 Census returns and the 1908 25-inch Ordnance Survey Ireland map which provided a visual source and location coordinates. How the data was collected, collated and visualised is explained below. I first begin with a brief description of each of the key sources, before turning to the associated challenges and or shortcomings, followed by a description of how the spreadsheets were created and analysed.

Previous Irish geographers have used these sources to map phenomena in Dublin. In *Dublin Through Space and Time*, Brady (2001) used Thom's as a source and mapped various commercial enterprises across the city to establish spatial patterns and to identify functional zones within the city. Connor *et al*. (2012) used data from the 1911 Census along with GIS to explore and map Dublin's inner city at the time identifying four distinct Dublins by highlighting the variations that existed within city's urban core. Initially it was intended to map data from this research onto the Ordnance Survey Ireland's Historic 25-Inch Map surveyed in 1908. This

beautiful map was drawn up to include an unprecedented level of detail and, since it includes the presence of water troughs, smithies and animal pens, it is in itself an excellent source of data. Unfortunately the level of detail recorded ultimately meant that this map was only useful for extreme close ups, so Bacon's (1914) plan of Dublin and its suburbs was used as a basemap when presenting maps for larger areas (i.e. for smaller scale mapping).

3.2.1 Sources for the creation of maps

3.2.1.1 1911 Census Form B2

Form B2 Return of Out-Offices and Farm-Steadings details the extra buildings associated with a particular dwelling on a street. It includes stables, coach houses, cow houses, dairies, piggeries, fowl houses, barns, sheds, workshops, forges, boiling houses and others. The information recorded within form B2 provides the backbone of the maps produced for this research project. The assumption has been made that a stable has been recorded as a stable because it contained a horse and it is presumed that if the same building contained a cow it would have been recorded as a cow house or a pig, a piggery. While this was a necessary assumption it is also necessary to recognise that there will have been a small number of errors and omissions and this is discussed below.

3.2.1.2 1911 Census Form B1

Form B1 Building Return Form provides a listing of all of the buildings on a street and, when completed correctly, should provide a detailed account of the use to which each building was put, i.e. a dwelling or a commercial property. Vacant lots were also recorded here.

3.2.1.3 Thom's Directory

Thom's Dublin Street Directory from 1910 contains an extensive listing of shops selling animal products such as dairies and butchers along with others which used animal products in their manufacturing. Another section of Thom's lists each street by number, building occupier and rateable valuation of the property. It also indicates the exact location where one street intersects with another. Using the map from 1908, exact coordinates were located to match the addresses for each

of the animal businesses listed in *Thom's* such as Dairies, Butchers, Brush Manufacturers, Manure and Fertilizer Works, Saddlers and Harness Makers etc. Census returns for the addresses of each animal-related business listed in Thom's was then examined to identify if there was animal housing attached and whether the business owner resided at the address.

3.2.1.4 Report into the State of Public Health for the City of Dublin 1911 including a complete list of piggeries

In 1911 Dublin Corporation unsuccessfully sought to reduce the number of piggeries in the city by legislating that pigs could only be kept within fifty feet of a dwelling. Given that 365 of the 463 piggeries in the city at that time did not satisfy this criterion, there was uproar from the piggery owners. Much to the frustration of Sir Charles Cameron, who ran the Public Health Department in Dublin at the time, the Public Health Committee decided to recommend that the by-law be repealed (Dublin Corporation, 1911). Immediately after this, a comprehensive survey of piggeries in Dublin was conducted by Dublin Corporation. This survey recorded the precise location of the piggery, the name and address of the piggery owner, whether they lived on sight, whether they were male or female, the number of pigs in situ, the distance from the nearest dwelling, whether the floor was impervious, whether the surface of the yard was satisfactory, whether the drainage system was satisfactory, whether there was a proper manure pit and how often each week the waste was collected. This research reveals that far more piggeries actually existed across the city than were recorded in Form B of the census. For example, 154 piggeries were recorded in the survey of piggeries for the Usher's Quay and Merchant's Quay electoral wards which largely coincide with the Liberties focus area for which only sixty were recorded in Form B of the 1911 census. Compiling the spreadsheets for the piggeries it became clear that the North Dock and Mountjoy electoral wards contained the highest concentration of piggeries in the city – 176 – and the decision was made to map piggeries in the north-east area of the city because of its association with poverty (Kearns, 1994). Unlike the two chosen focus areas, this area did not have any historical relationship with animal-related industry.

3.2.2 Difficulties associated with sources for maps

Scholars often grapple with the limitations of primary sources when constructing historical narratives because sources are often inherently biased or simply incomplete, as discussed by White (1987) among others. Street directories are particularly challenging in this regard. Kingsley Kent (1999) criticised Thom's street directories arguing that while they provide valuable information about urban demographics, their biases and omissions have the potential to distort our understanding of historic societies. Similarly, although Chinn (2001) argued that Thom's street directories offer valuable insights into the past, he advised caution because of their inaccuracies and omissions. All three scholars recommend using the street directories in conjunction with other sources. The chief problem noted by this researcher is that the actual number of animal-related businesses is likely under-represented in Thom's Street Directory 1910. For example, given that slaughterhouses were not recorded at all, it is possible that other types of animal-related businesses were also excluded. Furthermore, inclusion in the listings required payment and it is possible that some businesses did not consider paid advertising necessary to the success of their business and remained unlisted.

Utilizing census data is equally problematic and the reliance on the integrity of the public and enumerators has led many scholars to view the census with suspicion. For example, it has been criticised for the inaccuracy of female occupations recorded (Higgs and Wilkinson, 2016), the paucity of records of spousal age at marriage (FitzGerald, 2017) and the accuracy of recorded birthplaces (Day, 2021). The difficulties faced by Connor et al (2012) caused by the variation in quality of the data recorded for Dublin for the 1911 census are discussed in the next section below. For this research, a key problem associated with the census was the under-recording of animal housing which became obvious when mapping the public health report census data for piggeries, when it quickly became apparent that many more piggeries existed in the city than were recorded in the 1911 census. It is likely that animal housing was under-recorded for several reasons – the enumerator may have needed to gain access to the rear of a property which may not have been possible, enumerators were often policemen who were frequently

viewed with suspicion so the owners of animals may have lied or the animals were being housed illegally.

The role of these maps is to create an overall impression of the spatial distribution of animal housing and animal-related businesses across the city. In doing so, I acknowledge the difficulties and inaccuracies associated with both of the above sources of data but would argue that they are sufficiently accurate to provide a strong sense of the nature of urban animal spaces in Dublin at the beginning of the twentieth century. Furthermore, the circumstances under which the maps were created were dictated by the Covid-19 pandemic but a subsequent perusal of Thom's Street Directory 1911 suggests that the number of animal-related businesses did not differ significantly from those listed in 1910 and there is no reason to believe that the amount of animal housing in Dublin City differed significantly between 1910 and 1911 either. Certainly the public health reports indicate little change in dairying in Dublin City between 1910 and 1911 – 641 city dairymen renewed their licences in 1910 (Dublin Corporation, 1910) while 646 city dairymen had their licences renewed in 1911 (Dublin Corporation, 1911).

3.2.3 Creating the spreadsheets

The initial step for mapping required the drawing up of spreadsheets to capture and combine information from the 1911 census, Thom's Street Directory 1910 and x,y coordinates from the Ordnance Survey Ireland's 25-inch historic map. The headings were as follows: house number, street, male/female, name of business or business owner, private/commercial/mixed, Thom's, census URL, X coordinates, Y coordinates, stable, coach-house, harness-room, cow house, calf house, dairy, piggery, fowl house, boiling house, barn, turf house, potato house, workshop, shed, store, forge, laundry, other. Figure 1 below is an example of a spreadsheet showing the butchers listed in *Thom's Street Directory 1910* along with the animal spaces associated with them recorded in the 1911 census.

	House No:	Street	Male/female	Name of business or business owner	Private/Commercial/Mixed	Thom's	CensusURL	X co-ord	Y co-ord	Stable	Coach-house	Harness-room	Cow House	Calf house	Dairy	Piggery	Fowl house
2	44	Amiens Street		J J Grimes	Commercial	Butcher		716458	734805								
3	10	Arran Quay		W Coffey	Mixed	Butcher	http://ww	714574	734303								
4	82	Aungier Street		Ed Hodgins Ltd	Commercial	Butcher		715494	733755								
5	8	Baggot Street Lower		Cooney Bros	Commercial	Butcher		716355	733398								
6	110	Baggot Street Lower	F	Mrs A McConaghy	Mixed	Butcher	http://ww	716626	733230								
7	2	Benbur Street	f	Mrs Weldon	Commercial	Butcher		714495	734386								
8	17	Berkeley Road	F	Mary Ann Byrne	Commercial	Butcher		715164	735684	1	1	1					
9	36	Bolton Street		Thomas Lawlor	Mixed	Butcher	http://ww	715245	734995	1							
10	28	Bolton Street		A Weaver	Commercial	Butcher		715273	735003								
11	8	Camden Street Lower		Dempsey Bros	Mixed	Butcher	http://ww	715544	733142								
12	40A	Camden Street Lower		Eastmans	Commercial	Butcher		715550	732960								
13	8	Chatham Street		Ed Byrne	Commercial	Butcher		715746	733695								
14	11	Chatham Street		McDonagh & Co	Commercial	Butcher		715727	733699								
15	4	Chatham Street		O'Neill & Sons	Commercial	Butcher		715768	733688								
16	16	City Quay	F	Mrs Byrne	Commercial	Butcher		716497	734403	1		1	1			1	
17	25	Cuffe Street		J Coffey	Mixed	Butcher	http://ww	715673	733322								
18	52	Denzille Street		Eastmans	Commercial	Butcher		716828	733779						1		
19	1	Denzille Street		Taylor & Sons	Commercial	Butcher		716825	733755								
20	3	Dorset Lr		Eastmans	Commercial	Butcher		715600	735567								
21	1	Duke Row, Summerhill		N. Mulvany	Commercial	Butcher		716458	735458								
22	27	Ellis Quay		M Nugent	Commercial	Butcher		714490	734324								
23	99	Great Britain Street		Colonial Meat Comp	Commercial	Butcher		715892	735109								
24	40	Great Britain Street		Compania Jansiea D	Commercial	Butcher		715506	734803								
25	83	Great Britain Street		John Dowling	Commercial	Butcher		715770	735012								
26	105	Great Britain Street		Eastmans	Commercial	Butcher		715929	735134								

Figure 1: Spreadsheet of some of the butchers recorded in Thom's Street Directory 1910, along with any associated animal housing.

Locating close to a thousand commercial properties was always going to be a repetitive process – there were 401 dairies alone – and it turned out to be iterative in more ways than one. Because this part of the research project was done during Covid-19, a PDF version of *Thom's Street Directory* was used. However, at 2,467 pages it was not an easily searchable and navigable document. The first job was to establish whether the registered owner of the business resided at the listed address by cross checking their name with the address in the census. The search engine for the census allows you to search for a surname alongside a street address which theoretically should produce the correct census return although this rarely worked. It was generally necessary to search for the street and then see if the owner resided there.

When completed correctly, B1 Form provides a record of all the buildings and vacant lots on a street (or the portion of the street within a particular district ward covered by the census compiler). Theoretically this should be a useful tool to locate smaller buildings by positioning them against landmark buildings such as churches, post offices, banks, hotels etc marked on the map. Unfortunately, the quality of the information collected by the members of the Dublin Metropolitan Police (acting as enumerators) differed greatly from one street to the next or indeed

one portion of a street to the next. Some enumerators meticulously recorded every building and occupying business type making the job of cross referencing easy while others simply recorded built dwelling and ditto symbols with some not bothering to record anything at all.

In many cases, and even when a street was very long and crossed multiple wards, such as Great Brunswick Street (now Pearse Street), the meticulous compiling of B1 Form meant that multiple businesses on the street could be located with great accuracy and confidence. However, in extreme cases, such as Marrowbone Lane and James's Street, house numbers were initially allocated with much less confidence. To ensure that addresses and coordinates were matched correctly required a close examination of the 1908 map against the section within Thom's which lists numbered streets, landmark buildings such as churches, schools and factories, and the exact locations of intersections with other streets and laneways. These landmark buildings and intersections recorded in Thom's were often clearly visible on the 1908 map. This meant that the coordinates of an exact address could be located with certainty when the positions of two landmarks or intersections on either side of it were known. This method of double checking proved invaluable to ensure the accuracy of the coordinates and to clarify the location of buildings on difficult streets such as James's Street and Great Britain Street and it was a source of pleasure and pride to see just how accurate most of the previously collected data was.

Connor et al (2012) discussed the difficulties of working with the 1911 census returns, such as the considerable latitude given to the respondent or the enumerator in many instances, and the need for the data gathered to be cleaned and standardised. When it came to Form B2 Out-Offices and Farm-Steadings Return, the quality of the recorded data varies considerably and appeared unreliable at times. For some streets there were no records at all for out-buildings although they were clearly visible on the map as is the case for Number 15 Meath Street – a vacant lot with some out-buildings which are not listed on the return.

3.2.4 Analysing the spreadsheets

The data was analysed in two ways: analysing the spreadsheets, and then analysing the maps themselves by examining the city as a whole along with two focus areas (discussed below). Starting with the spreadsheets, they were arranged and rearranged to gather simple information such as the number of business types, the number of businesses on a particular street, the numbers of animal houses etc. Next, variables were combined to answer more complex question such as how many businesses were owned by men/women, what proportion of business owners lived on site, what proportion of business owners lived in close proximity to their animals?

As Goodchild (1992) noted, a spatial database allows records to be accessed by attributes (a specific value on a variable) or locations. Combining variables in my spreadsheets, and them mapping them using ArcGIS Pro allowed for the visualisation of the data by putting it into the context of the surrounding area. Variables were mapped individually, and with others, allowing for the establishment of spatial relationships based on the clustering of related activities. It has been shown that markets in all industrialised nations are dominated by clusters of businesses that are fundamentally connected through similar inputs (Rosenfeld, 1997). This phenomenon has been examined in the Smithfield /Stoneybatter and Liberties areas and how the commercial activities along with the presence of animals in these areas have mutually constructed the development of these areas has been explored. Brady (2001) identified several functional zones in Dublin City such as the two distinct areas for clothes retailing in Dublin – one on each side of the river Liffey. He also noted how the presence of certain activities caused the clustering of similar industries in the immediate vicinity such as the clustering of banks and insurance companies on Dame Street and College Green. This research looked at the distribution of animals and related industries and established that distinct functional zones of animal-related activity existed around the Dublin Cattle Market area, in the Liberties and around Moore Street.

Finally, women's work was vastly under-recorded in the 1901 and 1911 census (McCabe, 2020) at a time when women's positions within Irish society were

changing dramatically (Bourke, 1993). Analysing details from the spreadsheets along with census data for occupations has provided the opportunity to examine if or how men and women may have had different interactions and relations with animals and animal products at the end of the first decade of the twentieth century.

3.2.5 Research area and focus study areas

The study area for the project is Dublin city centre, or Dublin County Borough as it was officially defined in 1900. The city centre, or inner city as it is also described, refers to the heavily built-up part of city which was bounded to the north by the Royal Canal and to the south by the Grand Canal, to the east by the sea and to the west by the countryside just beyond Kilmainham (see Map 1). The wealthy townships of Pembroke and Rathmines were located to the south of the city but did not fall under the control of Dublin Corporation and so are not included in the initial GIS maps that were constructed as they were outside of Dublin County Borough at this time. However, in recognition of Dublin's growth and suburbanisation over the course of the twentieth century, the research area grew over time to incorporate these (see Map 2).

The natural borders of the city formed by the canals provided an obvious frame (boundary) for the first part of the research project although, as mentioned above, recognising the significance of the movement of animals and animal products into and out of the research area is paramount when examining what was happening in the city at the time. Although Dublin County Borough included the townships of Clontarf, Drumcondra and Kilmainham, it is clear from the 1908 map that these areas were mainly farmland and so they have been marginalised from the primary research area. This is because one of the primary research goals is to understand the changing nature of human-animal relations within the urban environment. Brady and Simms (2001), O'Shea and McManus (2012), Brady (2014) and McManus (2021) have all examined the development of the city over the course of the twentieth century but they have not paid any attention to the roles that animals

played in shaping the culture, identity and morphology of the places they inhabited alongside the human residents.

Although Dublin City was not large at the beginning of the twentieth century, it was still not feasible to examine every Form B2 for the entire city – for example there were c.120 in the South Dock electoral ward alone. It was also not necessary because Adelman (2020) concludes that animals were omnipresent in every area of the city at the turn of the twentieth century. The city can be divided into four quadrants at this time and, based on pre-existing literature two areas – the Liberties area and Smithfield/Stoneybatter – stood out as centres of commercial animal-based activity and were chosen as focus areas which were distinctly different to each other and the rest of the city. Kearns (1989) and O'Brien (2021) have both noted the uniqueness of the Smithfield/Stoneybatter area because of its association with the Dublin Cattle Market while Clare (2002) recorded the evolution of the area over more than a century. The Liberties was an obvious choice given its long established association with industry and offensive trades (Pearson, 2000; Lennon, 2008; Goodbody, 2014). Although poverty and poor-quality housing were found across the city (Prunty, 1988), the hygiene and housing maps prepared for the Dublin Civic Survey in 1914 indicate that the north-east of the city had highest density of poor-quality unhealthy housing while the south-east area of the city had the lowest. Even today the inner city falls naturally into four quarters with distinct social and economic identities: the north-east which still contains some of the poorest communities in the city; the south-east which includes the wealthy Georgian quarter; the south-west which includes the Liberties and the north-west which includes Smithfield and Stoneybatter. In fact, jarveys' horses serving the city's tourist industry are still housed in the north-west and south-west of the city today.

For the two focus areas the census forms for each street were examined to identify all of the animal housing listed in the census (form B2) and to see if there were animal-related businesses included in the house and building return form (form B1) which were not listed in Thom's. Where it would have been ideal to create multiple sets of maps at different points over the research period to track how

animal-related businesses and housing were removed from the city, the unique alignment of the data sets which occurred c.1911 is not repeated at any other point in the twentieth century. However, when the 1926 census becomes available in 2026 it should offer opportunities for a follow-up mapping activity.

ArcGIS Pro was used to create the maps for this research. Decisions were made as to how to visually represent each and every variable on the maps because how a variable is represented impacts on how it is read and interpreted since maps are 'objects laden with meaning, which reflect the context of their creation' (Vaughan, 2018, p.7). Vaughan has observed that geographers and historians view maps differently, with geographers often regarding maps as the outcome of a research project while historians often consider them as 'representations of a given social and cultural milieu' (p.7). In this research the maps were both the outcome of the mapping process as well as new primary sources of data to be interrogated. The series of maps which were created are analysed and discussed in chapter 4. The last map I created was illustrated with animal emojis which proved a simple yet effective tool for communicating the research to a wider audience beyond academia. Efforts to communicate the research was important for two reasons: firstly, it was necessary to fulfil the funding requirements and secondly, it boosted the visibility of the research, attracting the attention of interested parties who volunteered information which subsequently enriched the research.

While the maps are an invaluable aid to visualising the presence of the animals in Dublin City, the place of animals in the city is only truly illuminated through the layering of information sources. Occupation and industry data recorded in the census detail the numbers of people working in animal-related trades while public health reports record the number of animals moving through the cattle market and the abattoir/slaughterhouses. However, nothing can rival testimony, when it comes to understanding how people's day to day lives were shaped by the presence of other living breathing beings sharing their urban environment.

3.2.5.1 Focus area 1: Smithfield/Stoneybatter

Map 3 indicates the area stretching from Smithfield and the Haymarket to Aughrim Street and Prussia Street, the location of the Dublin Cattle Market from 1863 to 1973, which was an obvious choice for a focus study area because the trade in live animals had been entrenched here since the sixteenth century. One of the oldest suburbs in Dublin, the area of Oxmantown included Smithfield Market, Dublin's livestock market which was formally laid out in 1665 with a flesh market recorded on site in 1730 (Lennon, 2008). When the Smithfield Market was deemed not fit for purpose in the 1850s because of insanitary conditions and accusations that the salesmasters were running a closed shop and monopoly (Clare, 2002), the Corporation sought to develop a new market. Because transportation networks play a significant role in determining where businesses choose to locate (Eberts and McMillen, 1999), the pre-established social and transport infrastructure in the Smithfield/Stoneybatter area swayed Dublin Corporation to choose the nearby site between Prussia Street and Aughrim Street to establish the modern market. The new Dublin Cattle Market would grow to become the largest cattle market in Europe in the 1950s (O'Brien, 2021).

The study area is contiguous from the newly expanded Smithfield Market area right up to Altona Terrace and Ellesmere Terrace on the North Circular Road because these terraces directly overlooked the Cattle Market and life there was undoubtedly shaped and impacted by the weekly Wednesday market along with the presence of the large City Abattoir, opened 1882, to the rear of Altona Terrace. The rest of the focus area is bounded by Temple Street West to the west, Church Street to the east and the Quays to the South. This area also bordered several British military institutions such as the Royal Barracks and Marlborough Barracks.

3.2.5.2 Focus area 2: The Liberties

An old part of the city located south-west of the city walls, the Liberties – see Map 4, was established as the industrial quarter of the city by the early eighteenth century (Lennon, 2008) at which stage it already had an agglomeration economy of 'offensive' trades. Agglomeration economies arise from the concentration of

businesses producing complementary or similar items or services close to one another and lead to favourable externalities and cost savings for those businesses (Porter, 1998). Home to tanneries, the knacker's yard, manure works, printing mills, cotton manufacturers, glue makers, slaughterhouses, breweries and distilleries this area was notoriously poor. An area of Bothe Street was associated with skinning from the 1260s and was known as Skinners' Row from the fifteenth century while tan houses, flesh shambles and a horse market are all recorded in the Liberties pre 1600 (Clarke, 2002). The area around Mill Street, Newmarket and Blackpitts was a centre for tanning – the name Blackpitts is derived from the pits in which the leather was cured – and amazingly, a black pit could still be seen in a local garden until 1973 (Pearson, 2000).

The decision by a business to locate in an area is determined by local labour pools, the ease of access to input suppliers and markets (Glaeser and Kerr, 2009) and the establishment of industrial clusters is significantly influenced by locally available inputs (Overman and Puga, 2010). The processing of animal parts was so entrenched in this area that the relevant tradesmen's guildhalls were originally within a stone's throw of each other. Back Lane was home to the Glovers' and Skinners' Hall, the Saddlers' Hall, the Sheermen's Hall, the Smiths' Hall and the Currier's Hall (Goodbody, 2014). The Tanners had the oldest guild in the city having been granted a charter by King Edward I in 1289 and the Tanner's Hall was originally located above St Audeon's Arch by the old city wall beside the Butcher's Hall (Pearson, 2000).

Given their close proximity to the city, the Liberties were also important areas of primary production for the city producing fruit and vegetables in the fields, gardens and orchards recorded on Roque's 1756 map of Dublin. However, what is not recorded on the map is any trace of the many animals that grazed those fields and inhabited the yards of the area. Pearson (2000) noted that Blackpitts was well known for its dairies in the nineteenth century and this research explores how food production in the city continued well into the middle of the twentieth century.

Prunty (1998) explained how, in the nineteenth century, this area formed the focus of Whitelaw's housing survey having the highest concentration of low value housing in the city. Dr Edward Mapother's 1876 public health report had selected seven areas in the old Liberties as 'unhealthy' and recommended they be cleared, and new healthy housing constructed and an area in the Coombe was the first site to be redeveloped by the Dublin Artisans' Dwellings Company. However, slum clearance in the area was slow and the Liberties would remain poor and over crowded with a concentration of offensive trades well into the twentieth century (Brady and Simms, 2001).

Traditionally the Liberties area was situated outside the city walls but, for the purpose of this research, the area examined extends to the quays (see Map 4). The main road running through it is Thomas Street which becomes James's Street and stretches up to Mount Brown and Old Kilmainham which was still agricultural in 1908. Most of the north side of James's Street was occupied by distilleries and the Guinness Brewery. The area stretches as far south as Leonards Corner on the South Circular Road and is bounded to the east by Patrick Street with Marrowbone Lane and the Coombe forming important arteries within it.

3.3 Memoirs and oral histories

As 'retrospective narratives of an individual life', memoirs create life-stories that give historical and political significance to the writer's ordinary experiences; a memoir gives an account of a life 'embedded in the social matrix' (Paperno, 2009, p.xiii). According to Maynes, Pierce and Laslett (2008, p.2), over the last two decades or so, personal narrative evidence has formed the basis of much scholarly work challenging misleading generalisations and traditional narratives often through marginalized voices. These studies often stem from the critical traditions (such as feminism, Marxism or queer theory) which recognise and value the 'historical and social specificity of all viewpoints and subjectivities and emphasize the perspectivity intrinsic to knowledge production'. Reading personal narratives can provide unique insights into how individual lives are shaped by larger forces and institutions but it is always important to recognise that an

individual's point in their life course will affect their interpretation of events at any moment in time.

Collage as a methodological framework can be useful when layering methods which include participant interviews to produce richer, more insightful data (de Rijke, 2024). For this research memoirs included *Dublin made me* (Andrews, 1979), *Your dinner's poured out: memoirs of a Dub* (Crosbie, 1982), *Around the banks of Pimlico* (Johnston, 1985), *A Dublin memoir: with the chicken choker and the glimmer man* (Flood, 2000) and *Tales from a city farmyard and beyond* (Boland, 2014). These memoirs were closely read to identify any references to animals or animal products. Unsurprisingly those authors who were based in the inner city (Johnston, Andrews, Boland and Crosbie) make multiple references to animals and animal businesses. Meanwhile Flood grew up in Drumcondra which, although it was inside Dublin's municipal boundary at the start of the research period, was a relatively new suburb and housing animals to the rear of the newly built terraces was forbidden. Flood referred to Dublin's animals less than the other authors suggesting that his exposure to them was less. However, he did record the presence of nature in the city including frogs and trout in the river Tolka.

The most important source of personal narrative available to this research consisted of the eight oral histories collected by this researcher and the multiple oral histories collected by Kevin C. Kearns over many years. Kearns' method of collection consisted of conducting interviews over multiple different visits which allowed him to continuously assess the information that he had which enabled him to identify and subsequently fill any gaps in the information collected. Unfortunately, that level of access to subjects was not available to this researcher. As Ritchie (2014, p.1) noted, 'memory is at the core of oral history' and to extract it, preserve it and make it meaningful requires time, equipment and skill. While much smaller in scale, Declan O'Brien's (2021) oral accounts of those involved in the Dublin Cattle Market between 1955 and 1973 provided important details of the cattle market area during this period. Due to time constraints, I accessed the final printed versions of accounts given to Kearns and O'Brien and a detailed study of their transcripts and recordings may reveal further interesting findings in the future.

Before beginning the process of recording oral histories, I completed an online course in oral history presented by National Life Stories in partnership with the British Library. It was also necessary to complete a course in research ethics provided by Dublin City University's Faculty of Humanities. The required documents which included a plain language statement, sample questions, recording agreement and informed consent form were prepared and submitted for approval to the ethics committee who approved the study which was judged to present low risk to both the researcher and the research participants.

The first step in collecting oral histories involved identifying potential suitable interviewees and an article published on the Brainstorm page of RTE's website, which was advertised on RTE Radio One, resulted in multiple people contacting this researcher. The daughter of an elderly farmer, George Nolan, contacted me because her family were very keen for their father's stories to be recorded for posterity. Another interviewee, Dr Brid Connolly volunteered herself after a talk about this research was presented online to the Henrietta Street Museum. Keen Instagrammer, Mick Foran came to this researcher's attention through his daily posts of photos of Dublin past and present while Mick's wife, Kay, demonstrated her knowledge of local history during Mick's interview. Only one interview failed to come to fruition when the subject, an important Dublin horse dealer, suddenly demanded money for his interview and refused to sign any consent forms.

Each interview was preceded by a telephone call where I outlined how the interview would proceed, and times and locations were arranged. Upon meeting the interviewee in person, I explained the forms and got them signed. Because of his advanced years it was agreed that George Nolan's daughter would be present, along with his wife. All of the interviews took between sixty and ninety minutes except for Dr Connolly's which took longer when it was discovered that the recording had stopped midway so written notes were taken as the interview was recapped.

3.3.1 Oral testimonies

Eight oral histories were collected for this research to supplement Kearns (1989, 1991, 1994), O'Brien (2021) and important memoirs such as Andrews (1979), Crosbie (1981) and Boland (2014).

George Nolan was born in 1928 and began working in the family dairy in Terenure on Dublin's southside from the mid-1930s. Primarily, Nolan's (2022) testimony explored the changing landscape for dairy farmers in Dublin City between 1937, when the Milk and Dairies Bill (1935) was introduced and 1963, when Dublin Corporation mandated that all milk supplied to Dublin City had to be pasteurised. It also explored the changing physical landscape of Dublin over time detailing animal spaces in the south city and the effects of tightening legislation and increased surveillance on these animal spaces. Nolan's testimony also reflected the changing value of the horse to Dublin's urban farmers and the integration of Dublin farmers into the wider agricultural economy. Finally, Nolan's words point to the importance of child labour to Irish agriculture in the 1930s and 1940s.

Mick Foran was born 1949 in Corporation Place in the northeast of Dublin City. Foran (2022a) grew up in a tenement on Sheriff Street and his testimony demonstrated an awareness of differing attitudes towards the (in)humane treatment of animals in the 1950s and 1960s. His testimony highlighted the natural affection and inquisitiveness that children had towards animals but how constant vigilance was required around animals and their waste to avoid injury or illness. This need for vigilance to keep children safe in the face of all the dangers posed by raising children in tenements in a busy city was an important feature of the interview of Mick Foran's wife, Kay. Foran (2022b) was born in 1950 and lived in a refurbished tenement on the corner of Lower Gardiner Street and Waterford Street, in the north-east of Dublin City. A younger brother had died as a toddler in a drowning accident in the canal basin and this had left an indelible mark on the family. Kay Foran's testimony demonstrated the gendered nature of children's geographies and experience of animals in the city. As a girl, Foran's ability to navigate the city was severely restricted because of her gender in comparison to

her brothers. She was kept close to her mother to help at home but her experience of daily shopping meant that, from a young age, she had an intimate knowledge of pig anatomy and how it translated into multiple cuts of meat. Foran also provided strong sensory descriptions of pork butchers, chicken shops and the impact on the surrounding area of offensive trades such as the rosary bead factory on Waterford Street which utilized cattle horns and which resulted in heaps of rotting flesh piling up until there was deemed enough to have it collected. Both Kay and Mick referred to the community's acceptance of the illegal and inhumane slaughter of animals in their midst if they stood to gain from it. Similarly, both described how the streets along which the cattle were driven to the docks were shaped by the experience, both highlighting the danger posed by and to the animals, and the preventative measures taken by parents to keep their children safe.

Sean Deegan was born into Croke Villas Flats, on Sackville Avenue, Ballybough in 1961. Deegan's (2022) testimony indicated the normality of piggeries in north Dublin's inner city during the 1960s and 1970s and demonstrated how they were integrated into their neighbourhood, providing the equivalent of today's brown bin service to the locals by disposing of their food waste. It pointed to the inquisitiveness of children regarding pigs and horses and their desire to get close to them. It referred to the pet making of a pig by a man with special needs who regularly walked it on a piece of twine in the playing field behind the flat complex. Again, it bore witness to the excitement and danger when roads on route to the docks were transformed into animal spaces on a weekly basis.

Noel (Kennedy, 2022a) and David Kennedy (Kennedy, 2022b) were born in 1956 and 1960 respectively in Church Gardens, Rathmines, south Dublin. Their testimonies revealed the work that was involved in the day to day running of a piggery containing between thirty and forty pigs. They demonstrated the different roles that family members played and the embeddedness of piggeries in their local communities. They revealed the social stigma associated with pig-keeping. Their testimonies highlighted the diverse attitudes and emotions people displayed towards animals and animal suffering.

Dr Bríd Connolly was born in 1953 in Francis Street, the Liberties. Describing the normality of milch cows, pigs and horses in her childhood, Connolly (2024) recalled the impact of their presence on the landscape of the Liberties. Her account was full of sensory details, and vividly invokes the sights, sounds and smells of the animals and her emotional reactions to them. It references her immigrant parent's deliberate lack of adherence to regulations regarding the consumption of raw milk, the connections maintained by rural immigrants to Dublin with their rural families and the powerful new networks they forged with other immigrants on arrival.

Donal Hick was born outside the research area in Dalkey, south Dublin in 1965 but his knowledge and experience as a pork butcher provided this researcher with valuable insight into how small butcher's shops selected and slaughtered pigs and the impact increased surveillance had on the process of slaughter over time. Hick's (2022) interview took place in the rear of his shop while he was making sausages by hand. His family is one of several German families originally from Baddenwurtenburg who came to Dublin in the 1920s as pork butchers. Haffners and Olhausan sausage brands were started by these families. Dealing solely in pork, Donal's butcher's shop is one of only a few remaining pork butchers in Dubin.

Immediately on returning home from carrying out the interviews, notes and observations were written up and the interviews were transcribed maintaining the integrity of the speech patterns where possible. When using oral histories, every step of the process is open to interpretation, from how the questions are phrased, to how accents and nuance are recorded, to how content is understood and it is the job of oral historians to 'consider what people remember, what they forget and what they get wrong' (Ritchie, 2014, p.124). Oral historians should seek objectivity by trying to verify the information they are given but the subjective nature of memory is also valuable (West Davidson and Hamilton Lytle, 1982).

Poverty, food, occupations and gender were among the themes explored in the oral history collections compiled by Kearns (1989, 1991, 1994). The themes which emerged from this research were compiled under headings which included

attitudes to animals, gendered experiences of animals, embodied experiences of animals, poverty and animals, miscellaneous. After the interviews were transcribed, they were closely read and sections were highlighted and filed under the appropriate theme. Through comparisons between the oral history interviews and with Kearns' oral histories it was possible to identify what could be considered objective truths and subjective memories, although both were treated with equal respect in the research. For example, that some people had great sympathy for animal suffering is treated as an objective truth because it is reiterated time and time again. On the other Noel Kennedy's memories of the embarrassment he felt at pulling a hand cart down the Rathmines Road to collect slops for his family's pigs is treated as a subjective truth.

'Oral history should not stand alone as a single source' but a good anecdote can be very useful to the scholar seeking to make a point memorably and compactly (Ritchie, 2014, p.113). The oral histories and memoirs are applied in this research as colourful scraps to enrich the collage – to highlight and illuminate certain findings and to add richness and life to quantitative records. For example, interspersing oral history testimony with a discussion on the number of animals moving through the Dublin Cattle Market and Dublin Port on an annual basis, allows for analysis beyond the mere economic importance of animals to the city when the physical impressions of the animals on the city and its human residents are considered.

3.4 Analysis of other primary source material

3.4.1 Public health reports

Animals such as cows have been 'constituted as problems and materially managed by local Boards of Health' (Towne Hirtenfelder, 2023, p.89) in European and North American Cities since the nineteenth century and the relationship between urban animals and protecting public health is a prominent theme in urban animal histories (Cronon, 1991; McNeur, 2014; Brown, 2016; Robichaud,

2019). According to Thacker (2010), modern concepts of public health surveillance derive from governments in Western Europe assuming responsibility to protect the health of their citizens. Public health reports for the city of Dublin were compiled annually from the 1860s and reformer Sir Charles Cameron was one of the first scientists to identify the zoonotic nature of certain diseases (Adelman, 2015) making the connection between animal health and human health in Dublin City.

The annual public health reports published in Britain and Ireland in the nineteenth and twentieth centuries are important sources for scholars. A vast amount of data was collected through the surveillance and monitoring of disease outbreaks which informed the implementation of public health policies and the allocation of resources. Educational materials were often included to raise public awareness around disease and to promote healthy behaviour. From 1908 veterinary reports for the City of Dublin were incorporated into the public health reports and included large amounts of quantitative data around Dublin's animals such as the number of dairy owners, yards etc in the city along with information about inspections by sanitary operations, numbers and names and addresses of those found to be in contravention of sanitary legislation, fines imposed etc. Statistics regarding the tuberculosis epidemic which ravaged Ireland up until the 1960s are also recorded. Although these substantial reports are goldmines of information they are not without shortcomings. According to Berridge et al (2011), the accuracy of the data collected was limited by rudimentary collection techniques and representation of the data often reflected the bias of those who commissioned the reports and interpreted the data. Importantly for this research, a lack of standardised protocols saw reporting change over time which made comparisons difficult. The political and economic turmoil which followed World War One, the 1916 Rising, the War of Independence and the Civil War resulted in the cessation of the annual reports between 1915 and 1929 when they once again regularly appeared annually or biannually. From 1929 the Public Health Reports for the City of Dublin contained a more comprehensive section from the veterinary department, but the recording of animals and animal keepers had changed so that in many cases it was not possible to directly compare the information recorded in the reports pre-1915

and those post 1929. For the following decades, and over the course of the rest of the research period, the presentation of data remained relatively stable although occasional gaps in the record can be seen in figures 2 and 3 below.

Once again spreadsheets were drawn up to store this information for analysis through graphs and tables, see figure 2 below. While the figures recorded here provided important quantitative data, the public health reports contained a wealth of qualitative data. The details recorded about some of the dairymen and cow-keepers, and especially Sir Charles Cameron's personal observations of the industry in the early part of the twentieth century, bring Dublin's dairy industry alive for the reader. His musings on public health issues and their possible causes, and his active involvement on the ground offer great swatches of colour for the collage. An excellent example of this is the account of Cameron's war on flies in 1911 where he called on young boys to catch flies in return for compensation.

Year	Total number of Dairymen and Purveyors of milk registered	Number of premises registered	Numbers of dairy yards/ producers of milk registered in the city	Producers of milk from outside the city	Approx. number of milch cows housed in the City during the winter months	Number of examinations of milch cows	Number of cows for which notices interdicting the sale of milk was served	Cows found with TB of the udder	Number of inspections of dairies, yards, shops	
1929	1,014		198	161	4,200	8,933	55	24	7,149	
1931	1,582		293	71	5,727	9,800	81		11,079	* The defined area of Dublin City has expanded and more than doubled
1933	1,640		297	80	5,768	9,137	102	16	14,780	
1935	1,818		304	23	5,300	7,956	83		14706	
1936	1,907		307	25	5,050	9,938	125		14560	
1937	1,598				5,006	10,209	118	10	9,272	** There is a new Act in place regarding milk
1940	2,045	2,131	201	209	4,470	11,500	129	18	17,202	
1944	1,989	2,180	171		4,050	9,082	113	7	10,173	
1947	1,510	1,705	128		4,024	7,983	69	5	10,410	
1948	1,660	1,855	133		3,514	7,976	47	2	10,183	
1951	1,698	1,777	113		2,885	8,730	63	2	9,934	
1953	2098	2,178	131		3,218	5,937	53	1	8,763	
1955	2,802	2,648	114	176	3,270	6,806	52	1	8,039	
1956	2,833	2,679	119	175	3,046	6,951	20	2	5,406	
1957	1,660	1,732	114	175	2,919	6,289	39	3	3,659	
1958	1,856	1,738	106	73	2,649	5,491	16	2	1,815	
1960	1,708	1,686	93	75	2,047	4,101		3	3,424	
1961	1,857	1,619	82	68	1,725	3,765		1	3,193	
1962	1,838	1,587	74	67	1,761	3,907		0	3,113	
1968	1,560	1,407	29	51	483	721		0	976	

Number of cowkeepers and milch cows in Dublin City 1929-1947

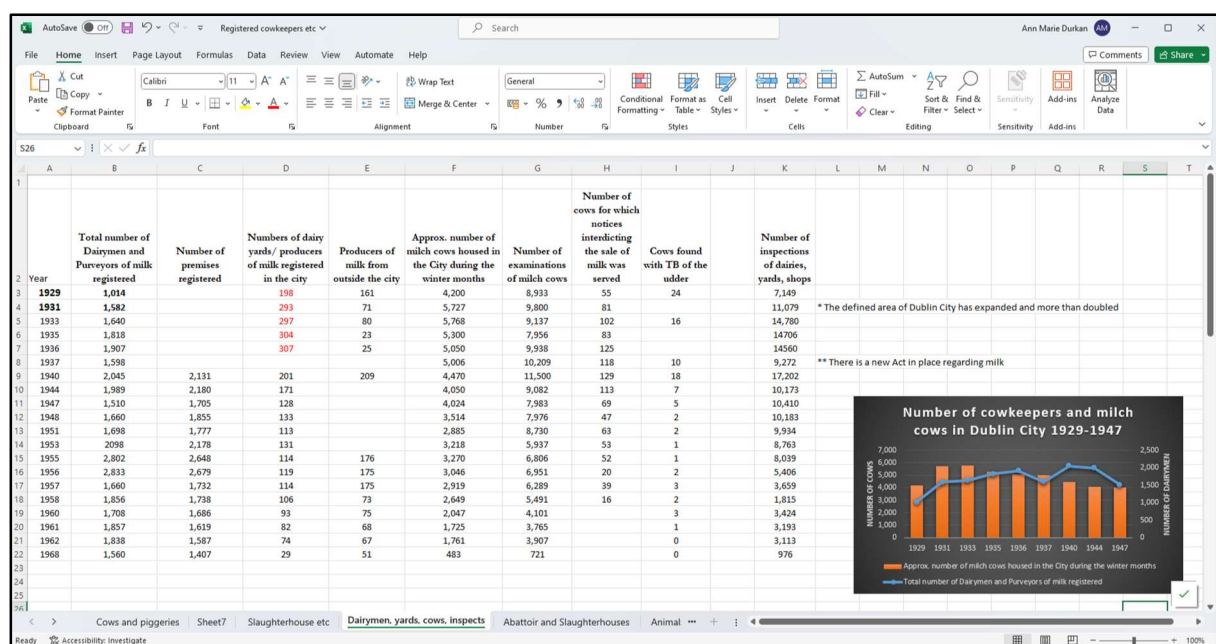*Figure 2: Data recorded in the Public Health Reports for the City of Dublin for various years between 1929-1968.*

The veterinary reports within the public health reports contained the figures for all of the animals passing through the Dublin Cattle Market, the Dublin Corporation Abattoir and private slaughterhouses and these figures were also collated into spreadsheets, tables and graphs. Recording and analysing all of the figures

recorded in the public health reports over time demonstrated the changing presence and importance of these animals and activities to the city.

MEAT INSPECTION

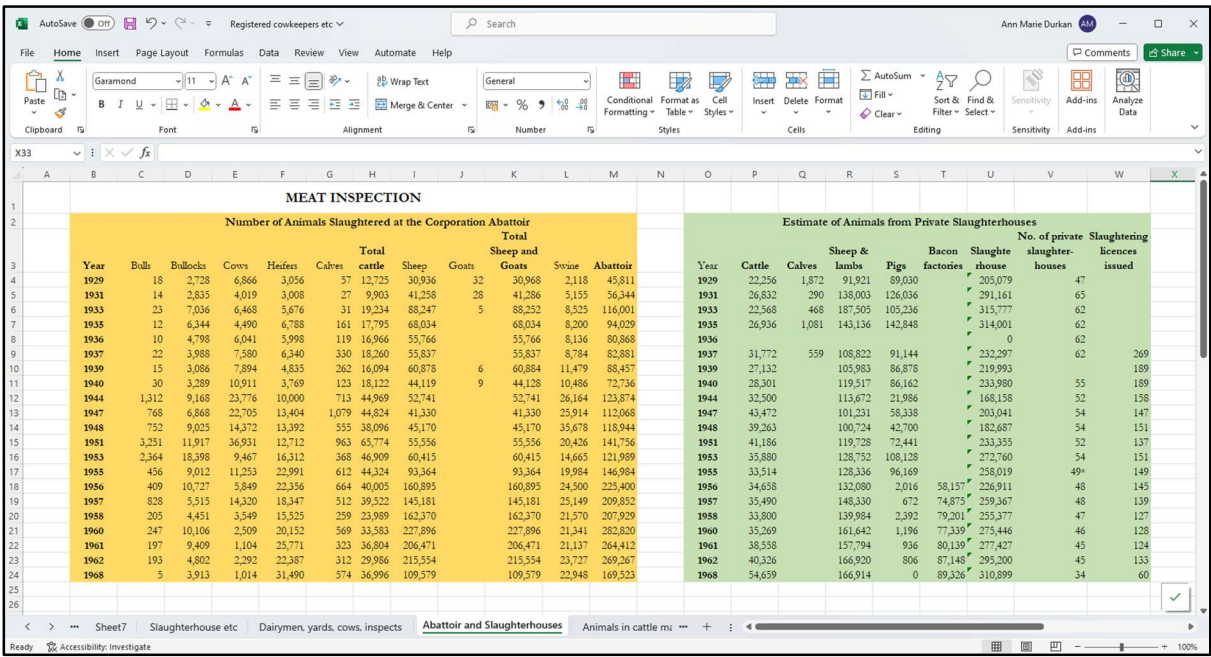|	Number of Animals Slaughtered at the Corporation Abattoir												Estimate of Animals from Private Slaughterhouses							
Year	Bulls	Bullocks	Cows	Heifers	Calves	Total cattle	Sheep	Goats	Total Sheep and Goats	Swine	Abattoir		Year	Cattle	Calves	Sheep & lambs	Pigs	Bacon factories	Slaughter house	No. of private slaughter-houses	Slaughtering licences issued
1929	18	2,728	6,866	3,056	57	12,725	30,936	32	30,968	2,118	45,811		1929	22,256	1,872	91,921	89,030		205,079	47	
1931	14	2,835	4,019	3,008	27	9,903	41,258	28	41,286	5,155	56,344		1931	26,832	290	138,003	126,036		291,161	65	
1933	23	7,036	6,468	5,676	31	19,234	88,247	5	88,252	8,525	116,001		1933	22,568	468	187,505	105,236		315,777	62	
1935	12	6,344	4,490	6,788	161	17,795	68,034		68,034	8,200	94,029		1935	26,936	1,081	143,136	142,848		314,001	62	
1936	10	4,798	6,041	5,998	119	16,966	55,766		55,766	8,136	80,868		1936						0	62	
1937	22	3,988	7,580	6,340	330	18,260	55,837		55,837	8,784	82,881		1937	31,772	559	108,822	91,144		232,297	62	269
1939	15	3,086	7,894	4,835	262	16,094	60,878	6	60,884	11,479	88,457		1939	27,132		105,983	86,878		219,993		189
1940	30	3,289	10,911	3,769	123	18,122	44,119	9	44,128	10,486	72,736		1940	28,301		119,517	86,162		233,980	55	189
1944	1,312	9,168	23,776	10,000	713	44,969	52,741		52,741	26,164	123,874		1944	32,500		113,672	21,986		168,158	52	158
1947	768	6,868	22,705	13,404	1,079	44,824	41,330		41,330	25,914	112,068		1947	43,472		101,231	58,338		203,041	54	147
1948	752	9,025	14,372	13,392	555	38,096	45,170		45,170	35,678	118,944		1948	39,263		100,724	42,700		182,687	54	151
1951	3,251	11,917	36,931	12,712	963	65,774	55,556		55,556	20,426	141,756		1951	41,186		119,728	72,441		233,355	52	137
1953	2,364	18,398	9,467	16,312	368	46,909	60,415		60,415	14,665	121,989		1953	35,880		128,752	108,128		272,760	54	151
1955	456	9,012	11,253	22,991	612	44,324	93,364		93,364	19,984	146,984		1955	33,514		128,336	96,169		258,019	49*	149
1956	409	10,727	5,849	22,356	664	40,005	160,895		160,895	24,500	225,400		1956	34,658		132,080	2,016	58,157	226,911	48	145
1957	828	5,515	14,320	18,347	512	39,522	145,181		145,181	25,149	209,852		1957	35,490		148,330	672	74,875	259,367	48	139
1958	205	4,451	3,549	15,525	259	23,989	162,370		162,370	21,570	207,929		1958	33,800		139,984	2,392	79,201	255,377	47	127
1960	247	10,106	2,509	20,152	569	33,583	227,896		227,896	21,341	282,820		1960	35,269		161,642	1,196	77,339	275,446	46	128
1961	197	9,409	1,104	25,771	323	36,804	206,471		206,471	21,137	264,412		1961	38,558		157,794	936	80,139	277,427	45	124
1962	193	4,802	2,292	22,387	312	29,986	215,554		215,554	23,727	269,267		1962	40,326		166,920	806	87,148	295,200	45	133
1968	5	3,913	1,014	31,490	574	36,996	109,579		109,579	22,948	169,523		1968	54,659		166,914	0	89,326	310,899	34	60

Figure 3: The number of animals slaughtered in the Dublin Corporation Abattoir and private slaughterhouses for various years between 1929 and 1968 as recorded in the Public Health Reports for the City of Dublin 1929-1968.

3.4.2 Occupation and industry data

Historical census reports about occupations and industries from the Central Statistics Office website were also valuable repositories of information providing proof of the importance of Dublin's animal economy through the numbers recorded in occupations relating to it. Connor, Mills and Moore-Cherry (2012) utilized occupation data from the 1911 census to great effect and demonstrated the enormous potential of utilizing modern technological methods such as GIS to analyse historic data to bring the essential character of a city to light at a moment in time. However, again the political upheaval during the second two decades of the twentieth century meant that no census was taken in Ireland between 1911 and 1926. The classification of occupations in the 1926 census was based on the 1921 British Census classification system which had been completely overhauled since the census in 1911 (Stationery Office, 1928), so once again it was not possible to compare the new figures with the old. In fact, attempting to collate

spreadsheets to track the numbers in different jobs over time proved very frustrating as the methods of recording changed regularly, frequently resulting in the loss of vital information. For example, between 1926 and 1936 information about the men and women working in butchers' shops is subsumed into the sections 'Shopkeepers', 'Shop assistants' and 'Hawkers' while the numbers of those employed in bacon curing in 1936 is skipped altogether. When occupations were recorded routinely and accurately – such as for saddlers – this allowed for comparisons to be made over time with declining numbers generally demonstrating the declining importance of skills (and the animals for whom those skills were required) in Dublin City.

The challenges identified at the beginning of this chapter regarding census data such as the accuracy and reliability of the data raise questions regarding the reliability of the occupation and industry data. Similarly, the overhaul of the classification system in 1926 made comparison with previous census impossible although it has allowed for longitudinal analysis between census reports going forward. Modernisation of industries such as manufacturing finished leather products caused confusion when leather substitutes are suddenly included in the same category in 1951. Nevertheless, there is enough consistency in recording techniques to warrant the use of these data sets.

3.4.3 Annual Royal Dublin Society shows

The brochures produced to accompany the annual Horse Show and Spring Show have also proven very useful. Held in the Royal Dublin Society grounds in Ballsbridge, the shows served to further the goals of the Society to modernise Irish farming and to showcase Ireland's horses from its inception in 1731 (Bright, 2002). The names and addresses of those who entered animals in the various showings and competitions were listed for each class – as were the names and details of the animals.

Figure 4: Many of the entrants taking part in the horseshoeing and horseshoe making competitions listed in the 1919 RDS Spring Show catalogue came from Dublin City. Courtesy of the Royal Dublin Society.

Competitions also existed testing the skills of those who worked with animals against each other, such as milkers and horse-shoers. Unsurprisingly, some of the entrants hailed from within Dublin's inner city. Similarly, all of the stands exhibiting their products and services in the exhibition halls were listed with many companies taking out adverts in the brochures and this provided an insight into the volume and types of industry related to agriculture which existed within the City of Dublin over the course of the research period. The precise addresses listed in the brochures provided important locational information to this research placing

animals and animal-related industries at precise addresses at different points in time further enhancing the collage.

On their own, the vision of animals and animal-keepers portrayed is limited and largely reflects middle-class activities. Although it was open to all and sundry to visit the shows for a small entry fee, the limited number of working-class entries indicate that the expense of 'showing' an animal in the Royal Dublin Society showgrounds was prohibitive for many. Similarly, advertising in the brochures or taking a stand in the exhibition hall was limited to those who could afford the cost so that smaller animal-related businesses may have also been under-represented at the shows.

3.4.4 Other sources

While it is not necessary to list all of the primary sources accessed over the course of this research, two require special mention. Firstly, the Minute book for the Irish Clean Milk Society (ICMS) provided a crucial window into the process of cleaning up Dublin's milk supply. This society was set up with the sole aim of having legislation implemented to improve Ireland's milk supply and reflected similar movements in Britain, Continental Europe and America. Indeed, the frustrations encountered by the committee who sought to clean up the milk supply for the whole of the Irish Free State informed the central argument for the case study in chapter five.

Newspaper reports were essential to this research, offering up unexpected avenues of research potential during covid or when no other source was available. Newspaper sources accessed included the *Irish Times* Digital Archive and the Irish Newspaper Archive, with the *Freeman's Journal* and the *Irish Independent* being the most frequently referenced when animal-related activities in Dublin were entered into the search engines. Freeman (2020) cited openness to spontaneity as one of the strengths of collage because it can absorb the messiness associated with research. At the outset of this research a decision was made to avoid issues relating to animal welfare because it was considered potentially too upsetting. However, as the research proceeded press coverage revealed the relentless drive

by members of the Dublin Society for the Prevention of Cruelty to Animals, many of them women, to improve the lot for animals in Ireland which proved heartening and encouraging. It was decided to pursue this investigation, focusing on newspaper reports, which yielded important findings discussed in chapter six. Members of the DSPCA continually wrote to the *Irish Times* and the *Irish Independent*, utilizing the press to get their message about the need for the humane treatment of animals into the public eye and details of their meetings were regularly reported on. To date, documents relating to the DSPCA, dating back to its foundation in 1840, have not been archived and no scholarly work has appeared around its members' activities in Ireland in the twentieth century.

Newspapers were also key players in the clean milk drive in the 1920s and 1930s with the *Irish Times* and the *Irish Independent* agreeing to publish extensive reports of the meetings of the Irish Clean Milk Society in a bid to speed up the implementation of legislation (Irish Clean Milk Society, 1926). The newspapers clearly suspended their impartiality for the common good when they came to this agreement with the society. These newspaper reports complement and add to information provided by the Irish Clean Milk Society minutes.

Newspaper reports were also used to provide a window into the place of piggeries in Dublin City's landscape. The piggeries came under local government scrutiny in 1911 but would then fall out of view until 1954 and between these two periods the only information available about them is from the public health reports, where the number of inspections of piggeries carried out on an annual basis was recorded, and in newspaper reports if and when a piggery owner was prosecuted for causing a nuisance. However, as Bates (2016) notes *in Historical Research Using British Newspapers*, using historical newspapers presents challenges. Firstly, editorial decisions around what was published reflected the political and social values of the paper and its readership which may have affected how a news story was presented, or if it was presented at all. Often the researcher repeats this selectivity, having to choose what to include or not include. These choices reflect the bias of the editorial team and the researcher which the researcher must strive to detect and minimise. Secondly, editorials and editorial policy sought to sway

public opinion, but it cannot be assumed that they reflected it. Thirdly, newspapers are prone to errors because of how information is processed. Regional newspapers were consulted regarding the clean milk drive and attitudes towards the humane treatment of animals and, unsurprisingly, such issues were often reported from a different perspective to the national newspapers. However, a lot of reports were also syndicated to multiple regional newspapers from a central source. Lastly, historical digital newspapers present further challenges due to shortcomings with OCR potentially not reading old newsprint correctly. Also when an individual article is located it may be decontextualised from other stories of the day, unless it is available to view as part of the original newspaper page.

Numerous reports relating to agricultural practices were commissioned by state agencies with the aim of improving agricultural production in Ireland during the late nineteenth and twentieth centuries. Although these were not specifically looking at animal-based activities in Dublin City, this research has found them relevant to exploring how milk production, egg and poultry production and pig production functioned in the city. Daly (2002) noted how agricultural policy changed over the course of the twentieth century, especially after Independence and the foundation of the Free State. These reports echo the drive and ambition for agricultural development in Ireland from both a colonial perspective and a nationalistic perspective. The drive towards the modernisation of Dublin City was visible in reports such as the Housing Inquiry (1914) and the Dublin Civic Survey Report (1925) although the recognition of the influence of animals on the city was noticeably missing from them.

Unfortunately, other sources proved less useful. At the outset of the research, it was presumed that this collage would be enriched with multiple photos of animals and animal-related activities. However, as highlighted by Hale (2020) archivists are vital mediators between animal-centred researchers and collections. Serendipity plays an role in whether or not researchers locate animals in digital collections because 'animals are not often described in finding aids because of the inattention on the part of the archivist' (Hale, 2020, p.28). A search through the online catalogue for the National Library of Ireland revealed more than five and a half

thousand images for the city during the research period. However, unless an animal is the direct subject of a photograph, they are often not recorded in the metadata. The search revealed no images of Dublin's pigs or milch cows and although it highlighted 164 images of horses in Dublin the majority of them pertained to the Dublin Horse Show. That said, images of horse-drawn vehicles in Dublin City during the twentieth century are a relatively common sight on social media but these images are generally posted without any information about where they come from and tell us little other than that they existed. Less common are photos related to the Dublin Cattle Market with a small selection of unreferenced images and footage serving to illustrate any articles or blogs which have appeared in newsprint or online. One image of a Dublin piggery was received from an interviewee, but this researcher has located no images of the Dublin Corporation Abattoir or small private slaughterhouses in Dublin.

3.5 Conclusion

It is clear that all of the sources utilized in this research brought challenges and limitations, however the methodological structure was specifically chosen because the layering of data sources one atop the other allowed for the shortcomings of individual sources to be accommodated within the whole. 'Collage lays bare how messy research actually is' (de Rijke, 2024 p.303) and allows researchers to avoid hiding unavoidable gaps to produce 'neatly packaged findings' (Freeman, 2020 p.339). Given the broad scope of this research, and the long timespan covered, the collage methodological framework proved ideal for researching a subject about which almost nothing has been published to date. It allowed for multiple subjects to be examined in varying levels of detail depending on the materials available.

Maps of animal spaces and animal-related industries in 1911 provided a very strong base layer for the collage of the city. From the outset two focus areas – Smithfield/Stoneybatter and the Liberties – were chosen based on historical evidence which was borne out by the geographic evidence provided by the maps where the spatial concentration of animals and related activities was clearly

visible in the two areas as clusters. Other clusters were also revealed while some businesses such as dairies and businesses related to horse-drawn transport were clearly dispersed across the city. Analysing the evidence from the maps, in relation to respected historic and geographic works including Daly (1984), Prunty (1998), Brady and Simms (2001) and McManus (2021) allowed for a new interpretation of the city in which animals and those who worked with them were foregrounded.

An important element of the research is understanding the changing presence of animals in the city over time. Given the unique nature of the 1911 census materials, it was not possible to produce such detailed maps for a later date. However, the collage framework allowed for multiple methods to be used and the information contained in oral histories/memoirs would provide evidence for the continued concentration of animals in the two focus areas over the entire research timeframe. Importantly, the different types of data accessed to create the collage reinforced each other. For example, while quantitative data recorded in the public health reports detailed the numbers moving through the Smithfield/Stoneybatter area on a weekly basis, personal testimonies described how that affected the environment and the day-to-day lives of the residents. Dublin was shown to be an important network hub for Ireland's agricultural economy, enabled by infrastructure such as the Irish rail network and Dublin port.

In some cases, corroborating evidence for a phenomenon was available from multiple sources – the importance of ensuring tubercular-free dairy herds nationwide in the drive for clean milk is a good example. The activities of the Clean Milk Society can be confirmed in their minute book, in newspaper reports, in government minutes and RDS Spring Show brochures and through these, public health in Dublin was shown to be intimately associated with animals. On the other hand, gleaning information about pig-keeping in Dublin was more difficult and more than two decades would go by between the pig census in 1911, the Pig Industry Tribunal in 1933 and another pig count conducted in 1954 which was noted in a newspaper article. Between these times concrete evidence is scant and proxies such as piggery inspections are required to estimate the number of pigs in Dublin at a particular point in time such as during the Emergency. Ultimately it

would require the vast range of sources accessed to produce the collage to reveal the presence of Dublin's animals and related industries in the city and uncover how modernising forces would sweep them away over time.

The lack of consistent data sources across time occasionally produced small gaps which could not be filled but such messiness is taken for granted in a collage. The advantages of the framework more than compensate for this. For example, focussing on the porosity of the research boundary yielded arguably the most important findings from the research where Dublin City is viewed as a space of flows – of animals, energy, information, and an ecosystem whose metabolic flow connected the city with the rest of the island and beyond. The interdependence between Dublin City and its hinterland is revealed through the city's animal-based agricultural economy which saw animals, animal products and ideas about animals stream through the municipal boundary. Importantly, it is proven that public health in Dublin could not be protected from zoonotic disease originating outside the city.

More remains to be discovered about Dublin's animal past. Contrary to expectations, plotting the activities of the DSPCA between the 1920s and the early 1960s proved extremely rewarding. Although Adelman (2020) explored the origins of the organisation in the nineteenth century, this represents an element of twentieth century Dublin history which has been ignored to date and is deserving of further investigation. Another area which would benefit from exploration is the prevalence of animal slaughter in Dublin's inner city until the 1980s. Locations include the Dublin Corporation Abattoir as well as multiple small private slaughterhouses dotted across the inner city. Slaughter in Dublin City in the second half of the twentieth century is alluded to in this research but its impact on surrounding residential areas warrants further scrutiny.

Through this methodology which collated multiple disparate sources together into a messy collage, Dickson's (2014) understanding of Dublin as a hybrid place is elaborated, where rural ways endured in the urban environment and, during the

first half of the twentieth century, the rhythm of life for many was set by the city's animal residents.

4.0 Chapter 4: Dublin c.1910-1913

4.1 Introduction

'Urban' is generally presumed to describe a city environment and to date no scholars have enquired into the 'urban' nature of Dublin city. Nearly a century ago, Mumford (1937) saw a city as a geographic nexus and network hub, Wirth (1938) recognised that a sharp line between urban and non-urban territory did not exist and Dyos (1973) questioned how the experience of town life differed from country life. Cronon (1991) demonstrated how the countryside and towns are inextricably linked and, more recently Harris (2021, p.1) acknowledged that 'only some of the things that happen *in* cities are truly urban'.

Here it is argued that Dublin's position as a network hub for animals meant that Dublin's inner city was intimately connected to rural Ireland through a continuous flow of animals and animal-related products into and out of the city. Harris's (2021, p.3) suggestion that the seasons only had a limited influence on urban dwellers is refuted as it is shown that Dubliners' lives were lived to various animal-related rhythms many of which were influenced by the seasons. Significantly, it is shown that cow-keeping and pig-keeping, which are traditionally considered rural activities, were commonplace within Dublin's urban core. Even though these practices had distinctive 'urban flavours', differentiating them from their rural counterparts, this research suggests that the experience of town versus country life differed less than previously imagined.

Previous histories of Dublin have ignored the vital roles that animals have played in shaping the city. In *The Making of a Capital City* (2014, p.372) historian David Dickson was blind to Dublin's animal residents and focussed on Dublin as a city of contradictions and stark social division resulting in the poverty-stricken inner city described as 'the city of rags'. Brady (2001) used maps to assist in interpreting land-use patterns in Dublin. He examined the clustering of commercial and retail activities noting that the high degree of accessibility to the city centre made it a very attractive location for commercial activity. Studies of both nineteenth and

twentieth century Dublin have noted the city's myriad social and economic issues. For example, the twentieth century city was 'characterized by disrepair and physical dereliction' while the population were 'distressed and unhealthy' (McManus, 2021, p.27). However, dereliction and poor health have not been analysed in relation to Dublin's persistent dependence on animal trades. Adelman (2020) demonstrated how ideas around the place of animals in Dublin city changed over the course of the nineteenth century. Middle-class reformers identified certain food animals, such as cows and pigs, as being unsuitable for Dublin's urban environment because of the danger they posed to public health and sought to regulate them. Restrictions on how and where animals were kept affected social groups differently creating a unique social and economic geography based on the location of certain undesirable animals and animal businesses. However, Adelman's work only examined the nineteenth century while large numbers of animals remained in Dublin city well into the second half of the twentieth century and, to date, their importance to the city remains undocumented by historians and geographers.

While the relationship between animals and the city's public health problems has been acknowledged, the extent and impact of the animals themselves has not been examined. Scholars such as Daly (1982, 1984), Prunty (1998) and Carthy (2015) have examined the public health issues associated with the insanitary living conditions of the poor and identified difficulties posed by animal-borne diseases and wastes without exploring the extent and impact of the animals themselves. Similarly, the central place of the Dublin Cattle Market within the Irish economy has been acknowledged (Clare, 2002; Bell and Watson, 2008; O'Brien, 2021) but the large agricultural economy that existed around it in Dublin City has not.

Using an interdisciplinary approach, animal studies have paved the way for new perspectives on how animals have shaped locations and landscapes (Wilbert, 2009). Domesticated animals serve as 'powerful representations' of places and ways of life and livelihood (Wolch, Emel and Wilbert, 2002). Animal wastes were more than simply disease bearing nuisances, instead they 'carried a creative and regenerative potential' (Atkins, 2016 p.71). Dublin animals' waste products

harboured the capacity to both promote disease in the city when left lying and nurture new life when used as manure for farms and gardens. Robichaud (2010 p.7) used GIS maps to explore how, at the end of the nineteenth century, animal spaces were gradually separated from urban residents making a 'new ordering of space'. The maps of animal spaces created for this research demonstrate how this new ordering of space was much slower to occur in Dublin.

In the first part of this chapter the twenty-first century reader is guided through a series of maps which act as visual aids to demonstrate how omnipresent animals and businesses relating to animals were in Dublin City at the beginning of the twentieth century. Efforts have been made to bring the streets to life and to summon a multi-dimensional image of Dublin City at this time. The aim of these maps is to serve as 'tickets to actual territory', inviting the viewer to 'go beyond what is mapped within them' (Solnit, 2010 p.8) and imagine the sights, sounds and smells of the animals. The maps of the Liberties and Stoneybatter demonstrate the relational nature of businesses and animal housing in Dublin while figure 5 indicates the interdependence between Dublin dairy consumers and farmers as far away as West Cork. Distinctive clusters have been identified and show how the presence of certain animals and industries contributed to the social differentiation of the city.

In this chapter animals have been perceived as products to be bought and sold, producers of food and as units of power to transport citizens and produce around the city. The maps of animal businesses and animal spaces in Dublin have provided the backdrop to the collage framework for this research project. The spatial distribution of animals has been analysed and the widespread presence of animal-related businesses in Dublin City has been established. The animals themselves have been 'placed' in stables, cow houses and piggeries across the city in a series of striking maps which have made the previously invisible, visible.

Land-use patterns have been established and clusters of businesses identified. The interdependence between businesses where the presence of one enabled the presence of another has been noted – the cluster of butchers on Moore Street

developed in tandem with the cluster of slaughterhouses in the laneways close by. Whole interlinked economies existed in the two focus areas – the Liberties had long been home to many of Dublin's most offensive trades and animal sales had long dominated Smithfield/Stoneybatter. Poverty saw many Dubliners purchasing the necessities such as milk and bread on a daily basis resulting in businesses such as dairies being widely dispersed and located within easy reach of all.

While the presence of thousands of animals residing in the city undermines previously perceived ideas around Dublin as an urban environment at the beginning of the twentieth century, it has been shown in this research that the nature of the city has been further shaped by the regular flows of animals and animal products into, around and out of the city. Ireland's rail network allowed Dublin to grow into Ireland's largest hub for animal sales and Dublin port developed as the major gateway for animals being exported. As the location for organisations such as the Department of Agriculture and Technical Instruction (DATI) and the Irish Agricultural Organisation Society (IAOS), Dublin was at the centre of Ireland's agricultural network. Information regarding up-to-date international agricultural practices also flowed out from the capital while events such as the annual Spring Show and Horse Show, hosted by the Royal Dublin Society, saw the best animals Ireland could offer brought to the city to be exhibited.

It has been shown that the presence of large numbers of animals had serious public health implications – from the dangers associated with horse-drawn traffic to bovine tuberculosis which could be transmitted to humans via contaminated milk. However, despite these dangers, no serious efforts were made to remove animals from the urban environment, instead city officials settled for regulating them rather than eliminating them. Just as in other villages, towns and cities across Ireland at this time, practices such as dairying and pig-keeping would remain in Dublin's urban core because there was no real desire to remove them.

4.2 Spatial distribution of animal-related business in Dublin c.1910

4.2.1 Overview of animal-related business in Dublin in 1910

In nineteenth century European and American cities, it was commonplace for residents to keep farm animals in crowded urban environments (Atkins, 2012a). Furthermore, businesses that relied on these animals formed essential parts of the urban landscape (Brown, 2016). In some American cities, localities where animal industries were concentrated were shaped by these clusters with a legacy that continued into the late twentieth century (Robichaud, 2019). Dublin too was an 'anthrozootic city', a city defined by the interactions and interdependence of humans and animals (Miltenberger, 2015) and the spatial distribution of animal businesses in the city reflected this.

By mapping the distribution of butchers in San Francisco, Robichaud (2010) sought to examine how human-animal relationships had been transformed by the segregation and separation over time of animals used for food production. Human-animal relations in Dublin can be viewed through the following series of maps which visualise how the lives and bodies of horses, cows and pigs were intertwined with Dubliners and the city's economic life at the beginning of the twentieth century. Thirty-four categories of businesses listed in Thom's Street Directory 1910 were identified as being directly connected with animals and these naturally fell into four broad categories of animal-related businesses:

> **Category 1**: Those producers and retailers of animal-based food for human consumption such as dairies and butchers.

> **Category 2**. Businesses and individuals which either directly or indirectly supported the horse-drawn transport economy such as animal feed dealers, carriage, cab and car builders and saddlers and harness makers.

> **Category 3**. Companies which manufactured everyday goods from the by-products of animal slaughter such as candle and brush makers.

Category 4. Businesses and individuals which traded in animals or manufactured products utilized for agricultural purposes such as cattle dealers, agricultural implement manufacturers and guano merchants.

Overview of animal-related businesses listed in Thom's Street Directory in 1910 and animal housing recorded in the 1911 census

Type of business	Number	Category
Agricultural implement manufacturers	5	4
Bacon curers & factors	7	1
Bee hives	3	1
Berlin wool warehouses	6	3
Bird preserver	1	4
Bird dealers	3	4
Brush manufacturers	10	3
Butchers	105	1
Butter merchant	11	1
Candles	4	3
Carriage cab and car builders	26	2
Carriage cab and car proprietors	19	2
Cart float and dray maker	1	2
Cattle dealer	39	4
Cattle food	6	4
Dairies	398	1
Egg merchants	10	1
Feather merchants	2	3
Fowl factors	2	4
Furriers	8	3
Glue size and vellum	6	3
Guano merchants	2	4
Hay oats and straw factors	11	2
Hide and skin merchants	4	3
Horse collar and clothing	3	2
Horse dealer	13	4
Horse repository	4	2
Job horses on hire	1	2
Lard refiners	2	1
Leather merchants	12	3
Livery stables	8	2
Manure/fertilizer merchants and manufacture	26	4
Saddlers and harness makers	21	2
Sheep dip manufacturers	2	4

Table 1: Animal-related businesses listed in Thom's Street Directory in 1910.

Information recorded in Thom's Street Directories and the 1911 Census Out-Offices and Farm-Steadings Return (Form B2) provided the opportunity to explore the social and economic life of the city from an animal-centred perspective. More than seven hundred co-ordinates for animal-related businesses were identified for the businesses listed in Table 1, above.

As mentioned in the Methodology chapter, all of the sources used in this research have limitations. Recording errors in Thom's Street Directory were relatively common (Slote, 2019). Also, the number of animal-related businesses (Table 1, above) listed in Thom's Street Directory 1910 is likely to be a conservative estimate because businesses may have chosen not to pay to be included. A good example of that is the huge discrepancy between the number of people recorded in the 1911 census as saddlers, harness and whip makers (254 men and 9 women) (HMSO, 1912) and those who advertised their services in Thom's Street Directory 1910 (21).

Maps are an indispensable tool for documenting how urban configuration shapes social patterns at points in time (Vaughan, 2018) and Adelman (2020, p.15) presented a rough map of concentrations of animals between 1831 and 1901 from Thom's Street Directories where she identified four quarters in the city. Map 5 shows the true scale and distribution of businesses which were based on the exploitation of animals in some way in Dublin in the early twentieth century. Animal businesses were widely dispersed across the city, especially along the main arterial roads into and out of the city. Businesses where animals were exploited for food such as butchers and dairies (Maps 8 and 15) were the most widely dispersed while the other animal-related businesses tended to be located in clusters.

Using digital tools to present information from historic documents such as animals to represent the animal housing rather than dots breathes life into old documents (Robichaud, 2010) and brings the animals out of the shadows. The amount of animal housing shown in Map 6 falls far short of the actual amount of housing and

this became apparent when a building-by-building search of census returns was performed for the Liberties and Smithfield/Stoneybatter (see Maps 12 and 14).

Animal housing within cities tended to have a distinct spatial patterning which Atkins (2012a, p.15) explained as following 'a particular logic' when describing Bermondsey – the area in London with the greatest concentration of live animals and slaughterhouses, which also had the largest concentration in Britain of those employed in processing animals' body parts. These industries tended to cluster, as described below, and the concentration of animal housing in London increased on a gradient moving from west to east (Velten, 2013). In contrast, in Dublin the density of animal housing associated with animal-related business had a definite east-west gradient which is visible in Map 6. This is due to the historical development of the Liberties and Smithfield as distinct functional zones within the city and is discussed below. The density and spatial distribution of animal housing in 1911, illustrated by the size and number of animals, remained roughly the same as that identified by Adelman (2020) and the four quadrants identified in Section 3.2.5 above are visible. Unsurprisingly, because of their importance to Dublin's transport industry as 'oat-powered engines' (Raulff, 2017, p.43), horses were present in all areas of the city.

Animal housing associated with businesses was widely distributed across the city, see Map 7. These maps represent the period just before the age of the horse as the most important unit of transport came to an end and stabling can be seen associated with businesses across the city. Unsurprisingly, few cow houses and piggeries are visible in the south-east quarter – the wealthiest area of the city – but, moving north of the river, the number of cows and pigs increases. The density of cow housing increased in the north-west of the city, specifically along Prussia Street, and was related to the Dublin Cattle Market which is discussed in section 4.2.5 below. The distribution and density of animal housing in the south-west Liberties area is discussed in section 4.2.4.

4.2.2 Clustering of animal-based businesses

Although the mapping of Dublin's animal businesses in 1910/11 reveals their abundance throughout the city, specific patterns are clearly visible where businesses which specialised in the exploitation of animals in some shape or form were congregated together. Clustering of animal-based economies was a common feature in cities: London's 'blood and guts industries' were clustered in the south and east of the city (Atkins, 2012b, p.90); San Francisco's slaughterhouses were concentrated in Butchertown (Robichaud, 2019) and 'economies of agglomeration' saw livery and boarding stables clustered in Boston (McShane and Tarr, 2007, p.106).

The late nineteenth century saw urban reformers internationally pushing for a change in the arrangement of urban space and calling for the removal of certain animal-related businesses such as dairies and slaughterhouses to the outskirts of urban areas. However, although urban residents may have desired for them to be moved, they relied on their proximity (Robichaud and Steiner, 2010). The location of businesses is heavily influenced by transportation networks (Eberts and McMillen, 1999) and Dublin's radial tram network fed customers into the city's commercial core. Examining retailing in Dublin city centre, Brady (2001) noted the benefits that similar businesses can derive from spatially clustering together and how convenience retail operations, such as provision stores, required a modest hinterland population to sustain them if a significant proportion of that population used them frequently. Brady (2021) explored the clustering of higher-order retail and commercial functions in Dublin while noting that, before refrigeration, stores selling lower order goods, including daily necessities such as meat and dairy, were widely dispersed.

Because cities are polycentric rather than monocentric, a city may have several agglomeration clusters (Agarwal, Giuliano and Redfearn, 2012) as agglomeration occurs at different geographic scales (Giuliana, Kang and Yuan, 2019). Agglomeration economies operating within narrow spatial spaces offer benefits at scales from neighbourhood to building and even within buildings (Rosenthal and

Strange, 2003). Perhaps most importantly, Knox (1989, p.17) defined a spatial cluster as 'a geographically bounded group of occurrences unlikely to have occurred by chance'.

Brady (2001) identified two commercial cores in the city – around Grafton Street on the south side of the Liffey, and around Henry Street and Talbot Street on the north side where strong localization effects can be seen. Also within the city were multiple local retail centres (or high streets) where most of the basic requirements for daily life were available to the local population. These streets were well established commercial centres with many of the businesses occupying the same address through several generations (Pearson, 2000). Major provision centres outside of the two core commercial zones included Manor Street in the north-west, Thomas Street in the south-west, Great Britain Street (now Parnell Street) and Dorset Street in the north-east and Camden Street and Great Brunswick Street (now Pearse Street) in the south-east. Distinct boundaries did not exist between the commercial cores and the surrounding areas because of the sizeable population living within the whole of the city. Prosperous areas could rapidly transition to slums and lower order goods such as meat were often on sale within close proximity of high-end retail outlets (Brady, 2014).

4.2.2.1 Dublin's blood and guts economy

The high degree of locational specialisation in Dublin noted by Daly (1984) and Brady (2001) indicated the clear commercial advantage to the clustering of similar businesses and the clustering of businesses retailing animal flesh can be seen in Map 8. Brady (2001, p.301) refers to foodstuffs such as meat and dairy as 'lower-order goods' and noted the presence of retailers of these goods all across the city centre because of the sizeable population living within the city centre. Clusters of butchers were located on the local high streets such as Great Britain Street, Thomas Street, Camden Street and Great Brunswick Street where they stood alongside other businesses providing goods and services such as dairies, grocers, bakeries and spirit grocers, public houses, pharmacies and hairdressers. Clusters even appear in the commercial heart of the city such as on Chatham Street off Grafton Street.

When killing animals in urban space was deemed 'environmentally problematic' at the end of the nineteenth century, the changes in attitudes towards animal slaughter and meat production were mirrored spatially (Mackintosh, 2017; Robichaud, 2019; Towne Hirtenfelder, 2023, p.221), although not in Ireland. Trends internationally had moved towards abattoirs, animal 'disassembly lines' as Cronon (1991) described them, built on a grand scale and located on the outskirts of urban settings so that 'society's growing queasiness and guilt about the killing of animals could be mitigated because it was out of sight and out of mind' (Atkins, 2016, p.86). In response to international trends Dublin Corporation had sought to open an abattoir but faced powerful opponents in Dublin's butchers who successfully lobbied to retain private slaughterhouses (Daly, 1984). Butchers in London had also fiercely resisted the idea of the public abattoir system claiming that the 'oligopoly control of meat and cattle markets' as seen in Paris and Chicago was anti-consumerist keeping the price of meat and offal high and often out of reach of the poorest in society (MacLachlan, 2007, p.251). When the Dublin Corporation Abattoir was eventually opened on the North Circular Road opposite the Dublin Cattle Market, many butchers resisted this centralisation and boycotted it. Animal killing continued in locations across the city well into the twentieth century (Clare, 2002).

One important cluster of butchers occurred on Moore Street on the north side of Dublin City within a stone's throw of Henry Street, one of Dublin's most important high streets (see Map 9). Although Thom's Street Directories have made it easy to locate the retailers of animal flesh, slaughterhouses were not listed and, although they were required to be registered with Dublin Corporation, those registers are not available and comprehensive data on their exact locations during the twentieth century does not exist. Therefore, the spaces allocated to killing animals are harder to uncover but Goad insurance maps from 1893 (Map 10) and 1957 (Map 11) for the Henry Street/Moore Street area have revealed a distinct cluster of slaughterhouses behind the butchers in this area. Because there are numerous advantages to concentrating economic activity in small areas, businesses which complement each other tend to agglomerate economic activity in specific

locations (Rosenthal and Strange, 2003). Adelman (2020) located and mapped places of animal slaughter in the nineteenth century and a multitude of small slaughterhouses can be seen on Goad's Insurance Plan in the laneways between Riddal's Row and Sampson's Lane located directly behind the western side of Moore Street (see Map 10). Four more slaughterhouses were located on Sackville Lane on the east side of Moore Street which joins Moore Lane and is directly to the rear of Upper Sackville Street. This research suggests that it is the high degree of interdependence between these animal-related businesses – where the presence of one enabled the presence of others – which is responsible for the agglomeration of economic activity in the area based on the killing of animals. The large cluster of butchers around Moore Street evolved due to the proximity of a large number of private slaughterhouses in the nearby lanes. Over the course of the nineteenth century, the residential area of small Georgian houses which had lined Moore Street slowly developed into a commercial district and extension of the city market as a new slaughterhouse district evolved in the alley ways to the rear (Pearson, 2000). The agglomeration of fruit, vegetable and fish stalls around the meat stalls formed a permanent marketplace and destination food shopping area. Together with the clustering of slaughterhouses in the immediate vicinity of Moore Street, this allowed for twenty-four businesses selling variations of the same produce in such a small area to remain economically viable.

The area and its inhabitants were shaped by poverty and the economy associated with animal flesh and many residents and visitors appeared largely ambivalent to the suffering of the animals. By the end of the nineteenth century Dublin Corporation had the tools to regulate the slaughterhouses but chose not to implement the by-laws as strictly as many reformers wished (Adelman, 2020). Reports mention the presence of blood and offal on the streets (Andrews, 1979; Foran, 2022) which saw the area plagued with rats all year round and swarms of flies in the summertime (Kennerk, 2012). The sight of dead animals was completely normalised as butchers displayed dismembered animal carcasses with the larger parts hung from hooks while heads rested on counters and barrels brimmed with pigs' feet in brine. The location of the slaughterhouses so close to

Dublin's busiest shopping streets acted as lures for the city's children who were often drawn to the ghoulish spectacle of animal killing (Andrews, 1979) and helped themselves to discarded animal parts such as pig and sheep bladders to inflate and use as balls to play with (Kennerk, 2012). Atkins (2016, p. 82) described London as the 'world's largest market for meat and therefore the main outsourcer of the pain and suffering of the slaughter process'. Arguably the cluster of antiquated slaughterhouses in this small district constituted the main centre for animal pain and suffering in the city for at least the first half of the twentieth century in Dublin.

It is possible that Dublin Corporation viewed the concentration of slaughterhouses and butchers in the Moore Street area favourably at this time. As Otter (2008) notes, the agglomeration of killing (ideally in an abattoir) allowed for increased inspectability. Therefore, the location of multiple premises which required regular inspection in close proximity to one another made the inspector's job slightly easier, while containing the environmental contamination associated with slaughter to a relatively small area in a poor part of the city. The slaughterhouses and butchers were two small parts of the wider ecosystem in this part of the city utilizing the waste by-product of the agglomeration of furniture makers and sawmills etc located in the wider area visible in Map 11 and noted by Brady (2001). This sawdust was used by butchers, slaughtermen and animal keepers to soak up blood, urine and faeces and for animal bedding (Kennedy, 2022) and the relationship between businesses such as furniture makers and butchers is just one small example of how Dublin City functioned as an urban ecosystem and is discussed in detail in the next chapter. Map 11 indicates that animal slaughter remained normalised in the inner city until at least 1957 with cattle lairs, slaughterhouses and butchers still clustering around Moore Street.

Social status dictated human-animal relations in Dublin in terms of the animal flesh that Dubliners could afford to consume. As Brady (2014, p.296) noted, the type and quality of fresh food purchased by Dubliners depended 'where a person stood on the social ladder'. Many people in the capital lived in poverty and semi-starvation (Dublin Corporation, 1908). This poverty meant that many of the city's

residents only ever consumed the cheapest parts of an animal: sheep, pig and cow heads, pigs cheeks, pigs trotters and tripe were popular and the poorest bought the butcher's scraps which were about to spoil as a way of 'converting their few shillings into the maximum amount of food' (Kearns, 1994, p.33). However, as Brady (2014) noted, enough people existed with sufficient disposable income to sustain Dublin's upmarket commercial shopping districts and the row of butchers on Chatham Street, off Grafton Street, catered to the wealthy residents of Dublin's prosperous Georgian quarter located in the south-east of the city. Nevertheless, social status did not determine one's exposure to animal slaughter although the movement to reduce pain and suffering during slaughter depended on the political power and clout held by Dublin's middle-class. This is demonstrated in chapter six when a court case taken by a member of the Dublin Society for the Prevention of Cruelty to Animals in the 1930s against a slaughterman on Chatham Street for employing cruel slaughter methods was successful in instigating political change in Dublin in favour of humane killing methods.

4.2.2.2 Clustering in the Liberties and Smithfield/Stoneybatter

To truly understand how human-animal relations were determined by the spatial distribution of animals in the city it was necessary to examine areas in greater detail which involved a street-by-street census examination. Two areas were chosen for this detailed approach because of the unique concentration of animals and/or businesses located there: the Smithfield/Stoneybatter area because of its long association with livestock trading – the first formal livestock market was laid out in 1665 (Lennon, 2008); as Dublin's oldest industrial quarter, the Liberties had a long association with animal-related offensive trades such as tanneries, manure works and soap and tallow factories (Lennon, 2008). These areas were so shaped by their association with animals or activities relating to animal body parts that street names had evolved echoing them such as Oxmantown Road and Cows Lane near Smithfield and Skinners Alley and Bull Lane in the Liberties.

4.2.2.3 Offensive trades in the Liberties

This research indicates that, as in London, Dublin's 'blood and guts industries' were locationally concentrated (Atkins, 2016, p.90) so that the environmental

impacts caused by human exploitation and consumption of animals were uneven (Towne Hirtenfelder, 2023). Bermondsey's 'unique dependence on animalness' (Atkins, 2016, p.92) was distinctive as a specialist industrial district similar to Dublin's Liberties. After an animal was killed and the meat removed, the 'leftovers' – sitting on a borderland between waste and commodity – were rendered into everyday household objects (Gillespie, 2021). Rendering animal parts in this quarter of the city can be traced back eight hundred years. A portion of Bothe Street was associated with skinning by the 1260s, flesh shambles were recorded on High Street c.1275 while tanhouses were located outside of St Patrick's Gate in 1485 (Clarke, 2002). The development of this quarter of the city as industrial was determined by the physical characteristics of the landscape. Like Bermondsey, which was located on the banks of the river Thames, water from the Poddle, the Owendoher and the Liffey made the Liberties attractive to industry, especially brewing, weaving, and all manner of what are now considered offensive trades – slaughterer, tanner, currier, leather dresser and dyer, wool factor, glue maker and soap maker, all of which utilized the by-products of the meat trade (Clarke, 2002). The concentration of offensive trades in the Liberties had built up forming an interrelated cluster of business which meant that the area also supported the highest concentration of animals in the city (see Map 12). In 1911, this densely populated area still contained the knacker's yard, tanneries, breweries and glue manufacturing – all of which had been historically deliberately located outside of the city walls because of their deleterious effects on the surrounding environment. When all parts of the animal were used to the 'very last particle of the blood, bone, flesh and skin' (Atkins, 2016, p.92), still the offensive smell for which the Liberties was famed remained (Kearns, 1994).

The presence of a substantial supply of water saw the development of brewing and distilling support a prosperous dairy industry in Dublin City. Breweries, distilleries and malting houses are illustrated as green stars amidst the animal housing in Map 12. The productivity of different but complementary industries is enhanced when they cluster together (Bolter and Robey, 2020) and, in the next chapter, the importance of cycling materials within Dublin's agricultural economy is discussed

in relation to the city's urban metabolism. During the nineteenth century the geography of urban dairy production became increasingly associated with the distilling and brewing industries. Waste from brewing and distilling, known as mash, was considered a cheap source of nutrition for city dairy cows and a logical result of a competitive market economy (Robichaud, 2019) which enabled animal keepers to minimise the cost of inputs (Atkins, 2016). Entering the twentieth century, two thirds of Dublin's breweries and distilleries were located here including the largest – Guinness and Jameson (Goodbody, 2014). In 1910 the Guinness brewery was the largest industrial employer in the city, employing more than two and a half thousand people (Daly, 1984).

This research explores how the large volume of waste mash produced in this area was sold to animal keepers in Dublin and beyond and how the availability of this cheap animal feed at least partly explains the prolific presence of animal housing in the area as illustrated in Map 8. Through this relationship animal bodies were turned into 'living and breathing filters for city refuse... as cows turned distillery waste into milk' (Robichaud, 2019, p.21). Over the course of the nineteenth century, cities in America became increasingly reliant on this cheap feed for their cows with disastrous results for both the cows and those who depended on the substandard milk products. Unlike cows in American cities, Dublin's cows spent six months of the year at pasture, and the mash only ever made up a portion of their diet. The domination of the Guinness brewery of the Liberties area allowed for the retention of an economically viable dairy industry in Dublin during the first half of the twentieth century and this is discussed in detail in chapter 5.

This research suggests that the deterioration of Dublin City saw animal keepers take advantage of degraded urban space freed up in the Liberties through dereliction. In the nineteenth century the Liberties formed the focus of Whitelaw's housing survey as having the highest concentration of low value housing in the city. Seven areas had been designated by Dr Edward Mapother as unhealthy in the 1876 public health report which recommended that they be cleared and new healthy housing constructed (Prunty, 2002). Although the first site to be redeveloped by the Dublin Artisans' Dwelling Company was in the Liberties, overall slum clearance

was slow, and many of the human inhabitants continued to live in substandard accommodation well into the twentieth century. Meanwhile, three hundred and ninety-eight stables, eighty-seven cow houses, six calf houses, nineteen dairies, one hundred and thirty-four piggeries, forty-eight fowl houses and forty-two coach houses occupied space unfit for human habitation alongside them according to figures recorded in Form B2 in the 1911 census.

4.2.2.4 The Dublin Cattle Market area

Human-animal relations dominating the Stoneybatter/Smithfield area differed greatly from those across the river in the Liberties area. They were based on the trading of animals as commodities and were reflected in the spatial distribution of animal businesses and animal housing concentrated around the market areas of Prussia Street and Smithfield. The Dublin Cattle Market, which had been in existence in this location since 1863 (Clare, 2002), dominated the area giving the entire district a strong agricultural air. All of the lanes off Smithfield had 'farmyard undertones' (Crosbie, 1981 p.15, 41), the market was a 'rural enterprise in an urban setting' (O'Brien, 2021 p.7) and the sights and sounds of the area around Smithfield resembled a country town which was almost never quiet (Lysaght 1985). Whereas animal businesses and housing were spread across a wide area in the Liberties, animal-related economic activity, and animal housing, was tightly clustered around Prussia Street, Aughrim Street, Stoneybatter and Smithfield Square, see Map 14. As previously noted, this centralisation of animal-related activity was further encouraged in the late nineteenth century by Dublin Corporation's decision to build their abattoir directly across the road from the cattle market (Daly, 1984). A network of businesses supporting the functioning of the market resulted in a clustering of animal-related businesses which also supported a thriving local neighbourhood economy. This network included the animal dealers and those who rented space for the housing of animals on a short-term basis, animal-feed dealers, drovers, horse-shoers and hospitality institutions such as hotels, pubs and formal and informal eateries. These were all made visible through the house by house and street by street research of census documents which recorded occupations and building uses.

Available space for animal housing was central to the functioning of the market. In Map 13, animal housing in the form of cattle pens and sheds can be seen to the rear of many buildings on Prussia Street and right of the church on Aughrim Street. These are recorded as black dots on Map 14. Meanwhile stables can be seen the rear of many of the grand houses built in the nineteenth century on the North Circular Road. Smaller outhouses can be seen to the rear of housing on Aughrim Street, most of which were recorded in the census as fowl houses, although one or two piggeries also existed. Animal housing was largely absent in the terraced housing which lacked a back or side entrance.

Although much of the animal housing in the area served the market, the exploitation of horses for draught purposes in Dublin was still substantial. The volume of horses required to power the majority of the city's transport system in 1911 is evidenced in Map 14 which highlights the stabling in just one small area of the city. For all cities in the late nineteenth and early twentieth century, housing for horses was a significant problem (McShane and Tarr, 2007) and the prolific stabling in this area indicates the importance of the horse to the local and broader economy. The horse provided the physical power which was as vital to most pre-twentieth century cities as machines and motorised transport are today (McShane and Tarr, 2007) and a street-by-street analysis of the area indicated that many local men were employed in moving people and things around the city. Many of the buildings had multiple types of animal housing attached and in Map 14 many of the cow houses are obscured. Cow housing in this area was largely used for the short-term housing of cattle before or after the market rather than for housing Dublin's milch cows.

4.2.5 Dispersed animal businesses

While clustering was an important pattern, certain business types were dispersed due to practical, economic and logistical reasons. Historically, businesses selling inexpensive but highly perishable goods such as milk depended on a regular highly localised consumer base (Atkins, 2010) while retailers of expensive higher order

goods purchased infrequently drew from a much wider consumer base (Brady, 2014).

4.2.5.1 Dairies

The widespread dispersal of dairy retail outlets across Dublin City reflected how heavily dependent Dubliners were on cows' milk for sustenance and Map 15 illustrates how all Dubliners were within easy walking distance of one. Brady (2001) noted the dispersed nature of convenience retail operations which offered products that consumers required daily, and that individual retailers only required a small hinterland to survive. Meanwhile, 'just in time' shopping saw some consumers visit the shops up to three times a day (Brady, 2014, p.296). Milk was a vital source of nutrition for the city's residents, and it is estimated that the per capita consumption of milk in the city was approximately a third of a pint per person per day (Doyle and Smith, 1989). Producers and retailers of fresh milk needed to be located physically close to their consumers because milk spoiled quickly (Robichaud, 2019). Before refrigeration was available, keeping food cool and fresh was difficult and perishable foods such as dairy products, meat and bread were procured by many Dubliners almost daily (Kearns, 1994).

Occupying the ground floor and rear of tenement buildings, dairies can be seen to have lined the main arteries into and out of the city (see Map 15). Having carved out a niche within the community, many of these dairy outlets must have sold relatively small amounts of milk and butter because the local population around Parnell Street (Great Britain Street as it was then) supported ten dairies while fifteen dairies were in business on Dorset Street (Upper and Lower). In the morning and evening, it was common to see children making their way to their local dairy shop with large jugs to be filled with *loose* (unpasteurised) milk (Crosbie, 1981). There was an advantage to supporting the local dairy business and loyal customers were rewarded with the 'tilly' or 'milk for the cat', a small extra portion of milk (Doyle and Smith, 1989, p.14).

The spatial distribution of cow housing and dairy yards does not exactly match the distribution of retail dairy outlets. Outside of the city-centre retail zones around

Grafton Street and O'Connell Street where no cows were housed or milked, many of the dairy businesses were more substantial commercial concerns with stables, cow houses and often a boiling-house attached. In dairies such as that owned by Michael Hayden of 129 Upper Dorset Street, cows were housed, milking took place, sterilization of equipment could occur and the surplus milk not sold on site could be sold from churns on the twice daily horse-drawn milk round (Thom's Street Directory 1910). The distribution of diaries, in the context of all of the other animal-based industries, is unusual in that they were both broadly dispersed across the city while at the same time being clustered along the local high streets.

Roles associated with dairying in Ireland were heavily gendered (Bourke, 1990) but this was less evident in Dublin where women featured prominently in the dairy retail business with thirty-seven percent of the dairies listed in Thom's under female ownership. However, fewer women were associated with cow-keeping, and only twenty percent of the cow houses recorded at the same premises as dairies were actually attached to dairies run by women. Even so, the 1911 census shows that Eliza Hutchinson of 55 Charlemont Street had four cow houses behind her property and Margaret O'Neill of 16 Spitalfields had three.

4.2.5.2 Other goods and services

Unlike 'lower order' goods such as milk and other basic necessities, which were purchased frequently, many 'higher order' goods – those bought less frequently (Brady, 2014, p. 296) – were available in Dublin which either were derived directly from the exploitation of animals or were required for the functioning of Dublin's animal-based economy. These included goods which supported horse transport – carriage, cab and car builders, and saddlers and harness makers as well as businesses which used by-products of animal slaughter such as brushmakers. Though vital to the functioning of the city, the horse-drawn transport economy could only support a certain number of manufacturers and service providers before an individual business' market share shrank to the point of becoming commercially unviable.

The dispersal of carriage, cab and car builders in Map 16 suggests that in 1910/1911 there was little spatial difference in the dependence on horsepower in Dublin City. The expanded horse economy which developed during the nineteenth century saw horses 'penetrate every area of society' having 'spread through the entire culture' (Digard, 2004, quoted in Raulff, 2017, p. 41), and all of those working in the horse economy required training and expertise. Similarly, the shape and layout of the urban landscape reflected the city's reliance on horses (McShane and Tarr, 2007). Although saddlers and harness makers were also dispersed, there was a definite concentration in the south-west quadrant of the city, an area with a high concentration of stabling. Two clusters of saddlers and harness makers existed, one around Dame Street and one on Thomas Street. The latter likely catered for the nearby Guinness Brewery which kept a large number of horses.

It is possible that the saddlers and harness makers on Dame Street supplied the wealthy middle-classes who shopped and/or worked in the vicinity and kept their own horses for pleasure. Dame Street was one of Dublin's prime retail locations where rents were high (Brady, 2001) so premises located here needed either a high volume of low-value trade or a low volume of high-value trade to survive. Callaghan and Company of 13 to 16 Dame Street were a very large outfit which manufactured and sold saddles, harnesses, horse clothing and riding attire and advertised in brochures for the horse show. Frank Byrne of 11 Dame Street had a contract to supply the British military which would have been lucrative. The importance of the former two businesses likely attracted other smaller saddlers to locate themselves in this compact area.

4.3 Dublin: a network hub for Ireland's agricultural economy

Although retail was important in Dublin, the city's animal-based economy extended far beyond the municipal perimeter. The city was not a bounded space, it was an entity 'consisting of a vast geography of dependencies, relations and effects', and the product of processes ranging from 'internal interactions... to global flows' (Massey, 2007, p.14). The city was a 'geographic plexus' composed of

a series of networks and interchanges (Mumford, 1937, p.185). According to Cronon (1991), cities function as network hubs and grow and prosper through the transformation of natural resources from their rural hinterlands. At the beginning of the twentieth century Ireland's economy was dominated by agriculture (Bielenberg, 2014) and improvements in transport infrastructure in the nineteenth century saw Dublin grow as a major network hub for this economy.

Modernising Ireland's transport infrastructure in the nineteenth century allowed rural Ireland shape urban life in Dublin City in 1911, transforming it into a space of flows. The expansion of Ireland's railway network, which radiated out from Dublin, was in a large part driven by the shift away from arable farming towards cattle farming aimed at the export market which propelled the eastward movement of cattle (Miller and Hochberg, 2007). The laying of Ireland's first rail line began in 1831 and by 1883 a reasonably complete system was in place. Compressing time and space (Harvey, 1990), rail transport increased the speed at which goods could be moved which brought rural producers closer to Dublin City markets and consumers. Shrinking travel times between urban and rural Ireland fuelled the growth of the Dublin Cattle Market (Cullen, 2008). So successful was this growth that, by 1917 the Dublin Cattle Market, along with the adjacent pig market, dominated the country's trade in live animals including cattle, sheep and pigs (Clare, 2002).

These animals converged on the city using the roads and rail lines which radiated out of the city and, depending on where the animals were born, their flow towards the city often took place in stages. As still occurs today, many of the calves born in the poorer lands in the southwest, west and northwest of the country were first sold at local markets as 'store cattle' to be fattened (finished) by famers in more fertile counties in the east of the country such as Westmeath, Offaly, Meath, Kildare and Dublin (Bell and Watson, 2008). 'Fat cattle' are finished cattle which have reached a minimum weight and are ready for slaughter. Approximately 200,000 fat cattle, 12,000 milch cows (dairy cows), 300,000 sheep and between 35,000 and 60,000 pigs moved through the Dublin Cattle Market annually in the

first decade of the twentieth century along with a small number of calves, goats and horses (Clare, 2002).

The exploitation of pigs as commodities in Ireland had grown substantially throughout the nineteenth and early twentieth century with a distinct spatial patterning emerging. Ireland's pig industry had benefited greatly from the new rail network which connected cities such as Limerick and Dublin with large hinterlands, ports, each other and the wider world. Pig processing in Ireland was dominated by four large companies in Limerick and 'nearness to the railway station facilitated the transport of pigs inward and finished pigs outwards' (Guiry, 2016, p.26). There were twenty bacon curing facilities in Ireland by 1902, employing over 1,600 people and processing roughly 850,000 pigs annually (Bielenberg, 2014). Although Ireland's bacon curing industry was dominated by factories in Limerick, pig processing in Dublin was dominated by Donnelly's of Brickfield Lane off Cork Street which had been in existence since c.1830 and was purchased by O'Mara's of Limerick in 1903. Donnelly's international trade connections saw bacon processed in Dublin travel as far as Russia, the United States and South Africa (Bielenberg, 2014).

Ireland's agricultural economy was fundamentally based on the ruthless exploitation of animals (Adelman, 2020) and its functioning in Dublin City required a workforce. For example, 195 men and 2 women were recorded as dealing in cattle, sheep and pigs in the 1911 census while 104 men were employed as drovers (HMSO, 1912). These men and women were vital to the functioning of the three distinct markets which existed within Dublin's agricultural economy – one aimed at exporting products, one aimed at rural Irish farmers and one which met the needs of local Dubliners. Just as Ireland's rural economy fuelled economic life in Dublin City, the requirements of a city drove economic life in rural areas (Cronon, 1991) and Dublin City fuelled economic life in rural Ireland on which it depended for the majority of its food supply.
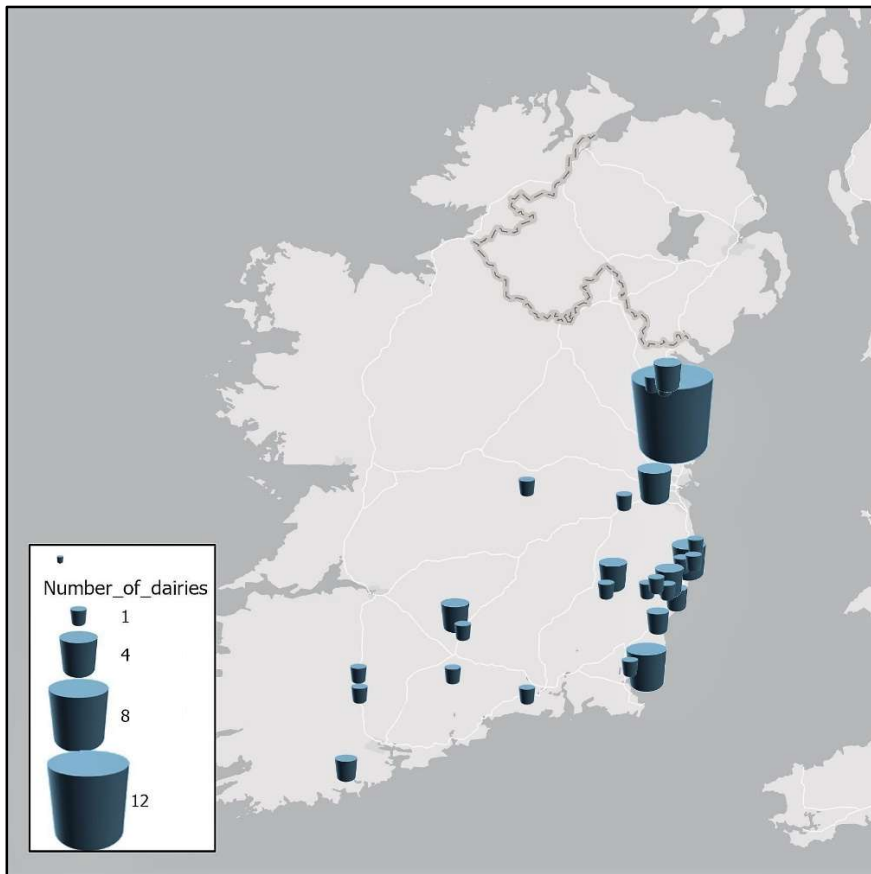
Figure 5: The location of dairy farms in Ireland from where milk was shipped into Dublin city by rail to supplement the Dublin milk supply in 1914. (Dublin Corporation, 1914).

As the densest population hub on the island, Dublin City depended on its hinterland to supply its citizens with food. Rail networks had allowed food networks to grow longer (Otter, 2006) so, although the five thousand or so milch cows living in Dublin City did not supply enough milk to meet the city's requirements, Ireland's extensive rail network allowed perishable dairy products to be transported quickly over great distances and the hinterland from which Dublin City's milk supply was drawn had increased as the network increased. Country milk suppliers did not retail milk in Dublin, instead they sold their milk to Dublin cow-keepers who shipped the milk in and used it to supplement their own supplies (Doyle and Smith, 1989). Figure 5, above, illustrates the distribution of dairy yards which used the rail network to ship their perishable product into the city in 1914. The greatest concentrations of dairies supplying the city were along the eastern seaboard stretching from north of the city to Drogheda in Louth and south to

Wexford. The farms in Meath and Louth were located close to the Great Northern Line which carried 422,900 gallons of milk into the city in that year, and in the Wicklow/Wexford areas along the South Eastern Line which carried 458,934 gallons of milk into the city (Dublin Corporation, 1914). However, the smaller number of dairy farms from Carlow, Tipperary, Cork and Waterford using the Great Southern and Western Railway Company and the Great Western Railway Company were actually sending as much milk into the city as was arriving in on the previous two rail lines – suggesting that individual farms had larger dairy herds and were producing larger volumes of milk.

4.3.1 From rural beginnings to urban endings

The city profited from animals at different stages of their lifecycle and, since few animals were actually born in the urban environment, they entered Dublin City at different ages. There were approximately eight thousand horses in Dublin at the end of the nineteenth century (Adelman, 2020) and, like most cities at the time, horses were woven into 'almost every aspect of daily life' (Brown, 2016, p.104). However, they were not considered ready to work on Dublin's streets before the age of five or six so the first few years of their lives were spent in the countryside. When they were considered mature enough to be trained to cope with the busy city streets and electric trams, they were sold to buyers in the city (Kearns, 1989). Depending on the type of work they performed in the city, and the pressure that it put on their bodies, some horses returned to rural work in the countryside at around the age of twenty. Unfortunately, for the majority of horses, the city was a deadly environment and some horses simply died on the streets while the bodies of others were broken through work and they ended their lives in the knacker's yard (Atkins, 2016). Horses in Dublin were sent to O'Keefe's the knacker's yard in the Liberties to be slaughtered and here their bodies entered the local 'blood and guts' economy which had characterised the Liberties area for centuries. Although there were between twenty and thirty horse-slaughterers operating in London in the second half of the nineteenth century (Atkins, 2016), only three were recorded in Dublin in the 1860s (*Freeman's Journal*, 5 January 1867) and one by the early 1900s (Dublin Corporation, 1908).

The flow of cattle from rural farms to the Dublin Cattle Market often took place in stages. Even so, cattle fulfilled their purpose as providers of meat for human consumption before most horses had even entered the city and were slaughtered between the age of two and three years (Clare, 2002). For most of the cattle arriving for sale into the Dublin Cattle Market it was a one-way street. However, the small trade in younger 'store cattle', born in the west and southwest of Ireland and requiring feeding for a second winter, saw these animals moved to lush pasture in the east of the country for six to nine months before returning to the market as 'finished' fat cattle ready for sale (Bell and Watson, 2008).

After flowing from across the country to a central point concentrated in and around the Dublin Cattle Market, the animals were once more dispersed in different directions and the direction taken by them after the market was determined by the animal buyers and was generally to one of three places – Dublin Port, the Dublin Corporation Abattoir or a private slaughterhouse (Clare, 2002). In the course of the year 1914, fifty victuallers paid for approximately 180 cattle, 3 calves, 520 sheep and 86 pigs to be escorted by drovers across the North Circular Road to the Corporation Abattoir. However, more than twice that number of victuallers (123) had 360 cattle, 18 calves, 950 sheep and 460 pigs driven through the city to the 58 private slaughterhouses (Dublin Corporation, 1914). These animals represent only a tiny percentage, approximately 0.5% of the animals, which flowed through the city annually (see Section 4.3.2 below). The majority of the animals sold at the Dublin Cattle Market were driven down the North Circular Road and to holding pens at Dublin Port from where they were shipped to Britain and continental Europe.

Milch cows, female cows kept for dairying, generally did not arrive in the city before the age of three and their lives only lasted as long as they remained productive. There were approximately five thousand milch cows living in city yards in the first decade of the twentieth century (Dublin Corporation, 1908) and these cows were purchased through the Dublin Cattle Market shortly after calving when their milk was in, demonstrating their productivity (Kearns, 1989). Clare (2002, p.179) suggests that the milch cows bought by Dublin dairymen were kept for a year and

then sold as 'poor quality fat cattle' to meat factories. This practice appears to have been common in cities across Britain and Ireland where urban dairymen purchased the best milch cows at the markets but only kept them until their milk fell below a certain yield and, rather than breed them, sent them to slaughter (*Weekly Irish Times*, 25 March 1911). This practice was considered shortsighted because it had the potential to deplete the country of high-quality breeding stock. However, this research has concluded that this practice would not have been economically viable for all city dairymen and that easily handled animals were kept by city dairymen for multiple seasons and moved between city yards and country pasture for as long as they remained fertile and yielded sufficient milk (Nolan, 2022).

Pigs led the shortest lives of urban livestock and their purpose – as living 'piggy banks' – lasted for between six and seven months. There were relatively few barriers to the financial opportunities associated with pig-keeping as pigs were cheap to buy and cheap to feed and fatten, often consuming waste food that would otherwise go unused (Malcolmson and Mastoris, 2001). Although it was reported in 1900 that the Corporation had 'cleared away all the pigs with great energy and complete success' (Adelman, 2020 p.182), this success was clearly only temporary because in 1911 a count revealed that 571 pig-keepers kept 4,026 pigs in 463 piggeries across the city (Dublin Corporation, 1911). There is no evidence of the 'back lane' producers breeding pigs as suggested by Clare (2002, p.179) and keeping a boar in the city would have been dangerous. Instead it appears that piglets were born outside the city to sows specifically kept for breeding by farmers such as Mrs M. Smith of Curraghtown, Navan (Royal Dublin Society, 1911) and were sold in the pig market in Smithfield to city pig-keepers. They were fattened in the city piggeries until they were between six and seven months, at which time they entered the wider pig/bacon economy being sold either directly to a pork butcher or to one of seven pig factors in the city where their bodies were processed into bacon. Hundreds of thousands of 'fat pigs' reared in Dublin's hinterland moved through the pig market which was adjacent to the

Dublin Cattle Market, the majority of which were exported to Britain through Dublin port.

Perhaps because of their small size and perceived harmlessness (Franklin, 2019), the regular occurrence of thousands of sheep on Dublin's streets moving through the city on their way to the Dublin Cattle Market and then Dublin Port has been overlooked by scholars to date. Sheep were the most numerous livestock animal reared on this island with more sheep than cattle sold through the Dublin Cattle Market, although their monetary value was less (*Irish Times*, 2 October 1911). Averaging sales of 11,000 per week at the beginning of the century, sheep sales kept the market and the shipping companies buoyant during the early summer when cattle sales were at their lowest (Clare, 2002). After the market, the vast majority were exported to Britain while a portion were killed in the private slaughterhouses and the abattoir to feed the local population. Dubliners consumed nearly three times the number of sheep annually as cattle – 540 cattle and 1,470 sheep (Dublin Corporation, 1914).

4.3.2 Dublin port: a gateway for animals and animal-related products

Just as the Dublin Cattle Market was a major focal point for animal commodities flowing into Dublin City, Dublin Port was the major exit point through which animals flowed out of the city. The demand for more meat by Dublin's increasing population and the 'newly affluent' population of Britain (Clare, 2002, p.180) were major factors behind the replacement of the old animal market in Smithfield with the new market on Prussia Street and resulted in the flow of animals across Ireland, into Dublin and out through Dublin's port. Industrial growth in Britain had seen urban populations increase over the nineteenth century going from having one city (London) with a population over 100,000 in 1801 to thirty-six cities a hundred years later (Pooley, 2007). From the 1870s, dynamic industrial growth in shipbuilding, engineering, tobacco manufacturing, flour milling and whiskey distilling in Belfast had seen exports from Belfast port increase dramatically and by 1881 it had replaced Dublin as Ireland's most important gateway for exports.

Despite this, Dublin remained the single most important point of departure for live animal exports from this island followed by Waterford, Rosslare and Cork (Solar, 2006) with up to seven sailings a day taking animals from Dublin to Glasgow, Liverpool and Holyhead between September and March (Daly, 1984). In 1910 alone c.197,000 cattle, 292,000 sheep and 93,000 pigs were shipped from Dublin which accounted for approximately one third of the cattle and half of all of the sheep and pigs shipped out of Irish ports to Britain that year (*Irish Times*, 2 October 1911).

Dublin Port was also an important entry point with flows inwards of agricultural products including machinery and implements, animal feed and veterinary products manufactured in Britain. In the nineteenth century, in an effort to improve feed uniformity and efficiency, agriculture and the animal feed sectors had embraced emerging technologies and mechanization (Coffey *et al.*, 2016). Close to two hundred companies took stands to promote their wares at the 1911 Spring Show in the Royal Dublin Society and the majority of those companies were based in English industrial cities such as Manchester, Liverpool, Birmingham, as well as London. Many of these products were aimed at rural farmers but some products, such as animal medicines, supported animal agriculture in Dublin City as well and were sold to the city farmers through Irish subsidiaries such as the Northern Irish Depot in Temple Bar, agents for Joseph Thorley of London (Royal Dublin Society, 1911).

Ireland's agricultural economy depended on the availability of high-quality fertilizers and, instead of the traditional farmyard manure, Irish fields were increasingly nourished by the bodily wastes and crushed bones of birds and animals who lived thousands of miles away. An economy had existed in Dublin from the end of the eighteenth century around the bones of slaughtered animals which were collected, crushed for manure and the tallow (a fat) extracted (Cooper and Davis, 2004). Over the course of the nineteenth century advances in scientific knowledge identified the chemical compounds required for healthy plant growth and traditional fertilizers were increasingly replaced by specially manufactured superphosphates which depended on imported chemicals (Cooper and Davis, 2004). In 1910, there were twenty-six companies listed as manure and fertilizer

merchants and manufacturers including Thomas Vickers and Sons and William Hooper and Company of 3 Dawson Street who imported guano (bird dung) and bone meal from South America.

Fertilizer and manure manufacturers were designated as offensive trades by Dublin Corporation and manufacturing facilities tended to be located away from densely populated areas although two outliers can be seen in the densely populated Liberties area of Dublin in Map 17. Historically, like Bermondsey in London where 'a virtue' was made of a clustering of trades relating to animal death (Atkins, 2016, p.92) the Liberties contained a network of businesses which processed animal body parts including O'Keefe's the knackers on Mill Street. Here animal bones were ground down and fertilizer manufactured from them (Thom's Street Directory 1910). Similarly, the Ashbourne Company was located on Usher's Quay, a largely industrial area except for the large population of pigs. Meanwhile, companies like Paul and Vincent Ltd, with a fertilizer manufacturing plant at the North Wall beside the port, and a retail premises at Blackhall Place down the road from the cattle market, were ideally placed to exploit Dublin's position as a hub for agricultural activity. Two clusters of manufacturers were located in East Wall and Ringsend, and their locations beside Dublin port minimised transport costs of imported inputs (Cooper and Davis, 2004). Gouldings of East Wall owned the largest manufacturing facility. Fertilizer merchants were dispersed across the inner city but tended to be located close to the quays, important highways into and out of the city.

4.3.3 A hub within a hub – The Royal Dublin Society agricultural shows

The activity of the Royal Dublin Society (RDS) placed Dublin at the centre of Ireland's agricultural economy with the most important agricultural events in the country's calendar drawing thousands of visitors (and animal participants) from across the country and beyond to the annual Spring Show and Horse Show. This Dublin-based society was originally based in Leinster House and was central to national agricultural advancement since its foundation in 1731 (Bright, 2006).

Moving its headquarters and showgrounds to its present location in Ballsbridge in 1881, the agricultural shows, of which the Spring Show and Horse Show were the biggest, added to the animal rhythms of the city. Thousands of animals flowed into Dublin City from around the country annually, with some entrants even travelling from Britain, to take part in the shows which provided space and opportunities for all of those involved in the different areas of agriculture including breeding to meet and do businesses. Furthermore, the Department of Agriculture and Technical Instruction (DATI) and the Irish Agricultural Organisation Society (IAOS) both hosted large stands. DATI displayed the latest technologies and innovations which they were actively promoting at the time while the IAOS advocated for ever increasing cooperation among the agricultural community (Daly, 2002).

This urban agricultural space was vital for the functioning of Ireland's rural economy with the showgrounds providing a meeting place where the buying and selling of thoroughbred animals was facilitated. The brochures from the annual Spring Shows and Horse Shows provide another window into Dublin's agricultural life where some of the city's urban breeders and animal keepers were recorded. These include a D. J. Cogan of 115 Thomas Street Dublin who bred and exhibited in the Aberdeen Angus categories and James Tutty of 12 Lower Baggot Street who bred and exhibited Shorthorn-cross cows and calves (Royal Dublin Society, 1911).

CLASS 106.—HORSE AND COMMERCIAL VAN (Heavy), (for others not eligible to compete in the succeeding Class).—3 Entries.
First Prize, Perpetual Challenge Cup, value £10, and the Society's Silver Medal. Second, Silver Medal. Third, Bronze Medal.

1090. Cherry & Smalldridge, Ltd., Dublin.—Polly. Roan mare; 7 years old; driven by Patrick Cooper.

1091. Anglo-American Oil Co., Ltd, Alexandra Road, East Wall, Dublin.—Rollo. Black gelding; 7 years old; driven by J. Dixon.

1092. Anglo-American Oil Co., Ltd.—Fox. Chestnut gelding; 6 years old; driven by J. Arnold.

CLASS 107.—HORSE AND VAN (Heavy) for Bakers.—12 Entries.
First Prize, Challenge Cup, value £10 10s., presented by Messrs. Millar & Beatty, Ltd., and the Society's Silver Medal. Second, Silver Medal. Third, Bronze Medal.

1093. Johnston, Mooney & O'Brien, Ltd., Ball's Bridge Bakery, Dublin.—Beauty. Dark chestnut mare; 6 years old; driven by P. M'Dermott.

1094. Bolands, Ltd., Grand Canal Quay, Dublin.—Chancellor. Bay gelding; 6 years old; driven by Patrick Maguire.

1095. Bolands, Ltd., Capel Street, Dublin.—Pinnacle. Bay mare; 7 years old; driven by Peter Rahill.

1096. Bolands, Ltd.—Lady Lena. Grey mare; 7 years old; driven by Thomas Nolan.

1097. Charles Bewley & Co., 10 Westmoreland Street and 13 South Great George's Street, Dublin.—Grand Vixen. Black mare; 6 years old; driven by Ernest Pimlott.

1098. Peter Kennedy, 124-130 Great Britain Street, Dublin—Darby. Black gelding; 7 years old; driven by Patrick O'Brien.

1099. Peter Kennedy.—Bob. Bay gelding; 5 years old; driven by John Kelly.

1100. Peter Kennedy.—Dick. Brown gelding; 7 years old; driven by T. Bergin.

1101. Peter Kennedy.—Cork. Bay gelding; 8 years old; driven by T. Mollin.

1102. Peter Kennedy.—Daisy. Bay mare; 7 years old; driven by H. Byrne.

1103. Peter Kennedy.—Kate. Bay mare; 7 years old; driven by O. Dunn.

1104. John M'Watters, Cromac Street, Belfast.—The President. Bay gelding; driven by John C. M'Watters.

CLASS 108.—HORSE (over 14·2 hands) AND DELIVERY CART or VAN, Light (for Victuallers).—1 Entry.
First Prize, Challenge Cup, value £10 10s., and the Society's Silver Medal. Second, Silver Medal. Third, Bronze Medal.

1105. John Tams, 63 Lower Camden Street, Dublin.—Bess. Strawberry roan mare; 8 years old; driven by Thomas O'Neill.

CLASS 109.—HORSE (over 14·2 hands) AND DELIVERY CART or VAN, Light (for Fish or Game Dealers).
First Prize, Challenge Cup, value £10 10s., presented by Messrs. John Hutton & Sons, and the Society's Silver Medal. Second, Silver Medal. Third, Bronze Medal.

[No Entries.]

CLASS 110.—HORSE (over 14·2 hands) AND DELIVERY CART or VAN, Light (for Fruit or Vegetable Dealers).
First Prize, Challenge Cup, value £10 10s., presented by R. B. Freeman Esq., M.R.C.V.S., and the Society's Silver Medal. Second, Silver Medal. Third, Bronze Medal.

[No Entries.]

CLASS 111.—HORSE (over 14·2 hands) AND DELIVERY CART or VAN, Light (for Wine Merchants or Grocers).
First Prize, Challenge Cup, value £10 10s., presented by Thomas Doyle, Esq., Harcourt Street, and the Society's Silver Medal. Second, Silver Medal. Third, Bronze Medal.

[No Entries.]

CLASS 112.—HORSE (over 14·2 hands) AND DELIVERY CART or VAN (Light), for Laundry Proprietors.—7 Entries.
First Prize, Challenge Cup, value £10 10s., and the Society's Silver Medal. Second, Silver Medal. Third, Bronze Medal.

1106. Dublin Laundry Co., Ltd., Milltown, Co. Dublin.—Chance It. Bay mare; 6 years old; driven by James Redmond.

1107. Court Laundry, H. Cecil Watson, Harcourt Street.—Fanny. Bay mare; 6 years old; driven by Charles Flanagan.

1108. Court Laundry, H. Cecil Watson.—Mollie. Brown mare; 6 years old; driven by James Matthews.

1109. Court Laundry, H. Cecil Watson.—Daisy. Chestnut mare; 6 years old; driven by Joseph Robinson.

1110. Court Laundry, H. Cecil Watson.—Emma. Brown mare; [7 years old; driven by William Coales.

1111. Harold's Cross Laundry Co., Ltd., Harold's Cross, Dublin.—May. Dark bay mare; 7 years old; driven by Henry Mulhall.

1112. Mirror Laundry, 7A Dolphin's Barn, Dublin, Mrs. Mangin.—Ruby. Bay mare; 6 years old; driven by Edward Stone.

Figure 6: Competition classes for commercial horse-drawn vehicles listed in the 1911 RDS Spring Show catalogue.

The agricultural shows in the RDS offered Dublin-based companies the opportunity of boosting their public image through exhibiting their workhorses (see Figure 6, above). Horse ownership was associated with prestige and many companies had everyday workhorses along with special 'show horses' which were used for promotional purposes (Brown, 2016). It is unclear whether the horses paraded in the agricultural shows in the RDS were kept exclusively for show, but parades of horse-drawn commercial vehicles were very popular, attracting ninety entries in the 1911 Spring Show. Entrants included brewers Bass and Company Ltd of 49 Upper Sackville Street, luxury furniture makers Millar and Beatty Ltd of 14 Grafton Street and dairyman C. Nugent of 60 Summerhill (Royal Dublin Society, 1911).

4.4 The hazards associated with animals in the city

Over the course of the nineteenth century, the implementation of public health measures was seen as a 'site of emergence' for modernity, and the foul odours and squalor connected with animals and their waste in cities served as a focal point for the politics of 'us' the people versus 'them' the polluters (the animals). This new civic conversation around the dangers posed by productive urban animals would ultimately drive their removal from urban environments (Atkins, 2016, p.27). Furthermore, the implementation of public health measures regarding animal-related nuisances demonstrated the domination of nature through its removal from the humanized urban realm (Harvey, 1996).

Domesticated animals living and working in the city represented a danger to humans on multiple scales and many of Dublin's public health problems were believed to be intimately associated with the presence of large numbers of animals living in the city. Reformers viewed the presence of food animals such as cows and pigs as a hazard requiring elimination rather than control (Adelman, 2020). This was easier said than done however and during the first couple of decades of the twentieth century Dublin Corporation would opt for surveillance and seek to limit the impact of, rather than the number of, animals living in the city. For example, despite the fact that pigs were associated with dirt and slum dwelling, 'an attack on pigs was a war on the poor' (Mizelle, 2011, p.55) and, efforts to remove the 4,500 pigs living in the city highlighted the reliance of many of Dublin's poorest on the pig as a source of income and protection against destitution (Dublin Corporation, 1911).

Cities have been described as 'hell for horses' (Raulff, 2017 p.24) and the coexistence of horse-powered street traffic, trams and pedestrians created a dangerous environment for horses and a major public health hazard for people. Regulations were put in place to control the speed of horse traffic but the horse's powerful flight response, which was a part of its essential nature, could not be regulated for (McShane and Tarr, 2007). The city was modified to accommodate horse-drawn traffic with pavements designed to separate pedestrians from

vehicular traffic (Raulff, 2017) but accidents involving horses were commonplace. In Dublin City the infrastructure required for the new tram network posed a danger to horses as their hooves could get stuck in the tramlines (*Freeman's Journal*, 5 October 1907). Some accidents were relatively minor with both horses and humans escaping serious injury such as when Lord Ardilaun's horse slipped and fell on Suffolk Street (*Freeman's Journal*, 2 September 1911). Others were fatal. On August 19, 1908 the Assistant Under-Secretary Edward Henry Ennis was killed when he was thrown from the carriage in which he was a passenger when his horse slipped in Fitzwilliam Square (*Irish Independent*, 19 August 1908). Runaway horses were also common and trying to stop them was extremely dangerous. One horse severely injured four people as it raced from Merchant's Quay, up Thomas Street before being captured in James's Street (*Freeman's Journal*, 6 April 1908).

4.4.1 Animal wastes and the attempt to keep the city clean

Animal waste products were perceived as posing a greater threat to public health than a physical encounter with an animal. Animal manure has always been an integral part of urban living and in 1489 King Henry VII was reportedly disgusted by the 'swine, rubbish and filth' on Dublin's streets (Clarke, 2002, p.8) while four dung heaps were recorded in Dublin city on eighteenth century maps (Goodbody, 2014). The perception of the 'fly menace' emerged internationally as flies were identified as carriers of disease between animals, animal manure and humans (Atkins, 2016 p.43) and in 1908 Chief Medical Officer Sir Charles Cameron attributed 275 deaths from diarrhoeal disease to this 'fly peril' (Dublin Corporation, 1908). Urban dairy cows were identified as a 'clear danger to public health' (Adelman, 2020 p.189) because of the waste they produced and their identification as carriers of bovine tuberculosis (discussed below). Horses were also accused of polluting the environment although their manure was still regarded as a low value saleable commodity (Brown, 2016). Dublin was similar to Whitechapel and Bethnal Green in London where much of the population was poor and 'sustainable livelihoods (such as pig-keeping) could not be taken for granted' (Atkins, 2016, p.44). As a consequence, pig-keeping was complained about but tolerated (Dublin Corporation, 1911).

One problem for those who would improve public health was that many of the animals living in the city did not remain stationary, instead they moved around the city, and were indiscriminate in where they deposited their droppings. However, although they were amongst the chief producers of nuisance waste on the city's streets, horses did have a role in improving urban sanitation (Adelman, 2020). By the early twentieth century 150 horses were employed by Dublin Corporation's cleansing department for street scavenging and the principal streets were cleansed six days a week (Local Government Board for Ireland, 1900). The resulting three hundred tons of city waste was loaded on to the Corporation barge, named the Eblana, and taken out to sea and dumped.

Because animal dung comes in different forms, each presented distinct problems which required individual solutions. Where horse dung is solid and relatively easy to handle and pile up for removal, cow dung is more fluid and cannot be piled up. To deal with this a series of Dairies, Cowsheds and Milkshop Orders in the late nineteenth century required that all cowhouses have a clean water supply so that the dung could be washed down the drain (Atkins, 2016). Cowhouses and dairies were required to be kept spotlessly clean and were subject to regular inspections by Dublin Corporation's Sanitary Department who had the power to impose fines or even shut down production. In 1911 inspections of the dairy yards resulted in eighteen summonses being issued for failings such as dirty cows, dirty milk vessels, dirty clothing and failing to remove manure (Dublin Corporation, 1911).

The dangers associated with animal waste were experienced unevenly by the different classes and the waste produced by animals flowing into the city posed less of a threat than that produced by the animal residents. By regularly cleansing the main thoroughfares in the city, Dublin Corporation effectively took charge of removing the waste produced by the Dublin Cattle Market-bound animals who flowed into and around the city on a weekly basis. Similarly, much of the waste produced by the city's horses moving around the city streets on a daily basis was removed by the corporation scavengers. However, many streets, lanes and courts where the poorest lived had not been taken in charge by the Corporation and were cleansed sporadically rather than systematically. It was also in these spaces that

much of the city's animal housing was located so it was from these spaces that the greatest threat emanated. Resulting from inspections carried out by Dublin Corporation sanitary staff in 1912, 3,657 yards and external premises required cleansing while 276 piles of manure required removing (Dublin Corporation, 1912).

Dublin Corporation by-laws had been enacted to 'enforce distance between humans and animals and animal wastes' but this had proved unsuccessful (Adelman, 2020 p.181). Attitudes towards pigs in Dublin caused a rift between the Chief Medical Officer Sir Charles Cameron and the Public Health Committee (*Irish Independent*, 5 December 1911) who voted to allow piggeries to stay despite Cameron's insistence that they posed a direct risk to public health. Three quarters of the pigs housed in Dublin City in 1911 were housed within fifty feet of a human dwelling and the conditions in which pigs were kept varied depending on their location. On the northside of the city 67% of the yards were considered satisfactory, 48% of them had manure collected daily and 28% of them were more than forty feet from the nearest dwelling. Meanwhile, on the southside, 65% of the yards were considered unsatisfactory, 48% of them had their manure collected once a week and only 3.5% of them were more than forty yards from the nearest dwelling (Dublin Corporation, 1911). Taken together, these measures suggest that conditions in piggeries were substantially worse on the southside of the city than on the northside. Similarly, many of the piggeries on the southside were situated in very close proximity to nearby dwellings and much of the manure was only collected once a week. Sitting manure provided an ideal breeding ground for flies and so the local vicinity is likely to have experienced a more significant fly problem on the southside than on the northside.

4.4.2 Attempts to control diseased animals and animal products

Cows and their milk threatened public health through the invisible transfer of bovine tuberculosis, a highly infectious zoonotic disease. Whereas flies and manure had been linked with the spread of diarrhoeal diseases such as typhoid (Biehler 2010), the discovery of bovine tuberculosis was one of the most significant events that led to changing attitudes towards the cow because it made meat and

milk a 'potent source of danger' (Adelman, 2020, p.188). Bovine tuberculosis involved infection through the ingestion of the bovine tuberculosis bacillus largely through milk obtained from a tubercular cow and led to non-pulmonary forms of the disease (Jones 2001). Tuberculosis was considered to be an 'environmental' disease and its remedy involved altering an environment into one 'conducive to health' (Jones, 2004). However, unhealthy environmental conditions such as 'poverty, unhealthy dwellings, badly ventilated factories, damp soil and alcoholism' (*Irish Independent*, 3 October 1905), which made the human body vulnerable to the tubercular bacilli, were rife in Dublin City. Infants and children were especially vulnerable to infection by the bovine tuberculosis bacillus (Kurlansky, 2018). According to Waddington (2006, p.4) at the turn of the twentieth century, bovine tuberculosis was only ever perceived as a public health issue and 'no attempt was made to define bovine tuberculosis as an animal health or agricultural issue'. However, activists in Ireland working to educate the public about the dangers posed to human life from tubercular cows, meat and dairy products did try to equate the two. Calls were made to recognise that the physiological requirements of healthy stalled animals were broadly similar to those required for a healthy human life (Women's National Health Association of Ireland, 1908) and for doctors and veterinarians to work together to reduce transmission (*Irish Times*, 4 March 1909).

The danger posed by tubercular animals was experienced on a national scale, but the danger posed to Dubliners was perceived by the Dublin sanitary authority to originate from outside the boundaries of the city. Although the Dublin authorities had 'centralised their control over cattle' through numerous by-laws (Adelman, 2020, p.190), they had little control over the animals and animal products that continuously flowed into the city. Furthermore, reformers in Europe and America increasingly characterized markets as centres for the communication of infectious disease between sick and healthy animals (Claflin, 2018). Tuberculosis had become a notifiable disease under the Tuberculosis Prevention (Ireland) Act, 1908 but the compensation payable to the owner of a diseased animal was not considered sufficient to encourage the surrender of infected animals (Dublin

Corporation, 1910). Inspectors from Dublin Corporation's veterinary department routinely attended the Dublin Cattle Market and removed any obviously tubercular animals but invisibly infected animals mingled with healthy animals on the roads, trains and yards around the market area silently spreading the disease (*Freeman's Journal*, 16 December 1913).

Before WWI, bovine tuberculosis was 'steadily diminishing as an urban problem' in Britain and America (Jones, 2004) in that the disease was much less prevalent in animals living in the city that those living in rural districts. Despite the poor conditions in which Dublin cows were traditionally housed, an investigation of the city's five thousand milch cows performed in 1898 inquiry had found only one cow to be visibly tuberculous (Royal Commission on Tuberculosis, 1898). However, Dublin's thirst for milk and its position as a network hub for the live animal trade ensured its boundaries remained permeable to the disease. Apart from 'strippers', dairy cows which had ceased producing milk, and some pigs, all of the beef, lamb and bacon sold in Dublin had originated from outside the city while Dublin milch cows only produced c.50% of the capital's annual milk requirements.

In an effort to protect humans from this zoonotic disease, the bodies of animals were examined multiple times during their lives and after death as sanitary officials looked for 'corruption characteristic of tubercular infection' (Jones, 2004, p.134). In Dublin, veterinary inspectors visited city dairy yards examining milch cows for signs of tuberculosis. The abattoir was visited at least daily by the veterinary inspector and slaughterhouses received 4,588 visits in 1908 (Dublin Corporation, 1908). Butchers buying animals to slaughter and sell as meat within the city often unknowingly purchased infected animals at the Dublin Cattle Market and it is highly likely that more infected meat entered the food chain through private slaughterhouses than through the abattoir. Although more animals were slaughtered in Dublin's private slaughterhouses than in the Dublin Corporation Abattoir, substantially more meat was seized as diseased at the abattoir. In 1908 alone 145 carcasses of oxen (95,591 lbs of beef), were identified as diseased while only two carcasses were noted in private slaughterhouses (1,356 lbs) (Dublin Corporation, 1908). Both of these animals were well nourished and had shown no

indication of disease while living, indicating the often invisible nature of this disease.

4.4.3 Difficulty ensuring a clean milk supply

Sanitary officials in Dublin were frustrated in their attempts to regulate the quality of Dublin's milk supply because of the continuous flow of milk into the city from outside the jurisdiction of the municipal authorities. 'Pasteurian science dictated that a food chain was only as clean as its dirtiest link' (Claflin, 2018) and Dublin's 'milkshed' (Jones, 2001) was large and included farms across Leinster and North Munster as illustrated above in Figure 5. Sanitary officials suspected that some dairies and slaughterhouses had deliberately relocated outside of the city boundaries to avoid the rigid supervision employed by the Dublin sanitary authority (Jones, 2001). Section 16 (2) of the *Tuberculosis Prevention (Ireland) Act, 1908* required that a sanitary inspector wishing to inspect a yard or sample milk from a cow outside their jurisdiction would require an order from a justice within the jurisdiction. Unsurprisingly these were rarely forthcoming. To counter this, sanitary inspectors were regularly posted at the main rail hubs through which milk flowed into the city, meeting the morning and evening trains carrying milk into the city and admonishing the dairies with fines if the incoming milk was not up to scratch (Doyle and Smith, 1989). Two hundred and forty-three inspections of incoming milk were carried out at Dublin train stations in 1914 alone (Dublin Corporation, 1914).

The lives and health of milch cows living within the city were tightly regulated and closely monitored. The Dairies, Cowshed and Milkshops (Ireland) Order of 1908 had put local authorities in charge of the supervision of the production and sale of milk and the prevention of its contamination. Dairy yards were vigilantly inspected with 12,721 visits made in 1908 alone and 'immediate action' was taken if a case of infectious disease was notified from a dairy within the city boundary (Dublin Corporation, 1908). The 1908 order encompassed all that was necessary to ensure that cows would be housed in sanitary, lighted and ventilated byres which were cleaned daily and supplied with fresh water; that cows' udders and flanks were cleaned before milking and that cows with tuberculous udders were quickly

identified; that milk was protected from contamination by impure air and surroundings or infected people (*Irish Times*, 30 November 1911).

Milk had proven to be a disease vector that could traverse the geographic barriers between urban and non-urban areas and the biological barriers between human and non-human rendering it no longer an 'emblem of purity' (Jones, 2001, p.147). Because the solid contents of milk varies by season, and even by animal, it was difficult to standardise so it was easily manipulated and watered down without suspicions being raised (Atkins, 2010). Before tight regulations regarding the accepted 'natural' composition (and variation) of milk were introduced, there was widespread adulteration of milk for profit by cow-keepers and dairy sellers who exploited the uncertainty and confusion around this natural product (Atkins, 2010). In Dublin, when the milk left the dairy and passed into the hands of the milkseller (often the same person) it fell under the jurisdiction of the food and drug acts. The milk-related offenses under these acts largely referred to milk being adulterated either by the addition of water or the removal of fat. These offenses were extremely common in Dublin with more than 170 cases prosecuted in 1914 alone with many milk sellers facing growing fines with each repeat offense (Dublin Corporation, 1914).

4.5 Animals in Dublin c.1911

At the end of the first decade of the twentieth century, human-animal relations in Dublin appear to have become mired in a state of stasis in comparison to other European and American cities which had witnessed the dynamic removal of urban animals (Atkins, 2016; Brown, 2016; Robichaud, 2019). Indeed, the new animal city predicted by Adelman (2020) where pigs existed only in large piggeries, dairy cows and private slaughtermen were consolidated or pushed to the periphery and horses replaced by motor technology failed to materialise until the second half of the twentieth century. The next sections explain how human-animal relations in Dublin City remained much as they had during the latter half of the nineteenth century throughout the first two decades of the twentieth century.

4.5.1 The endurance of rural ways in urban life

The 1911 census revealed that animals such as cows, pigs and horses were living in cities, towns and villages across Ireland. This research suggests that their presence in Dublin City was accepted as normal by the continual flow of migrants from rural Ireland who shaped the social and economic life of the Dublin City while normalising and perpetuating the pre-existing human-animal relations. Urban areas have provided stronger economic prospects than rural ones, encouraging rural-urban migration (Harris, 2021) and once in the city migrants often choose to retain their rural customs. Every year thousands of people flocked to the capital swelling the population of the city from 291,190 in 1901 to 304,802 in 1911 and the density to thirty-nine people per acre (Dublin Corporation, 1911). For those who arrived with money, a 'certain transfer of capital took place from agriculture to city businesses' (Daly, 1982, p.127). Andrews (1979, p.19) recalled how at the Holy Faith Convent in Dominick Street he was thought by nuns from the country and surrounded by 'the sons and daughters of prosperous butchers, grocers, publicans and junior civil servants' all from rural Ireland. For those arriving without money, all they had was their country ways (Smith, 2022).

The presence of animal-based agricultural practices in the city meant that many of the rhythms governing the city closely resembled the natural rhythms of rural life due to the biological needs and routines of Dublin's animals. For example, for those who kept animals, life involved preparing the twice daily feed as well as clearing out the waste. In the morning inner city residents were awoken by the sounds of the horses' hooves on the cobbles (Kearns, 1994). In the evening, tea-time was heralded by the passing milk cart or the trip to the dairy (Crosbie, 1981). Twice a week wagons arrived at the hay market weighed down with hay and straw and on a weekly basis animals held up the traffic as they made their way from the various train stations to the market in Prussia Street and then through the city to the various slaughterhouses or along the North Circular Road to the North Wall (Clare, 2002). In Spring and then in Autumn most of the city's cattle made their way along the main arteries which led out of the city to fields rented for the grass growing season (Doyle and Smith, 1989). Other regulars on the streets included

the hay carts, carts carrying the steaming spent grain for fodder, the collectors of manure – both private and those employed by Dublin Corporation's Sanitation Department, the swill man and the rag and bone man, all of whom performed useful roles by recycling the city's waste (Johnston, 1985).

At the beginning of the twentieth century cow-keeping and dairying was normal in many cities in Britain and Ireland although Dublin had by far the greatest concentration of cows per head of population (Dublin Corporation, 1914). The Dublin Cow-keepers and Dairymen's Association (DCDA) were powerful advocates for maintaining the status quo in the city and they had vociferous representatives within Dublin City Council such as DCDA President Joseph Hatch.

4.5.2 Thwarted attempts to remove pigs

Pigs too were common residents in Ireland's other cities, towns and villages. As discussed in section 4.4.1, above, when Dublin City Council introduced a new by-law in 1911 prohibiting the keeping of pigs within fifty feet of a human dwelling, so loud were the protests from the city's piggery owners, that a report into the keeping of pigs in the city was commissioned to ascertain the full extent of their distribution (Dublin Corporation, 1911).

For centuries pigs had been free to roam cities as scavengers, keeping the streets clean by consuming discarded food waste (Miltenberger, 2015). By the nineteenth century pigs in Britain and America were increasingly seen as 'undermining efforts to improve the city' (Mizelle, 2011 p.54) and this resulted in their confinement and removal from public view (Robichaud, 2019). However, three important factors ensured that large numbers of pigs remained in Dublin's inner city. Firstly, pigs' bodies possessed the unique ability to produce 'protein and fat more rapidly and in higher ratios than any other form of livestock' (Miltenberger, 2015, p.266). Fed on discarded household scraps, they were cheap to raise, and their bodies could be rapidly transformed into income for some of the poorest in society. Secondly, in the age before refrigeration, their preserved flesh in the form of bacon was sought after both nationally and internationally (Guiry, 2016). In 1911, pig produce worth £7.6 million was exported from Ireland representing a little over a quarter of the

country's total exports (*Irish Times*, 24 September 1912). Thirdly, Dublin City Council's Public Health Committee recognised their importance to the local economy and the detrimental effect that removing this vital source of income could have on some of the city's most economically vulnerable citizen's (*Irish Times*, 5 December 1911). Map 18 indicates the proliferation of piggeries in the north-east quadrant of Dublin City in 1911.

With the publication of the report on piggeries, the Public Health Committee was forced to weigh up the danger that the presence of the piggeries posed to the city's health versus the economic harm that removing them could do to some of the city's poorest residents. Three quarters of the piggeries were judged to lie within fifty feet of a dwelling and it was estimated that removing them would 'entail enormous hardship on nearly one thousand families, and so deprive these honest, hard-working, industrious people of their principal means of earning a livelihood (*Irish Times*, 5 December 1911). Acknowledging that most of the piggeries were owned and run by individuals rather than businesses and allowing pigs to remain within fifty feet of a dwelling, largely removed their status as a 'nuisance' as defined under the Public Health (Ireland) Act of 1878.

The number of pigs recorded in the city in 1911 at c.4,500 (Dublin Corporation, 1911) was remarkably close to that recorded in 1880 suggesting that thirty years of effort by sanitary reformers to remove pigs had little impact on how residents in Dublin's city centre viewed them. So, contrary to Adelman's (2020, p.157) suggestion that the number of pigs in Dublin City 'went into a decline after 1874', instead it seems that the number remained relatively steady at between four and five thousand. Maintaining this population required a continual flow of piglets into the city from surrounding counties where they were sold to Dublin pig-keepers through the pig market. When they were ready for sale they rejoined the local agricultural economy in several ways: pig dealers acted as middlemen buying from pig-keepers and selling to the bacon factories; pig dealers purchased them and exported them; they were brought to the pig market and sold to local pork butchers and slaughtermen (Guiry, 2016).

The piggeries shown in Map 18 provide a glimpse into how numerous and densely packed piggeries were in one of the poorer areas of the city. According to the report, the majority of the piggeries were situated on the north side of the city (63%) although the largest piggery, with 110 pigs, was on Island Street in the south city (Dublin Corporation, 1911). The vast majority of the piggeries held between three and five pigs (170) and six and ten pigs (148) although many of the piggery premises housed pigs owned by multiple different owners. Pig-keeping provided an income for women such as Christina Rowley, Margaret Campbell and Margaret Mills who all kept pigs at 23 Summer Place. In total, 39.5% of pig-keepers were female and sixteen of the largest piggeries in the city were owned by women.

Poverty was the single biggest driver of pig-keeping in the city and the 1911 pig census indicates that pigs were present in all but the wealthiest areas of the city in the south-east quadrant. However, the densest locations for piggeries were in the Liberties area and in the north-east quadrant, pictured in Map 18. While the presence of large numbers of pigs in the Liberties can partly be explained by the large number of breweries in the area (see Map 12), the same cannot be said for the north-east of Dublin (although there was the Jones Road Distillery in Drumcondra). A series of hygiene maps and population density maps of Dublin City prepared for the Dublin Civic Survey Report in 1914 show how the majority of streets and housing in the north-eastern and south-western area of the city were designated as unhealthy and in need of replacement (O'Rourke, 1925). These areas contained some of the most densely populated streets and substandard housing in the city. Comparing the most unhygienic areas in Dublin identified in the report (see Map 19) with the areas identified in this research as the location of large concentrations of animal housing (see Maps 6 and 18), it is likely that the presence of animals substantially shaped the health of those environments.

4.5.3 Nearing the end of the 'age of the horse'

Despite the economic advantages of motor vehicles over horse-drawn transport, on the whole Dubliners dependent on horses did not appear to be in any rush to adopt the new technology. In some areas of urban life the adoption of electric–

powered transit occurred rapidly (McShane and Tarr, 2007) and Dublin's tram system had been entirely electrified by 1893 (Johnston, 1988) with the tram mares and geldings auctioned off over a period of months (*Irish Independent*, 31 January 1893). Although the number of horses was slowly decreasing in Dublin City they still transported the vast majority of goods around the city with the horse-drawn transport industry employing nearly four and a half thousand people (His Majesty's Stationary Office, 1912). Forty-five carriage, cab and car builders and proprietors had advertised their businesses in the 1912 edition of Thoms' Street Directory and the 'New Buildings Returns' section of the public health reports continued to report on the erection of new stabling across the city in 1913, 1914 and 1915. New stabling was installed in Arbour Place, Dawson Street, Grattan Crescent, Grand Canal Street, Camden Street and Paradise Place indicating that it was not foreseen that the number of horses living in the city would change substantially in the medium-term. In fact, some businesses such as dairymen, coal companies and bakeries, who used regular routes, would refrain from replacing their horse-drawn vehicles for decades because of the advantages of working with horses – a horse could memorise a delivery route for example. The horses' cognitive abilities could save delivery men money by substituting the 'intellectual labour of the horse... for the intellectual labour of a human helper' (McShane and Tarr, 2007, p.175).

4.6 Conclusion

By revealing the extent and spatial distribution of animal spaces including animal housing and animal-related business activity, this chapter challenges previous conceptions of the nature of Dublin City as an urban environment. What has emerged is the vision of a city which was a rural/urban hybrid. Mapping animal spaces revealed how the presence of these spaces profoundly shaped the character of the city: distinct zones were identified based on the dominant functions of the animals residing there and the dominant type of animal-related commercial activities carried on. The close study of the two focus areas has shown how the markedly different purposes and functions of the animal spaces created districts which differed from one other socially, economically and

physically: the prosperous north-western quadrant was dominated by agricultural activity related to the newly constructed Dublin Cattle Market which provided employment directly and in the many service industries which supported the functioning of the market. Meanwhile, the Liberties area in the south-west of the city was shaped by animal-related offensive trades and can be compared to the Bermondsey area of London. The physical environment contained much dereliction and some of the poorest quality housing in the city while the industries degraded living conditions for the residents.

Human-animal relations were changing in modernising cities in Europe and America at this time and reformers such as Sir Charles Cameron were anxious that Dublin City should follow suit. However, the concentration of infrastructure supporting Ireland's agricultural economy in Dublin City such as the Dublin Cattle Market and Dublin Port, along with governmental organisations such as DATI and IAOS and the RDS, embedded the city within this agricultural economy. Processes such as the continual influx of rural migrants into the city and brewing which provided urban animal keepers with cheap feed, further normalised, enabled and entrenched agricultural practices within the city. At the same time, as will be expanded upon in the next chapter, powerful lobby organisations working on behalf of slaughtermen and dairymen, worked hard to retain the status quo in the face of modernising forces.

This chapter has shown how Dublin City as a rural/urban hybrid can be best understood when viewed as a space of flows with animals, animal products and other agricultural-related commodities linking the city with rural Ireland and beyond. That the city's boundaries were entirely permeable to flows made it impossible for Dublin Corporation to fully implement modern public health measures independently of other local authorities. This had a particularly detrimental effect on the health of Dublin's poorest tenement dwellers. This idea is explored in the next chapter when Dublin authorities tried to ensure that the city's milk supply was clean and disease-free.

Furthermore, in the next chapter the ways in which Dublin City functioned as a rural/urban hybrid is investigated through viewing the city as an urban ecosystem with an urban metabolism. Through this concept, the urban system can be examined on multiple scales and the place of animals in the system evaluated more deeply. It will be shown how and why, between c.1911 and 1935 human-animal relations in Ireland changed in reaction to political and social movements and events. WWI saw the hyper-exploitation of horses to support Britain's war effort which reduced the number available to work in Dublin City. This period also coincided with an evolving understanding of the nature of dirt and disease which inscribed cows as dangerous and their milk potentially deadly. Finally, the early 1920s coincided with a new period in Ireland's history where Dublin City was optimistically reimagined. Suburbanisation was underway and the hollowing out of the city had begun, with serious implications for those human and animal residents left behind.

Chapter 5: Dublin's animal economy

5.1 Introduction

Here it is shown that, between 1914 and 1936, the changes that occurred regarding the place of animals within Dublin's ecosystem were directly related to the turbulent political environment and to progress in scientific understanding. Among the outcomes of these changes were fluctuating flows of animals through the city, a reduction in horses and cows living in the city and an increase in pigs during this time.

Between 1914 and 1922, against the backdrop of international political turmoil, Ireland experienced a political revolution which resulted in a complete transformation in governance. The country was split in two with six counties forming Northern Ireland and remaining as part of the United Kingdom while the other twenty-six counties were declared as the independent Irish Free State. These political changes resulted in a reorientation of networks but, to date, no study has sought to understand Dublin as a 'space of flows' networked into the rest of the British Empire and beyond at that time. The new Irish Free State focussed on fostering agriculture and while Ó Gráda (1994, p.390) described cattle exports as 'the best barometer of rural prosperity', he failed to comment on the importance to the city itself of the flow of live animals through Dublin City. Although independent, the new Irish Free State would remain closely aligned with the UK and labour and capital markets in both countries remained 'strongly integrated' (Bielenberg and Ryan, 2013, p.9). However, by the early 1930s, in line with the trend towards protectionist economic policies in much of Europe (Ó Gráda and Hjortshøj O'Rourke, 2021), the Irish Free State would enter a trade war with Britain which would once again see networks and flows involving animals and animal products being modified.

Structurally, Dublin City was impacted by the outbreak of WWI, the Irish Revolution and the Civil War, and its evolution at this time has been examined by scholars such as McManus (2021, p.69) who recorded that the political circumstances

inhibited the effective functioning of local government and how 'something approaching anarchy existed from 1915-1922'. Anarchy had previously erupted in the city in 1913 when James Larkin had called an all-out industrial strike which resulted in up to 20,000 men locked out of their jobs for almost six months. Although little has been recorded about animal handlers and keepers in Dublin at this time, Dickson (2014, p.433) noted that for some businesses the transformation from horse-powered vehicles to oil-powered vehicles was hastened by the lock-out and strike as 'wholesale carters turned to mechanical alternatives and began to invest in lorries'. Forrest (2011) examined how the cultivation of allotments in Dublin was promoted to increase the city's food supply during the two world wars when imported food supplies were threatened but, to date, no studies have been made to ascertain if the presence of animals such as cows and pigs in urban environments increased or decreased during these times of international conflict.

The flexibility of the 'collage' framework chosen for this research proves its worth in this chapter as it can be 'expanded or contracted, and new areas brought into the frame' (Freeman, 2020 p.6). Between 1914 and 1936 the research area – the collage 'frame' – grew as the city boundaries enlarged in 1930, changing networks and flows within the city. Furthermore, the framework offers an 'openness to spontaneity' which allows for an adaptive approach 'depending on what information was available' (Freeman, 2020, p.8). The political and economic instability between 1914 and 1929 resulted in a dearth of official records during this time, which here have been substituted with other sources such as newspaper reports and the minute book for the Irish Clean Milk Society (ICMS, 1926).

Adding to the 'collage', multiple approaches are used to understand the nature of Dublin City and changing human-animal relations in it. In the previous chapter, animal spaces were highlighted through mapping. Here, the analogy of Dublin City as an 'ecosystem' is examined and its functionality is explored through the concept of 'urban metabolism' – the technical and socioeconomic activities that take place in cities including growth, energy production, and waste removal (Kennedy, Cuddihy and Ebgek-Yan, 2007). While urban metabolisms are often measured in

terms of nitrogen cycling or carbon cycling, they can also be examined qualitatively by analysing the purposes and effects of the flows of energy and materials into, around and out of the city. The latter is the approach taken here. Changes that affected the animals in Dublin City's 'ecosystem' relating to Dublin's position within the British Empire during WWI, partition and the economic war with Britain are analysed using this metaphor.

Unfortunately, the flow of animals and their products into the city to be metabolised had the unintended consequences of enabling the movement of pathogens into the city. The second part of this chapter focuses on the progress of the clean milk movement in the 1920s and 1930s functions as a case study of flows, of relationships between urban Dublin and rural Ireland and of changing human-animal relations. The important place of milk in Dublin's urban metabolism is examined in depth to illustrate the complete interrelatedness between Dublin City and its hinterland, and between the health of Dubliners and the health of the national herd. When it emerged that bovine tuberculosis could spread from cows to humans through their products, the animals and the products from their bodies became threatening *(*Atkins, 2010) and public health messaging shifted from the dangers posed by visible dirt to invisible bacteria (Kurlansky, 2018). Meanwhile, the 'morality of the milk trade's attitude to its product' remained questionable and sanitary officials struggled to ensure a supply of 'honest' unadulterated milk (Atkins, 2010, p.137). Like many countries in Europe at the beginning of the twentieth century, Ireland was battling a tuberculosis epidemic. Going back to the early 1900s, reformers such as Sir Charles Cameron, Lady Aberdeen and Dr Joseph Bigger were aware of the most up-to-date scientific and medical innovations through their contact with international networks along which knowledge flowed (Carthy, 2015). The gaze of Dublin Corporation's sanitary authority on Dublin's cows intensified but the ultimate breakthrough would come in 1926 when many of Dublin's powerful elite came together to form the Irish Clean Milk Society. From that moment, members relentlessly pursued the reform of the conditions in which milk was produced until the Milk and Dairies Act, 1935 was introduced.

The large gap in official Public Health Reports between 1915 and 1929 means that newspaper reports were relied on as the principal sources of information between 1916 and 1926 when the Minute Book for the Clean Milk Society began recording progress. The Society also requested that the *Irish Times* and the *Irish Independent* printed in-depth reports of all of the public health meetings held by members of the society. These newspaper reports proved very effective in communicating the Society's message and provided rich detail for this research's 'collage'.

5.2 Dublin 1914-1921

5.2.1 Understanding the nature of the Dublin City as an urban ecosystem

As was demonstrated in the previous chapter, Dublin was a city best described as a 'space of flows', that is a space through which people, money, commodities, information and ideas continually move (Castells, 1996). However, as a rural/urban hybrid environment, Dublin can also be explored as a system consisting of a variety of living things including humans, animals and plants, that are more akin to an ecosystem as a whole than an individual organism (Golubiewski, 2012). Exploring the idea of Dublin as an ecosystem involves first identifying the basic elements within the system and how those elements are connected with each other and then looking at the overall flow of energy and materials into, around, and out of the system. The energy and materials used to sustain a city can be measured and described as its urban metabolism while the flow of energy and materials into and out of the city are known as metabolic flow.

Firstly, an ecosystem is 'a community of plants and animals interacting with one another and with their shared physical environment. Organisms and their environments are linked by flows of nutrients and energy ...' (Rogers, Castree and Kitchin, 2013, p.121). The elements of a traditional ecosystem are divided by their function within the system into producers of energy, consumers of energy and decomposers of waste products. Transferring this concept to an urban environment – producers create the materials and energy generated within the city; consumers use up the resources created by the producers, and regenerators

decompose and regenerate the wastes produced within the city (Zhang, Yang and Li, 2006). Into the early twentieth century in Dublin, horses produced the energy required to power much of the city's transport system. Milch cows, pigs and poultry were housed within the city to provide Dubliners with food energy in the form of milk, meat and eggs. The milch cows and pigs consumed the waste products from Dublin's brewing and distilling industries while pigs also consumed human food waste.

The availability of water is intrinsic to any ecosystem and the availability of water and its associated infrastructure has traditionally been critical to the development of urban areas including Dublin; the development of Dublin's modern water supply had required a large scale hydrologic routing project diverting water from the Vartry river in County Wicklow into Dublin City (Corcoran, 2005). Ultimately the water and drainage schemes implemented in Dublin, while primarily designed for the human inhabitants of the city, quenched the thirst of Dublin City's animals and much of their bodily waste was disposed of through the city's drainage system. The Dairies, Cowsheds and Milk-Shops Orders of 1885 and 1886 and subsequent Orders required that a dairy yard had a clean water supply so that the animals' teats could be washed before milking, and a drainage system into which the semi-liquid cow manure was flushed (Dublin Corporation, 1908).

Urban ecosystems differ from natural ecosystems because the flow paths of water and other materials which move into and out of the system are artificially constructed (Grimm, Baker and Hope, 2003). As discussed in the previous chapter, by the twentieth century Dublin City was accessed from the rest of Ireland through a well-developed network of roads, rail-lines and canals while Dublin port connected the city with seaports as far away as the Americas.

All ecosystems must have boundaries (Colinvaux, 1973) but the boundaries to Dublin City's ecosystem were not coterminous with the boundaries defined by Dublin Corporation – which grew four times within the research period – in 1930, 1941, 1942 and 1953. Dublin City's ecosystem boundary was flexible, its reach beyond the official city limits determined by the flows of animals and other

materials into and out of the city which changed with the seasons. With each increase of the formal city boundaries, the amount of agricultural land within the official urban area increased. This meant that the amount of land under cultivation and thus devoted to primary production of crops increased, as did the number of animals recorded in what was now defined as the 'urban area' although some of the new areas were still predominantly rural in character. Between April and October, the boundaries to Dublin City's ecosystem enlarged beyond the official city boundaries as the city's milch cows were moved to land rented outside of the municipal borders. Although the cows may have been technically located outside the formal boundaries, they remained a constituent part of the ecosystem because they still performed their function of providing energy in the form of milk to feed the city's human population. However, this seasonal flow resulted in an alteration to the city's metabolic flow as the cows gained the energy they required to stay healthy and produce milk from eating grass.

'Ecosystem boundaries are porous' and 'ecosystems exist at many scales' (Rogers, Castree and Kitchin, 2013 p.24) and local ecosystems exist within larger regional, national and international ecosystems. Dublin's ecosystem existed within its hinterland which stretched across the country, however it also existed within the larger ecosystem of the British Empire which had global reach. In the next section it is explained how Dublin's ecosystem came under pressure in various ways when farms within Ireland's broader ecosystem were called upon to increase their output and supply to Britain during WWI.

Central to understanding the ecology of a city is understanding how that city relates to its surroundings (Grimm, Baker and Hope, 2003) and, as urban environments require vastly more energy than they produce (Odum, 1989) so food and other materials are constantly required and the needs of the city are met by agrarian systems producing outputs surplus to their needs (Billen *et al.*, 2009). In the past, the surplus was required to feed both the human and animal inhabitants of cities who, as cities grew in size, put pressure on surrounding agricultural systems through their demand for food (Barles, 2007). As demonstrated in the previous chapter, Dublin City was dependent on its hinterland for its existence as

food and animals flowed into Dublin City from across the country to meet the demands of the urban residents.

Over the course of the nineteenth century and into the twentieth century the 'networks securing the city's food were becoming longer and more technologically mediated' (Otter, 2006, p.517). The growth of international trade saw ecosystems scale up and Harvey (1996, p.186-187) argues that the circulation of money is required for the functioning of urban ecosystems as the 'complex national and international networks operating through cities mean that flows of money and commodities are fundamental to city ecosystems.' At this time, the boundary of the area from which Dublin could obtain food and energy increased: improvements in shipping and refrigeration saw cheap bacon and beef among many products imported into the city from as far away as the Americas and Asia.

5.2.2 Place of animals within Dublin City's ecosystem

So, in Dublin the presence of animals such as cows, pigs and poultry can be explained by the role that they played within the city's ecosystem and food network. They consumed the produce of the primary producers (grasses and other cereals, vegetables etc) and, using their bodies, turned the energy from these foods into milk, eggs or increased bodymass which was in turn consumed by Dubliners. Thrift (2021, p.71) described animals such as pigs which were fattened to be eaten as 'material resources' and the 'living dead'.

Horses too were both producers and consumers within the urban ecosystem. Since the industrial revolution, the horse was the 'universal and irreplaceable power unit in the forced mechanization of the world' (Raulff, 2017, p.43). Nonetheless, horses along with cows and pigs required energy inputs themselves so that they could perform their purpose and to do this they needed to consume food – in great quantities (Barles, 2007). In Dublin, the food consumed by the city's cows and pigs was not limited to imported food grown in rural areas. These animals also consumed much of the city's edible industrial and domestic waste (*Irish Times*, 1 November 1915; Kearns, 1989; Adelman, 2020). This placed them in

the unique position of being producers, consumers and regenerators, all within the one urban ecosystem.

Feeding the city's human residents involved the consumption of many of the city's animal residents as well as animals carried into the city expressly for that purpose. As Thrift (2021, p.90) noted, cities depend on the 'translation of animals into meat'. Slaughterhouses were key constituents in Dublin City's food network and metabolic flow. However, the discovery of the 'bacterial universe' resulted in 'obsessive surveillance' of animals, slaughterhouses and butcher's shops and is one reason behind the growth of the widespread 'repulsion' towards the processes associated with small slaughterhouses as opposed to large industrial modern abattoirs (Thelle, 2018, p. 252).

The development of the Dublin Corporation Abattoir suggests that municipal authorities in Dublin sought to emulate modern slaughter techniques. The trend in the early twentieth century was for large public abattoirs which 'centralised the slaughter of animals and ensured a more rigorous control over the quality of meat' (Danneels, 2019). Unlike slaughterhouses which often occupied sites within the city centre, abattoirs were generally located on the outskirts of the city rendering the processes of slaughter largely invisible to the city dweller (Thrift, 2021).

The centralisation of slaughter meant that traditional animal geographies were altered significantly in cities where public abattoirs replaced private slaughterhouses. Responding to international trends, when Dublin Corporation planned the new cattle market area on Prussia Street, they also planned an abattoir to replace the city's private slaughterhouses which were considered 'morally objectionable and public health nuisances' (Clare, 2002). The idea was that animals purchased at the market for slaughter would cross the North Circular Road to the abattoir rather than disrupt city life and traffic as they walked across the city to private slaughterhouses. Unfortunately, as is demonstrated below, many butchers refused to use the abattoir.

Food was just one product of animal slaughter, and the by-products fuelled a whole ecosystem of small businesses which utilized almost everything that was

left of an animal after the meat was removed. Aside from skins and hides for leather and bones for fertilizer, parts of animals were traditionally used to produce all manner of goods as diverse as violin strings, shoe polish and wigs (Sinclair, 2014). In the early twentieth century, the sites of production associated with all animal-related activities were increasingly targeted by sanitary reformers and city authorities for removal. Many of these businesses were considered nuisances and they were monitored by Dublin Corporation's sanitary department. Like other cities in Britain and Ireland, Dublin authorities and sanitary reformers had tried to impose a vision of modernity on the city by seeking to remove urban dairy yards and piggeries as well as replace the multitude of private slaughterhouses with a large public abattoir (Adelman, 2020).

However, despite the best efforts of reformers, this vision of modernity was slow to come about in Britain and Ireland as slaughterhouses and dairy yards were still common in 1914/1915, see Table 2, below.

City	Approx. population	Private slaughterhouses	Dairy yards	Milch cows	Prevalence of cows per thousand people
Dublin	305,000	58	200	5,046	16.5
Belfast	385,000	0	175	3,126	8.1
Edinburgh	430,000	0	61	2,134	5.0
Leeds	446,000	73	152	2,200	4.9
Manchester	714,000	52	87	2,061	2.9
Liverpool	750,000	23	428	6,755	9.0
Glasgow	750,000	0	80	1,113	1.5

Table 2: Number of slaughterhouses and dairy yards in British cities in 1914 and 1915 from Reports on the State of Public Health in Dublin, 1914,1915. Prevalence of cows per thousand people calculated as milch cows/approx. population/1000 ie prevalence of cows in Dublin = 5046/305 = 16.5.

It is not possible to use the presence of dairy yards or slaughterhouses *individually* as indicators of backwardness, insanitary conditions or poverty in cities in Britain and Ireland in the early twentieth century. Liverpool had entered the twentieth

century as a wealthy modern city with England's second largest port and a booming manufacturing industry (Belchem, 2007) and yet it can be seen in Table 2, above, that small dairy yards were more numerous there than in any other city. The latter half of the nineteenth century had seen Belfast and its hinterland emerge as Ireland's premier industrial region (Ó Gráda, 1994) although private slaughterhouses had been removed milch cows and dairy yards remained. It is only when the prevalence of milch cows to humans is established that the extraordinary number of cows in Dublin City in comparison to all of the other cities in Britain and Ireland is revealed. Dublin had twice the number of milch cows per thousand people as Belfast, Ireland's biggest city and, although Liverpool had the next largest number of cows per thousand people, it was still just slightly more than half the number in Dublin. The number of milch cows in Manchester, Leeds and Edinburgh was low but Glasgow was the one city which stands out as starkly different from the others with no private slaughterhouses and only 1.5 milch cows per thousand people. As mentioned above, if the absence of slaughterhouses and milch cows were taken as indicators of modernity and good sanitary conditions one would imagine that Glasgow was a thriving healthy city and yet, by 1914, 'Glasgow was a byword for intractable human misery' (Nenadic, 2004).

What was considered a 'nuisance' does not appear to have been uniformly accepted and it is likely that the political power wielded by representative organisations heavily influenced how cities prioritised nuisances thereby shaping how city ecosystems evolved. Dublin Corporation had been trying to remove or severely restrict private slaughterhouses as far back as the 1860s and in the 1890s they began buying up slaughterhouse licences (Adelman, 2020). However, attempts to limit the number of slaughterhouse licences was met with dogged resistance by members of the Dublin Victuallers' Association. They had 'fought the Corporation in the House of Commons' on the issue of private slaughterhouses licenced under the Act of 1847 after Dublin Corporation had insisted that the licence owned by a butcher who had died in Phibsborough had lapsed (*Freeman's Journal*, 16 December 1913). Like other traditional city guilds, the Dublin Victuallers' Association also had members sitting in Dublin City Council to further

their interests, including Joseph Mooney of Cabra Lodge, Cabra and Francis McBride, Grosvenor Square, Rathmines (Thom's Street Directory, 1911).

Meanwhile Leeds does not appear to have viewed slaughterhouses as public nuisances and seventy-three private slaughterhouses were present in 1914. At the annual dinner of the Leeds Abattoir and Meat Traders' Association in 1914 the President of the Association toasted the Lord Mayor and the Corporation members present for their cordial relationships and the fact that no association member had ever been reprimanded by the city authorities. The President added that the elimination of private slaughterhouses would be the 'worst blow to the meat industry' (*Leeds Mercury*, 1 March 1914).

The high prevalence of slaughterhouses and milch cows in Dublin suggests a greater dependency on nuisance businesses compared to other cities in Ireland and Britain. In the next section, the effect of WWI on Dublin's animals illustrates how embedded Dublin's ecosystem was within the broader Irish ecosystem and within the British empire. The effects are examined against the backdrop of how advances in transportation and preservation techniques in the nineteenth century meant that many cities were accessing food from the global market, considerably increasing the distribution of agricultural areas from which their food was sourced (Billen *et al.*, 2009). Also, Ireland's industrialisation had stagnated after the Great Famine and, prior to independence in 1922, Ireland's international trade was dominated by its relationship with Britain. Agricultural goods flowed from Ireland largely to Britain, while manufactured goods flowed in the opposite direction (Ó Gráda, 1994). However, Dublin's position within the British Empire meant that, as soon as WWI broke out, the normal economic functioning of the city's ecosystem changed and the effects of this change are examined below. Demand from Britain for Irish horses, cattle and pigs rose almost immediately as did the demand for animal feed such as hay. This demand saw the number of animals living in Dublin quickly drop and the normal rates of flows of animals through the city's ecosystem altered. The sudden increase in flows of animals out of Ireland altered the normal biological functioning of the country's wider ecosystem depleting the system's ability to quickly replenish numbers. All these changes resulted in an altered

metabolic flow within Dublin City as less energy flowed into and circulated within the city's ecosystem. The effects of these changes were experienced by the city's human and animal residents on multiple scales.

5.2.3 Impact of WWI on Dublin's animal-based ecosystem

5.2.3.1 Introduction

The importance of Ireland as a source of animals for horsepower and food energy within the broader British colonial ecosystem is clearly illustrated by the immediate increase in the flow of horses, cows and pigs out of Ireland and into Britain as soon as WWII began. The increased demand for these animals which occurred almost overnight quickly inflated the prices procured by Irish animal dealers altering the normal economic functioning of the Irish agricultural ecosystem and disproportionately negatively affecting Dublin City's ecosystem relative to rural Ireland. While money apparently flooded into the country buying up these living commodities, the altered flows of animals and meat out of the country had major negative effects and consequences for Dublin City. Inflated animal prices quickly resulted in a shortage of breeding stock which slowed down the recovery period for rebuilding animal numbers. Animal shortages reduced the food energy available to Dubliners and inflated meat prices directly impacting Dubliners' bodies through hunger. Just as Dubliners' lives were shaped by a war occurring far away, Irish animals' lives and bodies were shaped and changed by it too – Dublin carthorses and rural plough horses were transformed into war horses, the lives of cattle were cut short as slaughter ages and weights dropped and Dublin's milch cows experienced acute hunger as the output of distilleries and breweries was slashed as they were repurposed to aid the war effort. These, and the effects of other shortages threatened the social and political stability of the city through increased hunger, unemployment and even direct action against the export of animals through Dublin port when Dubliners were starved of meat.

5.2.3.2 Alterations in flows of animals between Ireland and Britain

Horses, mules, jennets and asses in County Dublin 1904-1917
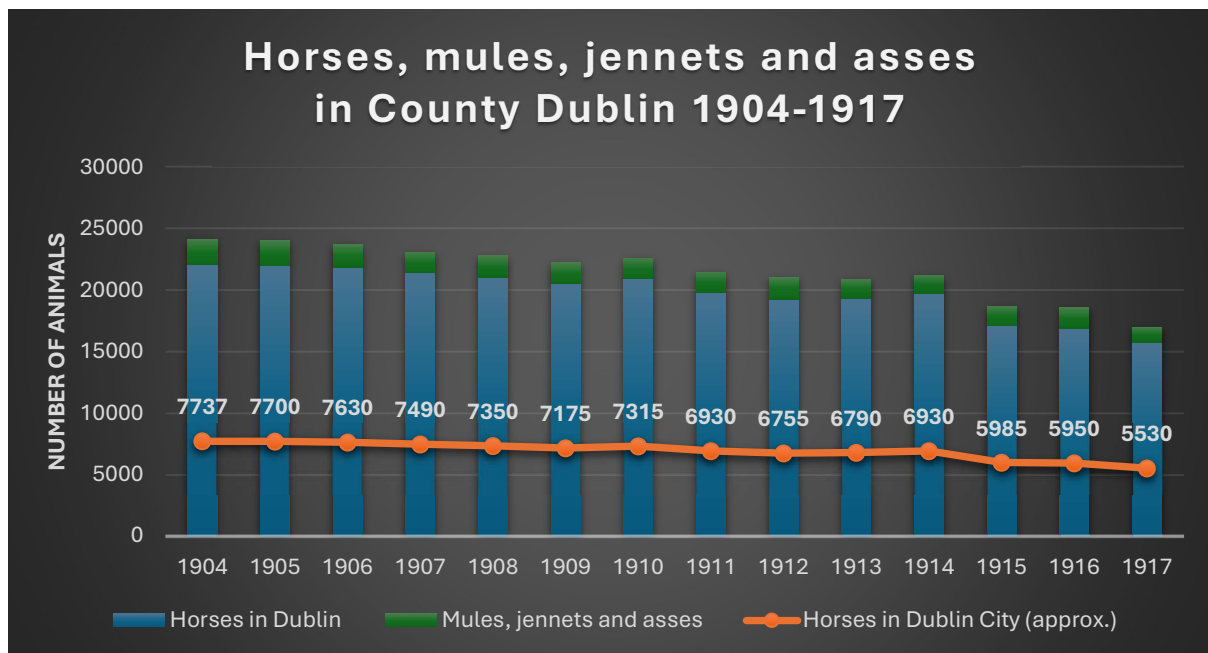
Figure 7: The number of horses, mules, jennets and asses in Dublin city and county between 1904 and 1917. The numbers for Dublin City are estimates based on 35% of the total number of horses (Agricultural Statistics Ireland).

Given the importance of the horse to the British war machine, it was not surprising that one of the first actions taken by the British authorities when war broke out in July 1914 was the requisitioning of horses. The increased exploitation of horses altered Dublin City's urban metabolism as flows of horses from Ireland through Dublin Port increased. In the first couple of weeks of the conflict, around 120 000 horses were requisitioned from the civilian population (*National Army Museum*, 2023). By the second week of August 1914 the premises of the Royal Dublin Society in Ballsbridge had been temporarily taken over by the Remount Department of the War Office where horses of city firms on the War Office registry were inspected by veterinary officers and dispatched to suitable units. Fairs were taking place all over the country as horses were commandeered and provincial newspapers reported how army buyers were travelling the country buying up horses with farmers receiving very high prices for their horses, especially hunters (*Weekly Irish Times*, 15 August 1914).

There is no written record of the exact number of horses, mules, jennets and asses living within Dublin City's boundary, but at a conservative estimate approximately 35% of those recorded in the agricultural statistics for County Dublin were city animals. This is based on Adelman's (2020) estimate of 8,000 horses residing in the city in 1900. Mules, jennets and asses were also routinely used in the carriage of goods although in smaller numbers as can be seen in figure 7 above. The number of horses living and working within the city ecosystem had been slowly and steadily decreasing after 1904 although a sharp decrease from 6,930 to 5,985 occurred between 1914 and 1915 which coincides with the outbreak of war. Further decreases between 1915/1916 and 1916/1917 are smaller.

Many of Britain's urban populations were sustained by food networks that extended into Irish agricultural ecosystems. Rising standards of living during the nineteenth century in British cities saw a growth in consumption of meat and animal products; livestock farming had come to dominate British agriculture (Dewey, 2014). However, Britain was still heavily reliant on imported Irish livestock to meet the food energy demands of its growing cities. Ireland's post-famine agricultural policies had also seen a shift in the direction of cattle production and dairy with the production of grain such as wheat, oats and barley dropping dramatically between 1876 and 1908 (Ó Gráda, 1993).

The number of milch cows living in Dublin City dropped by 10% between 1913 and 1914 from 5,533 to 5,111 (Dublin Corporation, 1913, 1914). This research suggests that it is highly likely that the number of cows continued to drop as the war progressed and that Dublin City cow-keepers and dairymen suffered disproportionately as a result of the difficulties posed by wartime conditions and shortages.

After an initial increase in flows of animals through the city, flows decreased due to the significant disruption to maritime traffic resulting from WWI. By 1917 the number of animals moving through the Dublin Cattle Market on a weekly basis had decreased by 25% as trade dropped to 75% of pre-war levels (Scannell, 2018). From the outset, shipping services also experienced great upheaval as merchant

ships were requisitioned for troop carrying. By October 1917 the number of animals moving through Dublin Port had been reduced by half (*Freeman's Journal*, 18 October 1917). Sea travel around Ireland became increasingly dangerous from February 1917 when the Germans launched 'unrestricted submarine attacks against all merchants ships sailing to Britain' (Scannell, 2018 p.160).

Flows of piglets into Dublin City to be fattened in the urban piggeries continually fluctuated while the diet of urban pigs made them particularly vulnerable to changes in the energy within Dublin's ecosystem which occurred during WWI. Just as the war impacted on the availability and cost of human food, so too it resulted in less food waste available for pigfeed. As mentioned in the previous chapter, pigs played an important role in Dublin City's urban metabolism firstly, by consuming waste products from the city in the form of spent grains and household scraps, and secondly, through metabolising these foodstuffs their bodies grew before the pigs themselves were ultimately converted into foodstuffs for the human inhabitants. However, pig numbers had peaked in 1911 but the following two years saw the numbers drop by 23% followed by a 12% rise again in 1914. The Department of Agriculture appointed a committee to inquire into the state of pig breeding in Ireland to ascertain the fluctuations in pig numbers and the answer was simple – both on a national and local scale, the industry was dominated by small farmers and labourers who bought piglets when the price of bacon was high but not when the price was low (*Irish Times*, 19 December 1914). This system resulted in the cycle of gluts and shortages.

5.2.3.3 Fodder and fertilizer

Animal feed or fodder, in the form of hay and oats typically flowed from rural Ireland into the city to support the food energy needs of Dublin's animal residents. As living breathing 'metabolising' creatures, horses, cows and pigs could not function in the city without these food energy inputs which were often supplemented with spent grain from Dublin's breweries and distilleries. These energy flows into the city were altered when British military authorities requisitioned all hay crops grown within a ten-mile radius of Dublin to boost the food available to their cavalry regiments and transport corps. Furthermore, food

and drink controls implemented in 1916 such as the Output of Beer (Restriction) Act allowed for the Ministry of Munitions to temporarily takeover distilleries and breweries to produce products such as fused oil and acetone for the munitions factories (Murray, 1990). Both actions resulted in an immediate reduction in the amount of food energy available to Dublin's animal keepers and the effect of this animal food shortage is discussed below in section 5.2.4.

Dublin City's urban metabolism was altered by two major issues affecting agriculture in Ireland during WWI – the compulsory tillage order and the shortage of chemical fertilizers. The compulsory tillage order stimulated the rapid growth of the allotment movement in Dublin City while the fertilizer shortage once again instilled animal waste with a monetary value rather than a nuisance value. The flows into Dublin City of ingredients required to manufacture artificial manures were replaced by flows of animal waste around and out of the city. Having been shown to dramatically increase crop yields, the use of chemical fertilizers in Ireland had largely replaced the traditional farmyard manures which enabled the circulation of nutrients in the soil-crop-animal-farmyard manure-soil cycle (Cooper and Davis, 2004). Ireland's 'superphosphates' industry had been growing steadily peaking in 1914 with the production of 200,800 tons of superphosphate (Cooper and Davis, 2004) but the onset of war and the requisitioning of ships for troop movement resulted in an immediate drop in production of artificial manures in Britain and Ireland and animal keepers once again took great care in conserving farmyard manures (Dewey, 2014). Although there was some resentment as tillage and production quotas were introduced (Foster, 1989), the economic incentives attached to the compulsory extension of tillage lessened the opposition and the area under cultivation in Ireland increased by 39% between 1914 and 1918 (Fitzpatrick, 2015). In Dublin, previously uncultivated land was rediverted to primary production increasing the amount of food material produced within the city boundaries and soaking up more of the city's animal waste than before. Prior to the war, the allotment movement had been growing in Dublin where workers could pay a small sum to access small plots to grow vegetables for their own use. Initially these plots were located in small vacant spaces in the city but the onset of

war saw the number of plots explode from twenty-three in 1910 to 2790 in 1918-1920 (Forrest, 2011; Carolan, 2020).

5.2.4 Effects and consequences of changes in flows between Ireland and Britain

5.2.4.1 Inflated animal prices

The flow of horses away from agriculture and transport duties interfered with the normal economic functioning of the urban and rural ecosystems at all scales and the resultant shortages fuelled inflation. The effects of the worldwide shortage of horses were also felt unevenly. For those farmers in a position to breed horses the rewards were great, however for the rest of the population who depended on horsepower, their costs increased feeding into the overall inflation caused by the war. The number of horses in Britain had fallen sharply between 1914 and 1915 (Dewey, 2014) and there was a deficit of 59,000 horses in Ireland in 1915 compared to the previous year (*Irish Times*, 10 April 1915). The sharp drop in the availability of horses saw their price increase and, by 1915, horses had become extremely expensive in Britain (Dewey, 2014) while in Dublin record prices for horses were recorded at Sewell's Horse Repository at Lower Mount Street in April 1915 (*Irish Times*, 10 April 1915). The rise in horse prices fed directly into rising costs for any horse-related economic activity, from farming to haulage.

The overall shortage of horses induced by their requisitioning also resulted in a strange turn of events when it was judged that animals owned by the British military, which were generally employed as imperial tools to assist the military to maintain control of occupied Ireland, were required to be handed over to farmers. By 1917 the Army Council was obliged to arrange for British military units stationed in Ireland to temporarily loan farmers draft horses and mules at a rate of 4*s.* per day to ensure that production of food was maximised (*Weekly Irish Times*, 24 February 1917).

5.2.4.2 Interference with breeding stock

Government interference in the functioning of Ireland's agricultural economy during wartime prompted abnormalities in the functioning of the Irish ecosystem as animals that would normally have been used for breeding were removed from the system and sold to the army because of the unusually high prices paid for them. This led to lower numbers of births compared to previous years within the system. The market for horses in the first year of the war was so buoyant that prime breeding animals were shipped to the front and concerns were raised that there was an inadequate supply of horses in Ireland to maintain future stocks. There was even a suggestion that brood mares should be returned to Ireland from the front but the Department of Agriculture and Technical Instruction's T. W. Russell immediately rejected the idea because of the risk that these animals might bring equine diseases into the country as had happened when horses returned to Ireland after the Boer war (*Irish Independent*, 11 March 1915).

Given the history of pig production in Ireland, which traditionally saw great fluctuations in pig numbers in reaction to changing prices, it is not surprising that pig producers were anxious to maximise their profits, however short-term they would prove to be. Ireland benefited greatly when Germany's submarine campaign made sea lanes and trade routes in the North Sea and the Atlantic hazardous, as this effectively cut the British market off from Danish suppliers (Durney, 2014). With Ireland's traditional competitor hobbled, flows of bacon from Ireland into Britain grew as flows from Denmark were diminished. Unfortunately, the high price of bacon meant that breeding stock was sent for slaughter (Guiry, 2016) stunting the possibility of numbers quickly recovering. Animal shortages inevitably resulted in food shortages (discussed below) which were felt unevenly across Irish society, with many of Dublin's poor suffering the most because of their lack of access to land.

5.2.4.3 Inflated food prices – food poverty

Although there was little change in livestock numbers in Britain during the first year of the war (Dewey, 2014), the number of milch cows in the county of Dublin (including the city) quickly dropped by 10% as a direct result of the soaring

demand for cows in Britain and the high prices British buyers were willing to pay (*Irish Times*, 1 November 1915). This fed the fear that milk would soon be 'beyond the purse of the poor of the city' (Hansard, 1916). That fear was justified as, between 1914 and 1920 'eggs went beyond the reach of the ordinary person' and milk, cheese and eggs rose significantly, with milk alone rising from 4*d*. per gallon in 1914 to 14*d*. in 1920 (Durney, 2014, p.79). As happened with horses, the demand which resulted in the movement of cows out of Ireland to Britain also drove up the price of cattle at the Dublin Cattle Market which determined the price and availability of meat to feed the citizens of the capital.

Interfering with the natural flow of animals into the capital's ecosystem resulted in rising food prices and meat scarcity directly affecting Dubliners' bodies through hunger. One year into the war, cattle prices were so high that many Dublin victuallers had ceased trading while those remaining claimed that they were forced to sell their meat below cost (*Irish Times*, 1915b). By June 1915 the number of cattle moving through the Dublin Cattle Market was down significantly on previous years with the average number of fat cattle for sale weekly down from 1,937 in 1913 to 1,759 in 1915 (-9.2%) and the number exported weekly down from 937 in 1913 to 855 in 1915 (-8.8%) (*Irish Times*, 1 November 1915). Businesses in Dublin which specialised in trading frozen meat and cheap cuts of beef were particularly badly hit as supplies of animals and meat decreased in 1916 and meat prices remained abnormally high (*Irish Times*, 13 June 1916). According to one writer in the *Freeman's Journal* newspaper, even though 'the existence of Dublin depended on the success of Ireland's cattle industry', by 1917 the price of cattle had risen so high that Dublin's poor were no longer able to afford beef, and were instead dependent upon offal (*Freeman's Journal*, 21 August 1917).

The large discrepancy in the drop in pig numbers between Britain and Ireland was notable as the British Ministry of Food sought to shore up its own food shortages by increasing the flow of live pig exports from Ireland to Britain (Guiry, 2016). As was to be expected, 'working-class families bore the brunt of food shortages and increased prices as wages failed to keep pace with inflation' (Durney, 2014, p.78). Bacon shortages had a profound effect on the health and wellbeing of Dublin's

poor who depended on pig products for essential nutrition. Between 1914 and 1915 the price of a pig's head – the staple and nutritious food for many families – rose from eleven pence (11*d*) to between 3*s*. 6*d*. (i.e. 42*d*.) and 5*s*. 4*d*. (i.e. 64*d*.) depending on the quality and weight (Thompson, 1915).

Spent grains formed an important energy input within Dublin's animal ecosystem and restrictions imposed on distilleries and breweries during the war limited the amount of grain available to feed Dublin's cattle and pigs which in turn exacerbated the food (especially milk) shortages for humans in the capital as there was less energy circulating within the system. Furthermore, as Dewey (2014) noted, decreased production in distilleries and breweries quickly translated into a decline in milk yield per cow. By April 1917 many of Dublin's dairy cows were hungry and the dairymen were growing increasingly desperate about how and where to source feed for their animals. Bad weather meant that the grass growing season had not yet begun and the government had further curbed the output from the breweries and distilleries to one third of their normal output (*Irish Independent*, 6 December 1917). The decreased availability of cheap animal feed from the city's breweries and distilleries resulted in a 25% reduction in milk yield that year (*Freeman's Journal*, 22 December 1917).

5.2.4.4 Uneven experience of the war – urban/rural divide

As mentioned previously above, the impacts of the shortage of animals and products which resulted from the increased flows of these out of Ireland were not experienced evenly across Ireland's population. Most of the economic gains experienced were experienced by rural producers while the majority of the hardships were experienced by Dublin's urban population. By 1917, in Dublin 'traders, cartage contractors and others… experienced difficulties obtaining the horses required for carrying on essential work' (*Irish Times*, 10 September 1917). As a result of this shortage of horses an order was issued temporarily prohibiting the exportation of horses from Ireland to maintain the supplies required to support agriculture. This irked many farmers who were eager to maximise the profits available from selling their horses into the British market where horses purchased

for £20 in 1907 had been sold for agricultural purposes in England for £80 (*Westmeath Examiner*, 17 November 1917).

Dublin city's cow-keepers and dairymen were particularly vulnerable to the changed circumstances brought on by the outbreak of war because of their dependence on the component of Dublin City's ecosystem without which the city's animals could not survive – food energy in the form of purchased winter feed. Producing grain in Ireland had become increasingly uneconomical as cheap grain from America flooded the British market in the late nineteenth century (Brunt and Cannon, 2004) but the war saw trans Atlantic trade interrupted because of a shortage of steamer tonnage (*Freeman's Journal*, 11 October 1915). The greatest burden caused by the animal feed shortage was experienced by Dublin City in 1915 when British authorities had requisitioned all hay crops grown within ten miles of Dublin to feed its cavalry regiments and transport corps, as previously noted (Yeates, 2011). Farmers in rural areas were encouraged to respond to the resulting shortages in animal foodstuffs such as maize by growing alternative sources of energy such as giant rape, rye and turnips (*Irish Independent*, 22 August 1914). However, just as animal keepers in Dublin did not have the luxury of replenishing their stock by breeding them in situ, they did not have the luxury of growing alternative animal feed. Many also struggled to locate good affordable and accessible summer grazing so it looked increasingly likely that many dairymen would be driven out of business (*Freeman's Journal*, 8 May 1917). One reason for the acute shortage experience by Dublin's dairymen was the much larger proportion of land that was set aside in Ireland for tillage as opposed to the rest of Britain. In 1917, 0.9 million more acres were being tilled in the United Kingdom than before the war but 0.6 million of those acres were in Ireland (Dewey, 2014). In at least one known case, at this time of both animal and human food shortages, direct human energy needs were privileged when lands in South County Dublin which had traditionally been rented to dairymen during the summer were instead being offered to the Council for allotments (*Freeman's Journal*, 8 March 1917).

It was normal for the energy flowing through Dublin City – its urban metabolism – to change with the seasons as the cows moved between the city in winter to pasture

in the summer. More energy circulated within the city's ecosystem during the winter than during the summer as energy in the form of hay, grain and manufactured seed cakes were brought into the city to feed the animals. Wartime shortages saw the city's normal annual urban metabolism fluxes heavily disturbed as there was insufficient energy available to fuel the city's animals. This resulted in decreased milk yields and soaring milk prices at a time when Irish industrial wages were failing to keep pace with inflation and 'the wartime expansion of heavy industrial production was insufficient to counteract the recession in the city's staple trades' (Fitzpatrick, 2015). This increase in relative poverty would pit producers against consumers and a bitter war was waged in the press. With animal feed restricted, the price remained high and the month of September saw headlines such as 'Wholly unwarrantable' (*Freemans Journal,* 4 September 1917), 'Indefensible milk prices, Dublin compared with the provinces' (*Irish Independent*, 5 September 1917), 'Dublin will fight profiteers – growing opposition to dear milk' (*Irish Independent*, 6 September 1917), and 'Dublin and milk prices: protest meeting in Smithfield' (*Irish Times,* 10 September 1917). These headlines demonstrate that the press may not have fully comprehended the bind Dublin's dairymen and cow-keepers were in. They did not consider that Dublin's dairymen, unlike their rural counterparts, needed to continually purchase new stock as milch cows naturally went dry after a period of time but the export of breeding stock reduced the number available for sale in the Dublin Cattle Market and made them more expensive. Combining this with the high price of animal feed explains the rapidly inflating price of milk in Dublin compared to rural Ireland. When members of the Dublin Cow-keepers and Dairymen's Association (DCDA) refused to absorb their increased costs, Dublin Corporation's Public Health Committee announced that they were going to bypass the Dublin dairymen altogether and obtain supplies of milk from country producers outside the city's ecosystem to supply milk into the system and sell through a milk depot (*Irish Times*, 12 September 1917).

Unfortunately, Ireland's rural population was not interested in showing solidarity with Dublin City by supplementing the city's food energy requirements, and the appeal to cooperative creameries around the country to supply milk to the Dublin

depots was a 'lamentable failure' (*Freeman's Journal*, 9 October 1917). Although Dublin Corporation had passed a resolution authorising the Public Health Committee to open milk depots to supply milk to the poor and needy, they had received no workable tenders from suppliers. The reasons given were that there was about a 20% shortage of milk nationwide and the price the Corporation was willing to pay was considered too low. In response, Dublin Corporation asked the government to prohibit the export of milk and in-calf cows from Ireland altogether as well as limiting the amount of milk used for butter and cheese.

It is accepted that many Irish farmers prospered during the war, enjoying record prices for their goods as they exploited Ireland's proximity to Britain at a time when imports from America and Australasia were substantially reduced (Fitzpatrick, 2015). However, this research has shown that many urban animal keepers, along with those who worked in animal-related industries in Dublin, suffered at this time. Animals were almost never bred in the city and the number of animals available for sale quickly reduced as animals were sold across the Irish Sea; the price of store cattle, fat cattle and pigs steadily increased putting meat out of the reach of Dublin's poorest; Dublin animal keepers experienced food shortages as spent grain and other animal fodder were also in short supply and this ultimately reduced the milk and meat output produced within the city.

5.2.5 Social and political instability

This research suggests that the experiences of Dubliners which resulted from the increased flow of animals and animal products to Britain fed into the social and political instability which was being experienced in the city at this time. Public opinion was inflamed by the presence of thousands of tons of hay being stored openly for the British army down at the docks while Dublin's horses and cattle went hungry. Resentment boiled over on 1 October 1916 when 1,400 tons of fodder went up in flames resulting in a bill of £11,200 to Dublin Corporation, and Dublin taxpayers, as the fire was judged to have been started maliciously. According to Yeates (2011), upon investigation, the story of the army hoarding stocks while local animals starved was proven to be exaggerated as the army released large

quantities of hay for sale each week. Writing to military authorities, Fred Allan, Dublin Corporation Secretary, emphasised the importance of maintaining a supply of fresh fodder to the city because the health of the city's human population depended upon the health of the horses employed by the corporation sanitary department who kept the city clean (Yeates, 2011).

It has been shown above that Ireland's position within the British empire meant that, when Britain went to war it drew on Ireland to supplement the commodities such as horses, fodder and meat required by the British military. The exploitation of Irish animals for food had always been at the root of colonial oppression in Ireland (Wrenn, 2021) but, during the war, resources that would previously have sustained the population of Dublin City were redirected to sustain the British army. The subsequent shortages of the raw materials required by the city to fuel its urban metabolism had the inevitable effect of inflating prices of everyday necessities such as milk and meat and this fed into the political turmoil in the country. Social and economic conditions invariably affect the human diet and meat consumption often mirrors economic conditions (Swaney *et al.*, 2012). Although large numbers of animals continued to move through the market and city streets the amount of meat on many Dubliners' dinner plates was almost negligible. The livestock exports from Dublin had risen from 681,421 cattle, sheep and pigs in 1913 to 739,175 animals in 1918 which was actually down from 824,931 in 1917 (Thom, 1919). These animals were feeding into the urban metabolisms of cities across Britain while Dublin's was being depleted of the vital energy and nutrients that those animals provided and by 1918 this had become a particularly thorny political issue playing into the hands of the Home Rulers (*Freeman's Journal*, 22 February 1918).

Although large swathes of Ireland's agricultural economy experienced an 'impressive boom in agricultural prices, and high profits in agriculturally derived industries' (Durney, 2014 p.76) economic prosperity was not evenly spread with Dublin City experiencing high rates of unemployment and poverty. The decreased number of horses inevitably led to a reduction in employment in horse-related businesses such as stable hands, grooms, coach and cart drivers and within

coach and cart manufacturing industry. Not including those unemployed as a result of the restrictions placed on brewing and malting, there were an estimated seven thousand unemployed in Dublin in 1917. Between five and six hundred of these were transport workers such as porters, carriers and carmen (*Freeman's Journal*, 8 May 1917). The decreased number of horses available for transport and haulage was also partly responsible for the increase in motor vehicles on the road as by November 1914, motor traders were reporting an increased demand (*Irish Independent*, 27 November 1914).

High unemployment rates along with the flow of animals out through Dublin Port, and the food energy that they represented, fed into political upheaval. One dramatic event saw Sinn Féin capitalise on the widely held dissatisfaction about the number of animals moving through Dublin Port on a weekly basis at a time when there was insufficient food energy within the urban ecosystem to properly sustain the local population. In February 1918 Sinn Féin commandeered thirty-four fat pigs on their way to Dublin Port from the Pig Market. These pigs had been purchased in two lots by well-known pig-buyers (and exporters) Michael Byrne of Parnell Street and Michael Bowe of Glasnevin. The pigs were then driven to the Corporation Labour Yard in Portland Place where a dozen butchers slaughtered them and their meat was sold to Donnelly's bacon factory – and ultimately the people of Dublin – while Byrne and Bowe were to be paid the 'governed price so as to be at no loss' by Diarmuid Lynch, Sinn Féin Food Director (*Irish Times*, 22 February 1918). Sinn Féin used this public act of defiance to highlight the need to stop the export of all live animals (especially pigs) at a time when there was 'no bacon to be had in retail shops in Dublin' and 'Irish bacon factories had given notice to a large percentages of employees... owing to the lack of pigs' (*Freeman's Journal*, 22 February 1918).

5.2.6 On a positive note...

Despite the largely negative effects on Dublin's ecosystem compared to rural Ireland, wartime also resulted in some tighter bonds between city and countryside. As supply chains to Dublin's fertilizer companies were interrupted, old ways were

revived, and energy was recycled within adjacent systems rather than imported into them from afar. As discussed in the previous chapter, city manure had traditionally been part of a 'charmed cycle' (Atkins, 2016) where it was sold to the farmers in the city's hinterland who grew the vegetables and grains which sustained the city dwellers. During the nineteenth century the development of artificial fertilizers, enhanced by the new technology of atmospheric nitrogen fixation developed by Fritz Haber and Carl Bosch in 1910, completely freed arable farming from its traditional connection with animal husbandry. Animal manure was no longer necessary for tillage farmers to survive and regions could specialize (Billen *et al.*, 2009, p.19). However, for the period of the war in Ireland, the scarcity of fertilizers meant that farmyard manure from urban ecosystems would once again become invaluable to the surrounding rural agricultural ecosystems.

As the war proceeded, animal faeces which had previously been considered problematic and dirty, were recast as a valuable commodity. Prior to the war, farmyard manure produced by animals living in the city had become worthless (Daly, 1984) requiring payment for its removal in many cases. However, by mid-1915 as farmers began experiencing shortages in the availability of artificial fertilizers, manure produced by animals living in Dublin City once again gained value. Adverts such as 'Manure for sale. 2/- per load. Fennelly's Stables, 124 Upper Dorset Street' (*Irish Independent*, 4 June 1915) and 'FOR SALE: Manure of forty cows. Doyle, 33 William's Place, Clanbrassil Street (*Irish Independent*, 1 November 1916) regularly appeared in the newspapers. As the war continued, tillage orders called for an increase in planting at a time when artificial fertilizer production was reducing due to the shortage of raw materials and yields were subsequently falling. Just as cattle-keeping supplemented soil fertility in rural areas under tillage (Dewey, 2014), cow manure produced in Dublin was once again required to support tillage in fields surrounding the city as evidenced in 'Manure of dairy yard WANTED, about thirty or forty cows; North Side. Box 4521' (*Irish Independent*, 1 November 1916).

5.3 Cleaning up the milk supply after WWI

5.3.1 Introduction

This section focuses on milk, one of the most important animal food products in Dublin's food network. In particular, it looks at the efforts made to control the flow of pathogens potentially present in milk, especially bovine tuberculosis, into and/or around the city. Through this case study Dublin's relationship with rural Ireland is explored. Differing attitudes between urban and rural populations regarding the threat posed by cows with bovine tuberculosis are revealed. These differences were reflected in the measures taken to counteract the spread of the disease. To achieve a clean milk supply Dublin City would function as a funnel for the flow of modern ideas about clean milk from Europe and America to rural Ireland.

As a space of flows, Dublin City's boundary was porous. Although large quantities of milk were produced within the city, it was necessary to supplement supplies to meet demand and these extra supplies flowed into the city from farms in Leinster and north Munster as described in the previous chapter (section 4.3). Here it is explained how, despite the best efforts of sanitary officials and reformers in Dublin City, bovine tuberculosis would threaten public health as long as the milk supply chain to the city remained compromised by tubercular milk produced outside the city. In essence, public health in the city was inextricably linked with the health of cows across Ireland as bovine tubercular pathogens invisibly slipped into the city as part of its normal daily metabolic flow.

However, to start, it must be recognised that, in the immediate aftermath of the war, the principal concerns around milk were in regard to the cost of it as Europe experienced a period of hyper-inflation. 'Economic volatility matters because it tends to exacerbate social conflict' (Ferguson, 2007 lxi) and the belief that milk traders at all stages of the dairy process – from the farmers to the delivery men – sought to cheat the public was rife (Atkins, 2010). Dublin dairymen and cow-keepers were set against the general populace in the public imagination aided by the parochial reporting of inflation in the press. During this time Ireland's economy

closely mirrored its nearest neighbour (Ó Gráda and Hjortshøj O'Rourke, 2021) and, although the British economy experienced a surge in growth, it also experienced an even larger surge in inflation (Ferguson, 2007).

By the mid-1920s, the cost of milk became less of an issue in Ireland as public health reformers internationally focussed their gaze on milk's 'goodness or fitness for purposes such as infant feeding' (Atkins, 2010, p.137) and, in 1926 the Dublin-based Irish Clean Milk Society (ICMS) was formed. By 1930 it had become obvious that most of the dangers posed to Dubliners from cow's milk originated outside of the city and beyond the reach of Dublin Corporation. Improving public health was a cornerstone of the new Free State but, unfortunately, the first few years of the new state coincided with a time when agricultural prices were severely depressed which hampered the government's ability to modernise (Barrington, 1987).

In 1916, 1,067 people had died of tuberculosis in Dublin city (Central Statistics Office, 2023). Figures leading up to that period suggest that bovine tuberculosis was responsible for 23% of TB-related deaths in Ireland at that time (Barrington, 1987). Milk was an important energy input into Dublin City's urban metabolism with c.3.6 million gallons consumed annually (Dublin Corporation, 1915). As discussed in the previous chapter, improving the cleanliness of milk had long been targeted by local and national health campaigns promoted by Dublin Corporation and the Women's National Health Association respectively. Fulfilling Dublin's demand for milk entangled the city's urban metabolism and ecosystem with Ireland's rural ecosystems. This entanglement proved an obstacle to ensuring a clean milk supply for the city until rural authorities and farmers took the threat of contamination, and bovine tuberculosis in particular, as seriously as Dublin City authorities. Progress could only be made when sanitation measures and tuberculin testing were evenly applied across the broader ecosystem of city and hinterland. Until then the continual flow of milk into Dublin City from its rural hinterland ensured the continual flow of pathogens including bovine tuberculosis from rural Ireland into the city. Unless hygiene standards were improved and bovine tuberculosis was eradicated, as it stood each batch of milk from country suppliers would have needed to be sampled and each cow sold into Dublin's dairy

market tuberculin tested to stem the flow of potentially deadly pathogens into the city.

The number of dairy yards recorded in the city decreased from 218 in 1914 to 198 in 1929 (-9.1%) and the approximate number of milch cows housed within the city was estimated to have reduced by 8.2% in the same period (Dublin Corporation, 1914; Dublin Corporation, 1929). Unfortunately, it is not possible to identify the exact locations of the city's dairy yards in 1929 as the annual public health reports for Dublin City were not produced between 1916 and 1928 while newspaper reports regarding them are sparse. The names and addresses of registered cow-keepers and dairymen are recorded in Thom's Street Directories from 1926 but many of the addresses are residential rather than commercial or mixed and there is no definitive way of identifying the location of the actual dairy yards or cowhouses.

The Edwardian world of food was 'under increasingly close scrutiny' (Atkins, 2010, p.144) and, like the British press at the time, articles regularly appeared in the Irish press about the 'quality' of milk on offer to Dubliners. Tuberculosis bacteria was just one of several types of bacteria which routinely contaminated milk yet the sole measure of quality for milk legislated for in Dublin at the time referred only to the quantity of fat rather than the presence of microbes. According to a report in the *Irish Times* (27 May 1922), the bar for what was considered fresh healthy milk in Dublin City was very low and, compared to the milk supplied to citizens of Boston at the time for example, 48% of milk sold in Dublin would have been considered bad. Where modern testing could easily have established the extent of microbial contamination of Dublin's milk supply, establishing the exact source of the contamination was more difficult. Tests on milk had shown that Dublin milk contained on average 600,000 bacteria per cubic centimetre in winter and 4,000,000 in summer and bovine tubercules were found in 8% of Dublin milk (*Irish Times*, 15 November 1924). Dr E. Coey Bigger, former Medical Commissioner of the Local Government Board suggested that approximately 25% of the cows in Dublin City and the surrounding areas were suffering from tuberculosis, and about 2% from tuberculosis of the udder which was transmissible through their milk

(*Evening Herald*, 18 November 1924; Department of Local Government and Public Health, 1928).

5.3.2 Vulnerability of Dublin infants to contaminated milk flows

Although the sole purpose of milch cows within the city ecosystem was as producers of milk for humans, consumption of their products remained potentially deadly, especially for young children, and the battle to ensure that the milk circulating within Dublin City's urban metabolism was clean required reformers in Dublin tapping into international knowledge networks. Before partition, 'luminaries of Irish medicine served on royal commissions on public health and on the boards and committees of medical organisations covering the whole of the British Isles' (Jones, 2001, p.10). However, after partition, two separate health systems existed on the island and there was an attempt by the Irish Free State to look beyond Britain for medical models. One problem facing reformers was the difficulty in simply defining a 'natural norm' for milk because of the fluctuations in its properties between breeds and seasons (Atkins, 2010). Breast feeding – where a baby feeds directly at a mother's nipple – offers the shortest flow distance and minimises the potential for pathogens to enter the milk supply. Artificial feeding, giving babies animal milk instead of human milk, was common practice as far back as the middle-ages in certain parts of Europe. As cities grew, milk drinking increased and with the industrial revolution and the growth of cities emerged the belief that breastfeeding was 'primitive' and that animal milk was superior (Kurlansky, 2018). Unfortunately, artificial feeding lengthens the flow distance and provides multiple opportunities for pathogens to enter the milk.

Ireland suffered from a lack of industry and, unlike in the large manufacturing towns in Britain, the vast majority of women in Ireland breastfed their children. However, in Dublin City poverty forced many mothers to take on paid work outside the home and away from their infants exposing the babies to milk-borne diseases such as typhoid, scarlet fever, TB and diphtheria which killed hundreds every year (Royal Commission on Tuberculosis, 1898). Ensuring that the milk circulating

within Dublin's urban metabolism was clean and disease-free was vital and milk depots were proposed to provide a 'safe' food supply for infants. During the nineteenth century, American cities had very high infant mortality rates and the first milk depot selling milk certified as safe for babies to consume – it contained less than 10,000 bacteria/ml – was opened in 1889 by Henry Koplik in New York (Obladen, 2014). Following the introduction of pasteurization in 1893, businessman and philanthropist Nathan Strauss had shown how simply feeding children in an orphanage pasteurized milk instead of raw milk had seen infant mortality rates drop from 42% to 28% in the year between 1897 and 1898. With this remarkable achievement, milk depots were quickly established in cities across America (Kurlansky, 2018).

As part of international efforts to reduce infant mortality, the Women's National Health Association of Ireland (WNHAI) had been providing pasteurised milk to Dublin babies from milk depots since 1908, using equipment donated by Nathan Strauss (Doyle and Smith, 1989). For the first time in the history of the city, local authorities began to play a role in maternity services as Babies Clubs were set up – there were nine by 1916 – financially supported by Dublin Corporation with the Department of Agriculture and Technical Instruction providing classes in child hygiene (Doyle and Smith, 1989). The success of the campaigns was double edged however, as milk drinking dropped (and would continue to diminish for the next decade) and South Dublin District Medical Officer of Health, Dr Matthew Russell worried that people avoided the highly nutritious food out of fear of infection (*Freeman's Journal*, 6 February 1914). By early 1920, British and Irish governments were anxious to restore consumer confidence in the purity of the milk supply (Waddington, 2006).

5.3.3 Obstacles facing the establishment of a clean milk flow

Ensuring a clean flow of milk into and around the city involved unique problems because of the scale and complexity of the supply network, Dublin Corporation's lack of oversight outside of its jurisdiction and widespread lack of adherence to existing legislation in rural Ireland. Inspecting milk entering the city at railway

stations marked the limit of Dublin Corporation's legal powers. Changes in the culture of consuming milk was required as Dubliners echoed consumers worldwide in their slow acceptance of pasteurisation and sterilisation even though these steps would have interrupted the flow of pathogens which often accompanied milk to consumers. Even Charles Cameron, while declaring his belief that properly boiled and sterilized milk would kill the tubercular bacilli had announced twenty years earlier: 'I have a great objection to drinking it. I would rather run the risk of getting tuberculosis and drink it as it is' (Royal Commission on Tuberculosis, 1898). The aversion to tampering with this natural product would prevail for another two decades until the *Boston Medical and Surgical Journal* definitively stated in 1923 that 'boiling fresh milk is the only entirely safe milk that can be fed to infants' (Obladen, 2014).

In this chapter, referring to the efforts made to ensure a 'clean' milk supply generally refers to a milk supply free of bovine tubercules although the problem of dirt and pathogens entering the supply in the final stages of the flow between producer and consumer still existed into the 1930s. Practices such as the distribution of loose milk from a churn on the street allowed for the possibility of bacteria entering an otherwise sterile churn. Similarly, customers regularly left unprotected and inadequately cleaned jugs, or jugs with saucers for lids, outside to be filled by the milk roundsmen. This resulted in a disproportionate amount of blame for sour or unclean milk on the milkman and could only be remedied by the delivery of milk in sealed bottles (Department of Local Government and Public Health [DLGPH], 1928). However, dirty practices would continue in dairies throughout the 1920s. When public health reports resumed in 1929, approximately fifty-eight prosecutions under the Dairies and Milkshops Order 1908 were recorded that year. Cow-keepers such as Anne Cullen, 2 East Road and John Birmingham of 14 Mountjoy Street were fined for dirty milking while Mrs B. Walsh of 19 Macken Street and Mrs B. Eardley of 208 Parnell Street were fined for soiled and discoloured cloths between the lids and churns of milk (Dublin Corporation, 1929).

The guidelines for identifying bovine tuberculosis under the Bovine Tuberculosis Order 1908 depended on visible symptoms being detectable to the veterinary

inspector. These guidelines were clearly inadequate as testing and visits to the Corporation Abattoir and Dublin City slaughterhouses revealed that actual rates of illness in animals were far higher than were detectable in the living animal. After a long haitus, the Public Health Reports for the City of Dublin when published again in 1929, record how cattle experienced tuberculosis in different parts of their body – their lungs, hearts, skirts, stomachs and intestines and udders – although the lungs were by far the most commonly affected. Cows were much more likely to be found with 'unsound organs' when examined at the abattoir – tubercular lungs were found in ten times more cows (1,651) than bullocks (134) and heifers (114) for example. Estimates for the percentage of tubercular cattle in the country differed and were believed to be between 23% and 32% although this tended to differ based on the type of animal with cows at 32% and bullocks at 10% (*Irish Times*, 22 December 1934). Figures for the different cattle slaughtered in the abattoir suggest that the statistics above can only be explained by the much longer average life span of the milch cow compared to the bullock and heifer, both of whom were slaughtered before they reached two years of age thus limiting the time the disease had to manifest itself within their bodies.

Perhaps the largest hurdle on the road to ensuring a pathogen-free milk flow from producer to consumer was the cost of implementing the changes required. Stopping the transmission of bovine tuberculosis and other milk-borne illnesses from cows to humans through the consumption of contaminated milk required a two-pronged approach – regular examination of cattle for visible signs of tuberculosis and regular testing of milk. However, the *Tuberculosis Prevention (Ireland) Act, 19*08 which gave sanitary authorities power to slaughter cows affected with tuberculosis of the udder while compensating the owner up to £10 had little impact on controlling the disease. This tactic was employed for years but decision makers recognised the potentially ruinous cost of culling a large percentage of the national herd and the shortage of milk that would ensue (DLGPH, 1928). Governments had been slow to implement mass testing programmes when it was estimated that up to a quarter of British and Irish herds were infected. Positively reacting animals had to be slaughtered but the financial

cost of a compensation programme was too high (Waddington, 2006). Slaughtering all positive reacting animals would have also caused an acute shortage of milk (DLGPH, 1928). In Dublin the approach taken was to incentivise owners of dairy cows to surrender an animal they believed to be infected. The amount of compensation paid was determined by the state the animal was in when it was reported or detected. For example, in 1931 nineteen animals were found to come within the scope of the Bovine Tuberculosis Order, and £46 16s was paid to the owners of twelve animals valued at £103 while no compensation was paid to the owners of seven whose owners had not reported them although they were visibly affected (Dublin Corporation, 1931). That owners received approximately 50% of the market value of their animals would continue to be a major bone of contention for cow-keepers and dairymen. Under-reporting would continue until the compensation value increased.

Milch cows posed a danger to the health of Dublin's inner-city residents whether they were located close by or at a distance. Located within the city centre during the colder months, the danger came from accumulations of bodily wastes, while their distance from the city during the warmer months increased the opportunity for contamination of their milk. Meanwhile, early twentieth century values included the expectation that milk produced in a rural landscape would be healthier than that produced in an urban landscape (Atkins, 2010), but for Dublin's milch cows the opposite proved to be true for three main reasons. Firstly, when the animals were out to summer grazing most of them were not visited by the local sanitary inspectors, a fact which could allow standards to drop. Secondly, with the best will in the world it would have been almost impossible to maintain adequate hygiene standards while milking in the fields. Thirdly, the warmer temperatures during the summer period allowed any bacteria introduced into the milk during milking to replicate more quickly increasing the potential of inducing milk-borne illness. Between May and the end of October, all milk consumed within the city was carried in and logic suggests that the pathogenic load in the milk, and the risk to the consumer, increased with distance between the origin of the milk and the consumer due to higher temperatures during these months. Cooling milk as

quickly as possible to 12°C or below was a priority for cow-keepers (Atkins, 2010). This could be difficult during the summer months, so some of the increase in pathogens in Dublin milk can be accounted for by the increased speed at which pathogens proliferate during the summer. However, this research suggests that the difficulty cow-keepers would have faced reaching the required hygiene standards when milking cows in fields was also an important factor. Maintaining the level of hygiene required to meet the standards required by the dairy regulations would have been much easier in the controlled environment of a city yard. In a field, clean water would have been required to wash the cows' udders and milkers' hands, and pre-cleaned buckets and churns would have had to have been transported from the yard risking contamination on the journey. The issue of inadequate water supply on farms for washing animals and sterilisation of utensils was not publicly addressed until the 1948 *Report of tribunal of inquiry into the milk supply for the Dublin sale district*.

5.3.4 Clean milk drive escalates from 1926

By 1926, aware of how the Free State lagged behind international efforts to improve milk, an eclectic and powerful group of reformers came together to form the Irish Clean Milk Society (ICMS) with the sole aim of having a modern Milk Supply Bill introduced. The Society held its first meeting on the 17th of May 1926, when Sir Edward Coey Bigger (father of Dr Joseph Bigger) was elected President. Amongst the new members were health professionals such as Dr Brian Crichton, the first paediatrician at Dublin's Rotunda hospital and many members of the National Women's Health Organisation (ICMS, 1926). At a time when sectarianism dominated many elements of society, especially maternity and child welfare (Earner-Byrne, 2013), the Society was a multi-denominational organisation and included many eminent members of Dublin and Irish society including W.B. Yeats.

This Dublin-based Society was part of an international knowledge network and clean milk movement which had been gathering momentum during the first two decades of the twentieth century (Atkins, 2010). Irish delegates from the ICMS attended international conferences on clean milk in London, Copenhagen and

Berlin over the course of the following decade. Furthermore, recognising that it was initially useless to appeal to the Department of Agriculture for funds, the Society ignored the government's attempt to forge a 'clear national identity for the medical profession (and public health) within the Free State' (Jones, 2001, p.15), instead requesting permission from the English Clean Milk Society to use their leaflets. Dr Connan, Bermondsey's Medical Officer of Health, subsequently supplied the society with two very large bundles of 'excellent propaganda' from Bermondsey's Public Health Department in London (ICMS, 1926).

The powerful voices within the ICMS supporting the drive to interrupt the flow of pathogens entering the Free State's milk supply were successful in lobbying the government to launch an inquiry. In 1928 the Inter-departmental committee to advise as to the cleanliness and wholesomeness of the milk supply published a report echoing much of the recommendations of the ICMS vowing that: 'The production of clean milk, not the cleansing of dirty milk, should be our aim and ambition' (DLGPH, 1928, p.25).

5.3.5 Dublin Dairymen and Cow-keepers

Suppliers of milk to Dublin 1929 - 1937

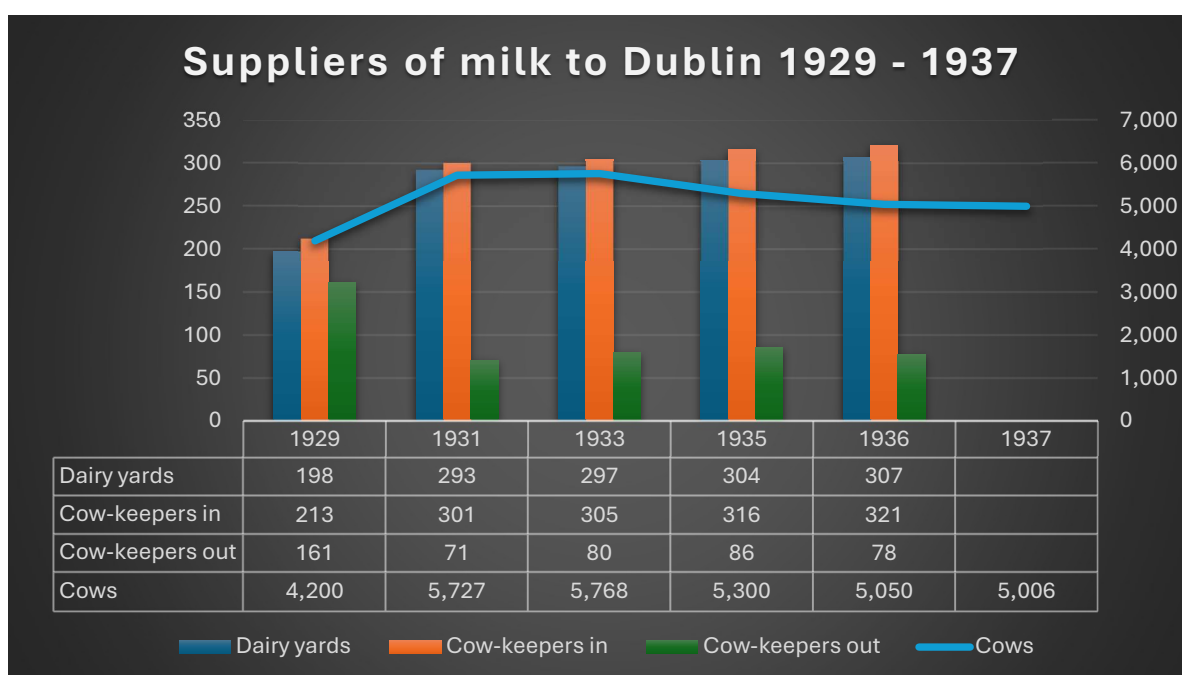|	1929	1931	1933	1935	1936	1937
Dairy yards	198	293	297	304	307	
Cow-keepers in	213	301	305	316	321	
Cow-keepers out	161	71	80	86	78	
Cows	4,200	5,727	5,768	5,300	5,050	5,006

Figure 8: Information recorded in the Public Health Reports for the City of Dublin between 1929 and 1937. The number of dairy yards within the city (blue); the number of registered cow-keepers located in the city (orange); the number of purveyors registered for the sale of milk in the city whose premises were located outside the city boundaries (green); the approximate number of milch cows housed in the city during the winter months (blue line). Note the large growth in numbers between 1929 and 1931 resulted from the expansion of the city's boundary in 1930 which increased the size of the municipal area (Dublin Corporation, 1929, 1931, 1933, 1935, 1936, 1937).

Dublin City's ecosystem was growing, and with it the number of cow-keepers and milch cows registered in the city's municipal district. Public health reports for the city of Dublin appeared in 1929 for the first time in fourteen years. In 1930, the city boundaries were increased to include the Rathmines and Pembroke urban districts along with areas such as Rathfarnham, Terenure and Kimmage on the southside and Cabra, Finglas, Raheny and Clontarf on the northside. This 'gave the city a greater spatial coherence' but ignored the coastal townships on the southside and Howth on the northside and it was clear to all that the County Borough would 'outgrow its boundaries before too long' (Brady, 2002, p.451). It can be seen in figure 8, above, that this resulted in all bar seventy-one of the cow-keepers/purveyors of milk into the city being brought within the city limits and therefore directly under the control of Dublin Corporation. A 33% increase in the number of dairy yards and a 36% increase in the number of milch cows would have

required an increase in the number of staff employed by Dublin City Council sanitary department if the current standards were to be maintained. Between 1929 and 1936, although the number of dairy yards and cow-keepers in the city gradually increased, the number of milch cows dropped steadily. This suggests that the number of cows kept per cow-keeper decreased so there were more dairymen with fewer cows in 1936 than in 1929 (see figure 8 above). In the 1920s, dairies, registered cow-keepers and dairymen were listed annually in Thom's Street Directory lending them a professionalism of sorts.

Dublin Corporation's commitment to improving public health in the early 1930s is evident in that, after the boundary increased in 1930, extra resources were allocated to the sanitation department to increase the frequency with which every area of Dublin's dairy industry was inspected. The number of inspections carried out on milch cows, dairy yards, milkshops and dairy stores and railways increased in line with the increased acreage within the Municipal boundary. Their message was getting through as prosecutions under the Dairies and Milkshops Order decreased from fifty-eight in 1929 to fifty-one in 1931 despite the increase in population (Dublin Corporation, 1929, 1931). In 1933 it was recorded that every cow housed in the city dairy yards was examined at least twice at different periods between November and April with any cow found contravening any part of the Bovine Tuberculosis Order of 1926 being slaughtered immediately (Dublin Corporation, 1933).

5.3.6 Rural/urban divide in interest in the clean milk campaign

Unfortunately, with many different causes vying for funding within the new Free State, money shortages abruptly halted progress towards the establishment of a clean milk supply. Although government policy in the 1920s favoured agriculture deeming 'national development practically synonymous with agricultural development' (Ó Gráda, 1994, p.391), during these years public health improvement was not linked with agricultural improvement. This led to an urban/rural divide where the DCDA enthusiastically pledged their support for a series of 'clean milking competitions' planned for the 1929 RDS Spring Show. They

believed that certificates with marks obtained and issued by the Society would be valued by dairymen and employers alike who could use them to advertise the quality and efficiency of their dairies and dairymen (ICMS, 1926). Unfortunately the Department of Agriculture did not see the value in such competitions and refused to fund them (ICMS, 1926). At the same time doctors were complaining that not enough state funds were being made available to tackle the causes of infant mortality and other childhood afflictions while 'money was being freely spent on improving their breeds of cattle and blood stock, money to improve the lot of the human race was always stinted and given grudgingly' (*Irish Times*, 9 July 1930, p.5). Once again, as is discussed in detail in the next chapter, the needs and ideals of the rural and urban Free State were being pitted against one another. If a disproportionate amount of available monies was being funnelled into Ireland's agricultural economy, between 1922 and 1932 'the aim of raising agricultural efficiency' had not been achieved and the number of cattle enumerated had actually fallen by 8%, while acreage under the plough had fallen by 17% (Ó Gráda, 1994, p.392).

Although reformers felt that the new draft Milk Supply Bill, which contained sufficient measures to stop the flow of pathogens which accompanied milk flows, was ready by the end of 1929, there was no political will to have it enacted. Between 1922 and 1932 successive governments had 'made virtues of continuity and caution' running a 'very tight fiscal ship' (Ó Gráda, 1997, p.4). Much to the frustration of the ICMS, the Bill had stalled because the government felt that there was no demand for new legislation around milk (ICMS, 1926). They were probably right because, although there was demand for reform in Dublin City where milk consumption had dropped dramatically, demand was lacking across rural Ireland. Given how the city's ecosystem was so entangled with the rest of Ireland through flows, reforming Dublin City's milk supply in isolation was impossible.

5.3.7 Education and pathogen pathways through milk flows

Improving public health required helping the public to understand that the flow of bovine tuberculosis from animal to human, from rural to urban, occurred through

human actions. Education was key and the ICMS identified the national press and the cinemas as the most suitable vehicles for this education (*Irish Times*, 9 July 1930). From the silent era onwards, doctors and educators had produced films on a broad range of medical and health-related topics (Bonah, Cantor and Laukotter, 2018). One of the first steps that the ICMS had taken was getting the *Irish Times* and the *Irish Independent* to agree to give their meetings extensive coverage which the two newspapers duly did. Information flowed out of Dublin through the press as the content generated by these newspapers within Dublin was then redistributed through the local newspapers across the country. Looking to reach the widest audience possible a 'cinematic slide' of a drawing of two babies saying 'we want clean milk' and underneath 'Get it by joining the Irish Country Women's Association' was discussed (ICMS, 1926). The success which stemmed from educating the public was recognised by the authors of the 1928 report into the Free State's milk supply who noted the 'remarkable fact' that the death rate from non-pulmonary tuberculosis (i.e. TB largely acquired from drinking infected milk) in Dublin had decreased at the same rate as New York between 1910 and 1925 despite the fact that all milk sold in New York during that time was either pasteurised or 'certified' (DLGPH, 1928 p.17).

Just as the ICMS were frustrated in their attempts to progress, local government was forging ahead with a drive to improve maternity and child welfare and reduce infant mortality in the city. A clean milk supply was recognised as vital to the health of the community. At the same time, even though the duties of appointed County Medical Officers were strictly defined as public health, the expense of appointing these officers nationally was still justified on the grounds of protecting agricultural exports through improved sanitation rather than protecting the public from disease (Barrington, 1987). Meanwhile, the Commissioners of the Borough of Dublin (who had replaced the elected Corporation members in 1924) continued to fund the infant welfare scheme through the City of Dublin Child Welfare Committee. In 1929 alone, the Infant Aid Society (established in 1910) had distributed 426,086 free bottles of the best milk available and sold 20,274 at a reduced rate through thirteen milk depots. The guarantee of the purity of the milk fed to babies in Dublin

had been made possible by the establishment of tuberculin tested herds (Dublin Corporation, 1929).

5.3.8 Development of tuberculin tested herds and certification

Dublin's dairymen and cow-keepers, just like their rural counterparts, recognised that it was ultimately in their interests to keep their herds healthy and cow testing associations had started to spring up across the country. By the 1920s it was clear that tuberculin was the best defence in attempts to eliminate bovine tuberculosis (Waddington, 2004). Two systems of ensuring tubercular free milk were held as the gold standard at this time – the 'accredited herd' system which was commonly used across America and had recently been introduced to Britain and the 'Bang's' system which was in use in Denmark. Although the 'Bang's' system was arguably more thorough in rooting out infected animals it also required more regular testing and more space so that a herd could be segregated. For this reason, the 'accredited herd' system was favoured in the Irish Free State. However, attaining 'Accredited Herd' was often costly to the cowman who was only partially compensated as a number of animals were generally required to be removed, slaughtered and replaced with new tubercular tested animals. This ultimately pushed up the price of certified milk (DLGPH, 1928). In 1927, the County Dublin Cow Testing Association comprised only fifty-nine members with 491 cows (*Irish Independent*, 27 April 1928)

Even amongst those rural farmers who acknowledged what was required to stem the flow of bovine tuberculosis into human milk supplies, there was still considerable antipathy towards Dublin urbanites and their opinions. When the Cow Testing Association Congress was held in Dublin on January 8, 1930, scathing reviews of the Dublin speakers were found in several regional newspapers indicating that advice on rural affairs flowing from Dublin was unwelcome. The *Drogheda Independent*, the *Kerry Reporter* and the *Kerryman* all carried the same piece which complained about 'officials paid by the State... mounted the rostrum at the Cow Testing Associations Congress, and not one of them had even the courtesy to disguise themselves as a farmer' (*Kerryman*, 18 November 1930).

Dubliners telling those who lived on the land what to do and how to live was bitterly resented by the farming community. When Chief Veterinary Inspector for Dublin Corporation, P. F. Dolan intimated during the conference that tubercular milk was being carried into the city from outside because bovine tuberculosis was virtually unknown in the milch cows in the poorest districts in Dublin, where rates of tuberculosis were highest, the enraged writer suggested that it was merely 'want of milk' causing the problem.

Because the rate of bovine tuberculosis found in milch cows in Dublin was so much lower than average for the Free State, indicating that tubercular milk was carried into the city rather than produced in the city, reformers regularly called for representatives from Dublin Corporation's sanitary department to have the right to access farms and creameries beyond the city boundaries. However, in reality supervising the production sites of scattered producers in far-distant localities would have proved logistically and economically impossible at the time (DLGPH, 1928).

In Britain in the 1920s, 'grading was officially sanctioned as a means of encouraging producers to take quality seriously' (Atkins, 2010b, p.116) while creating grades created different markets with different price points (Waddington, 2004). At this time, a system of official certification had yet to be introduced in Ireland although some dairies were voluntarily testing and grading their milk. In 1929 Mr Hatch of the DCDA was testing his herd and providing the Infant Aid Society with self-certified milk (Dublin Corporation, 1929). However, the system of self-certification was considered inadequate by the ICMS in line with the school of thought that believed that 'certification of milk was the legitimation of grades of dirt'(Atkins, 2010b, p.270). The notion of higher-grade milk was open to exploitation by marketeers and, within months of the formation of the ICMS, the society had to publicly chastise Hughes Bros Dairies for taking the opportunity to increase their market share by having it appear that the Clean Milk Society endorsed their produce. Hughes Bros placed an advertisement on the front page of the *Irish Times* using the phrase 'Join the Clean Milk Society... in other words get your milk from the pioneers of pasteurised bottled milk' (Irish Clean Milk Society,

1926). James Hughes, former Chairman of the DCDA between 1919-1921, was forced to issue a public apology to the society (ICMS, 1926). Ultimately reformers in Dublin would suggest that the four grades used in England could be simplified to two in Ireland – 'Grade A – Tuberculin Tested' and Grade A (DLCPH, 1928).

5.3.9 Incentivising cow-keepers to invest in disease-free herds

The flow of certified tubercular-free milk through Dublin City's urban metabolism increased significantly between 1929 and 1935 when it became economically advantageous to producers to supply it. The National Free Milk Scheme, which was administered through the Infant Aid Society in Dublin who only accepted the highest quality milk, would further incentivise Dublin's dairymen and cow-keepers to invest in maintaining disease-free herds. The Infant Aid Society had increased the quantity of milk it distributed from 190 gallons (1,520 pints) per day in 1929 to 800 gallons (6,400 pints) per day in 1935 and twice this amount was available for purchase by private consumers (Dublin Corporation, 1935).

A strict and lengthy set of conditions needed to be adhered to by contractors wishing to supply the Infant Aid Society, but these ultimately resulted in a raising of the overall standard of production in Dublin dairy yards. Similar incentives in Britain saw campaigners argue that the creation of a system of market premiums for meat and milk guaranteed tubercular free would incentivise farmers and milk producers to 'test their herds and buy tested cattle' (Waddington, 2004). Keeping the milk as free of contamination by bacteria as possible was incentivised by deductions to the price paid to the producer if the milk was found be contaminated. However, certain levels of contamination were considered acceptable depending on the time of year which would have taken account of the effect of increased temperatures (Dublin Corporation, 1935). Both the quantity and the properties of the raw milk and the acceptable levels of bacteria in the product entering the supply flow, changed with the seasons. This altered the nutritional value of the milk itself and the goodness in it available to consumers when ingested and metabolised within their bodies.

5.3.10 Consequence of uneven adoption of measures

Progress reducing bovine tuberculosis in the national dairy herd to ensure a clean milk supply in the Irish Free State in the late 1920s and 1930s was not evenly spread between urban and rural areas. By 1939, of the thirty-five tuberculin tested herds in the Irish Free State, thirty-three were in Dublin. The reluctance of rural veterinary inspectors to 'over-rigorous enforcement of public health measures' meant that significantly higher levels of TB illness had bovine origins in rural areas than in Dublin (Jones, 2001, p.141). In 1934 the ICMS highlighted that the ineffectiveness of the state's spending on public health. The Society demonstrated the futility of providing subsidised milk to school children and other vulnerable groups until the Milk Supply Bill was enacted. A large number of schools in Dublin saw the introduction of the 'penny' bottle of milk which was considered to be of immense benefit to the health of these children (Dublin Corporation, 1935). However, the ICMS was able to show that this plan was poorly conceived because the results could have potentially caused more harm than good in some schools. The ICMS sent a circular to a selection of schools to gather information on their knowledge around the necessity of ensuring that those contracted to supply the school with free milk could guarantee that the milk was supplied from a tuberculin-tested herd (ICMS, 1926). Out of the thirty schools which responded to the circular, only four were being supplied with milk from tuberculin tested herds where the dairy had a sterilizer and cooler. When a similar circular was sent to thirty-two Dublin hospitals and nursing homes it appeared that only twelve of them were actively sourcing their milk from tuberculin free herds. However, the picture was much worse across the country where only two of the forty-three hospitals contacted could guarantee that the milk they routinely fed to their patients was tuberculin free (ICMS, 1926). The results of these surveys sent shockwaves across the medical world and increased the demand for a guaranteed disease-free milk flow into Dublin City's ecosystem. Advertisements began regularly appearing in the press tendering for 'New Milk, Grade A quality' for hospitals such as the Cork Fever Hospital and House of Recovery on Richmond Hill, Dublin. Providing milk for this

unique market would ultimately provide opportunities for enterprising dairymen and cow-keepers who could demand the highest prices for their premium product.

To ensure that their patients were accessing clean disease-free milk, some public medical facilities had long kept their own certified disease-free herds. This, and proper hygiene during milking, was the only effective way of preventing contamination in the milk flow from producer to consumer (the cow and the patient). In 1907, Crooksling Sanatorium had been established by Dublin City and County authorities to cater for Dubliners suffering with tuberculosis and another sanatorium had been established at Peamount five years later. After the long hiatus when public health reports were not printed, in 1929 a herd of fifty-four cows, a bull and fourteen calves were recorded as the property of Dublin Corporation at Crooksling Sanatorium Farm. This herd also supplied nearby Pelletstown Hospital with twenty-five gallons of milk per day. These cows were routinely tuberculin tested and any new cows brought into the herd having been purchased through the Dublin Cattle Market were also tested and isolated for six weeks. That year twenty animals were purchased, fourteen were accepted into the herd and six were rejected (c.30%) because they failed to pass the tuberculin test (Dublin Corporation, 1929). Although the sample is small this would agree with the accepted estimate that 32% of the cows flowing through the Dublin Cattle Market were in fact tubercular (*Irish Times*, 22 December 1934). Two years later, Clonskeagh Hospital had a small herd of four cows, two heifers and a calf (Dublin Corporation, 1931).

5.3.11 Outcome of the Milk and Dairies Act 1935 and beyond

One outcome of the efforts to introduce the Milk Supply Bill and amendments which followed in 1937 was the effective pitting of urban and rural communities against each other. Reformers had petitioned the government to make it compulsory that all producers be licensed, irrespective of the volume of milk and their annual turnover. It was believed that licensing all milk producers would have been the cheapest and most effective way to ensure compliance with hygiene regulations and that suspension of a licence would be a more effective way of

dealing with transgressors than fines or even imprisonment (*Irish Times*, 24 November 1934). However, strong representation was made to the Department of Agriculture against the system of registration stating that it would place 'undue hardship on a section of the agricultural community' – the small individual producers (Ward, 1934). Furthermore, it was recognised that individual sanitary authorities would require additional powers to implement the registration process. Therefore, small individual suppliers feeding into the Dublin milk supply would remain unregistered although registration for Dublin Dairymen within the municipal district had been required for decades.

Inequalities followed as the ability to implement national legislation differed by county. Dublin dairymen and cow-keepers had long complained that they were subjected to far more inspections than their rural counterparts (*Freeman's Journal*, 4 January 1909) and the average number of inspections a cow-keeper received depended on the number of veterinary inspectors employed by the county and the size of the area they covered. In the 1936 census, there were forty-three veterinary surgeons living in Dublin County Borough while there were only six recorded in the whole of County Galway (Department of Industry and Commerce, 1940). Essentially, even after the introduction of the Milk Supply Bill, disease was constantly being reintroduced into Dublin through country cattle and country milk. This is because of the complete interdependence between rural Ireland and urban Dublin and shows the absurdity of pretending that it was otherwise because of the porosity of the boundary between the two.

5.3.12 Pig rearing linked with dairying

Good animal husbandry practices whether within an urban or rural environment have traditionally seen agriculture as an integrated system with as little waste as possible. Because one of the best ways to utilize the waste products of dairying was as pig feed, the 'pig became a necessary adjunct to every dairy farm' (Bell and Watson, 2008, p.277). It followed then that the health of the national pig herd was also dependent upon a healthy milk supply. Skim or separated milk, not required for the feeding of calves or poultry, was routinely fed to pigs and as a result the

incidence of tuberculosis in pigs was considerably higher in dairying rather than non-dairying districts (Department of Agriculture, 1933). A tribunal into the functioning of the pig industry in Ireland was conducted in 1933 with a view to growing it in the future. This addressed the prolificacy of pig-keeping in Dublin but did not criticise it. As mentioned previously, piglets were bought into rather than bred in urban districts in Dublin. Indeed, on June 1, 1933 although there were 9720 pigs living in the county borough only forty-six licences for pedigree and four licences for non-pedigree boars were issued that year (Department of Agriculture, 1933). Most likely these boars were living in rural areas that had been recently incorporated into the municipal district. The pigs' bodies provided another vector for the transportation of tuberculosis of bovine origin into the city from outside. Although TB did not result in the death of the pig, tuberculosis would be discovered in the killing sheds of the pig factories such as Donnellys or the Dublin Corporation Abattoir and this resulted in considerable loss to the pig-keeper with some parts, if not all, of the animal being put aside for destruction if found to be contaminated. In 1933 alone, 361 pigs passing through the Dublin Corporation Abattoir were found to have evidence of tuberculosis on their heads although only twenty-eight carcasses were wholly condemned (Dublin Corporation, 1933). Recognising that piglets, just like humans, could be infected with bovine tuberculosis through contaminated milk products, by the mid-1930s the same advice about the necessity for utilizing boiled or pasteurised milk products was being given to pig-keepers as to the parents of young children.

5.4 Conclusion

This chapter has shown how examining the place of animals in Dublin City revealed how Dublin City's urban ecosystem, although centred in the municipal area, stretched to all corners of Ireland and into Britain and beyond. The flows of animals and animal products into and out of the city – the inputs and outputs of Dublin City's ecosystem – provided crucial energy for the city's urban metabolism and blurred the distinction between urban and rural. Dublin City's urban landscape and communities were dependent for their existence on animals which

originated outside the city's ecosystem flowing into the system because no animals were born in the city and yet thousands of them lived within the city. This dependence made Dublin vulnerable.

Because Ireland was a part of the British Empire, political and economic decisions made in Britain had the potential to negatively affect Dublin City's urban ecosystem by altering the city's urban metabolism. This happened during WWI when human-animal relations were profoundly altered as the roles and functions of Irish animals were redrawn. Horses which had formerly worked the streets of the city were requisitioned for the war effort and shipped out through Dublin port in their thousands. Food shortages in Britain quickly saw demand for Irish animals soar and cows and pigs reared for the Dublin market were redirected to Britain. Rising demand and decreasing supply drove prices to the point where farmers sacrificed future supply by selling off breeding stock which prevented the quick recovery in animal numbers after the war ended. It became strikingly apparent how the exploitation of Ireland's animal resources was central to colonial oppression in Ireland. This is demonstrated by the direct correlation between the hardship experienced by Dublin's animal keepers, the increase in food poverty experienced by many Dubliners and the increased exploitation of Irish animals for Britain's war effort. Ultimately, the alterations in Dublin City's urban metabolism which resulted from the decreased energy inputs into the city's ecosystem and increased flows of agricultural products and animals out of Ireland and into Britain altered the economic, social and political landscape in the city.

The interconnectedness between Dublin and rural Ireland is highlighted in the case study which examined the difficulties encountered in the effort to clean up the Free State's milk supply. The transmission of bovine tuberculosis and other pathogens through milk flows shows how Dublin's urban metabolism and ecosystem were utterly entangled with the rest of Ireland. Dublin's ecosystem and urban metabolism was also shown to be acutely vulnerable to contamination when the same attention to milk hygiene standards was not shown outside the city's boundaries as inside. This urban/rural entanglement would prove to be an

obstacle to effectively rolling out the clean milk campaign in Dublin City if similar standards were not enforced in rural Ireland.

Dublin City occupied a unique urban/rural hybrid space and agricultural landscapes for cow-keepers and dairymen in the city vs the countryside differed in reality and in perception. Rural cows were generally associated with outdoor fields while urban cows spent six months of the year in cramped indoor spaces, and this led to the belief that country milk was more natural and therefore superior to city milk. This was proven to be untrue and the levels of bovine tuberculosis among milch cows was generally low in Dublin City yards. However, this belief in rural environments being healthier environments in which to raise animals meant that rural farmers were much slower than their urban counterparts to adopt new technologies such as tuberculin testing.

Dublin was pitted against rural Ireland in the clean milk debacle and the Dublin-centric nature of the reformers raised hackles in rural Ireland. The *Irish Times* and the *Independent,* two of the largest national newspapers, diligently reported on the meetings held by the Irish Clean Milk Society where it was made clear that Dubliners suffered the effects of bovine tuberculosis which originated in rural Ireland. At the same time Dublin Corporation sanitary department employed many more sanitary inspectors and veterinary inspectors to monitor a small densely populated area than any of the County Councils who looked after areas which were larger and with populations more spread out. While it was reported that the adoption of sanitary laws across the country was geographically uneven, in reality the ability to enforce sanitary laws also differed.

There appears to have been a substantial difference in attitudes between residents of Dublin City and rural Ireland regarding the threat that tubercular cows posed to human health. Even after eight years of intensive public education, surveys conducted to establish if hospitals and schools were sourcing milk from tubercular free herds yielded poor results in Dublin City but far poorer results across rural Ireland. Furthermore, this research suggests that the difference in the number of veterinary surgeons recorded in Dublin City versus County Galway in

1936 is indicative of the difference in attitudes towards bovine tuberculosis between urbanites and rural farmers.

In the next chapter, the drivers behind the evolution of human-animal relations in Dublin City up until the early 1970s are explored. Chief among these were the forces of modernisation which sought to bring Ireland's capital city into line with other European and American cities. This period also encompasses the Economic War with Britain and the Emergency, both of which presented significant challenges to the Free State which were often manifested in changes in human-animal relations.

6.0 Chapter 6: The slow decline

6.1 Introduction

This chapter explores how human-animal relations evolved in Dublin City between c.1930 and 1973, a time of profound transformation driven by technological innovation, scientific progress and cultural shifts. These modernising forces drove legislative and social change which altered human-animal relations in response to evolving transport technologies and agricultural practices as well as a rise in interest in animal welfare.

At the beginning of this period, viewed through the prism of human-animal relations, the city resembled a rural/urban hybrid space. However, by 1973 only traces of the city's animal past lingered in the urban landscape – the milch cows were gone, few horses worked the streets, the Dublin Cattle Market had closed leaving only pigs in the city in great numbers. Unsurprisingly, the removal of the animals had a knock-on effect on the offensive trades supported by them. The evolution of the city was not linear, nor were the changes which occurred evenly distributed over space and time. Change often involved fluctuating tensions between those who pursued it and those for whom it would be economically costly. From the 1930s the growth of a modern motorised transport system increasingly reduced the number of horses employed in haulage, except for a brief period during the Emergency. Pressures exerted by the modernisation of the milk industry internationally saw the number of milch cows housed in Dublin City slowly decline as regulations and requirements made it harder for the urban dairymen to produce milk profitably. However, for decades Dublin's pig-keepers largely resisted the forces of modernisation. The unique practices associated with urban pig-keeping cushioned urban pig-keepers from the difficulties experienced by rural pig-keepers during times of political upheaval and allowed for large numbers of pigs to flourish in the city beyond the research period covered here.

To date, no study has sought to understand how modernising forces ultimately led to the removal of Dublin's animals and animal-related industries by the end of the

twentieth century. Adelman (2020, p.200) described how, in the nineteenth century local government regulations regarding animals 'affected social and economic geography... by keeping undesirable animals and animal businesses confined to particular areas'. Nevertheless, the place of animal agriculture and animal-related industries in Dublin City in the twentieth century is largely missing from the literature although Irish agricultural policy is examined in detail by Daly (2002) and Rouse (2017). However, examining the Dublin Cattle Market's decline between 1955 -1973, O'Brien (2021) has explored the rural-urban interactions required to operate such a rural enterprise in an urban setting at this time. He has explained how the changes which caused the decline mirrored changes which were occurring all over rural Ireland.

Changes in social attitudes and ethics had driven the animal welfare movement during the nineteenth century highlighting animals' needs and capabilities and Adelman (2020) noted how the Dublin Society for the Prevention of Cruelty to Animals (DSPCA) became entangled with religion and politics in Ireland. The place of the DSPCA in promoting social and ethical changes leading to legislative change in the twentieth century has not yet been given any attention by scholars. Studies by Kevin Kearns have recognised, albeit in a limited way, the roles that animals may have played in shaping the urban fabric of Dublin City in the twentieth century (Kearns, 1989; Kearns 1991; Kearns 1994). Importantly though, O'Brien (2021, p.50) recognised that the Dublin Cattle Market provided an 'interface between country and city' and that the urban-rural divide was less pronounced in the 1960s than it is today. This chapter seeks to add to the detail captured by Kearns and fill the gap identified in the literature.

Although the contents of this chapter again primarily depend on archival resources and newspaper articles, the inclusion of a new research method – in this case oral history collection – adds to and enhances understanding of the broad research area investigated up to this point by diversifying perspectives (Freeman, 2020). Although animal handlers were very common on the streets of Dublin little has been documented about them outside of Kearns's works. Indeed, this research draws upon and is greatly enhanced by the multiple oral histories recorded by

Kearns in the 1980s and 1990s while O'Brien's (2021) oral histories provide a window into the operation of the Dublin Cattle Market in the 1960s. The collection of the oral histories was a collaborative and enjoyable experience for all involved and the participants expressed happiness and gratitude that their memories were being recorded and valued because, as Ritchie (2014, p.18) noted: 'the passage of time enables people to make sense out of earlier events in their lives'. As a methodology, oral history interviews surpass archival sources because of the dialogue between the researcher and the participant allowing the researcher to 'complexify their perspective' (Freeman, 2020, p.5). The oral histories drawn upon for this research breathe life into quantitative data from industry and employment census data, and data regarding the large number of animals passing through the Dublin Cattle Market, the Dublin Corporation Abattoir and private slaughterhouses recorded in the Public Health Reports.

Between 1930 and the 1973, Dublin's ecosystem remained inextricably embedded in rural Ireland's wider ecosystem through rural-urban flows and these rural-urban entanglements meant that urban Dublin was directly shaped by changes experienced by rural Ireland's agricultural economy. The volume of animals moving through the Dublin Cattle Market and the Dublin Corporation Abattoir, and the employment generated around these, are representative of the economic advantages that this rural-urban entanglement brought to Dublin City. However, the flows and entanglements went both ways and, although they encountered fierce resistance and derision, ideological reformers in Dublin such as the DSPCA ultimately affected huge change in rural Ireland as well.

6.2 The horse – driven from the urban environment
6.2.1 1930-1940
The urban workhorse was the first animal in Dublin City to succumb to modernising forces through technological advances in motorised transport. Mass production of motor vehicles had seen a reduction in the use of horse-drawn transport during the first three decades of the twentieth century in Dublin. However, the 'technological upgrade' from horse to machine proved challenging

for many who owned or worked with horses and proceeded slowly and unevenly. Some transport workers were unable to quickly switch to motorised vehicles for economic reasons while others resisted the new technology for emotional reasons. Over time less space in Dublin City was allocated to horse-drawn vehicles as attempts to manage increasing motor traffic saw horse-drawn traffic restricted in certain streets at certain hours (McManus, 2021). Despite the advantages offered by motorised transport, this modern technology was not accepted overnight, and many small businesses resisted switching their haulage methods for decades. Even though a truck could cover twenty times the area that a horse could cover, some companies such as bakeries, coal companies and dairy firms found it advantageous to continue to use the horse to cover certain regular routes (McShane and Tarr, 2007). It was the horses' spatial awareness and their ability to recall routes that made them invaluable to their owners (Raulff, 2017).

A major driving force behind the modern motor technology was economic but a lack of financial means would exclude many from adopting motorised transport and force them to retain horse transport. The cost of the inputs required to fuel a horse's labour were greater than those required to fuel an engine (McShane and Tarr, 2007). Unsurprisingly horses would remain longer in the countryside where their bed and board was considerably cheaper than their urban cousins (Raulff, 2017). Horses for personal transport had been replaced by motor vehicles in wealthier urban areas first and the social sorting that accompanied the spatial sorting and segregation of animals (Brown, 2016) was already clearly visible in 1911 at the beginning of this research period. Stables were rarely recorded in the 1911 census in the wealthy areas of the city, such as around St Stephen's Green, but were prolific in the poorest areas of the city such as the Liberties and in Dublin 1. Even for relatively prosperous small business, a horse required a large capital investment, and many owners will have waited until they had extracted as much energy from the horse as they could before making the switch. By 1926 only about a third of the total commercial vehicles had switched to motor transport although 40% of hackney cars were now motorised (*Irish Times*, 6 March 1926). Despite the increase in motor haulage, horses remained kings of the road with more than six

hundred cabbies carrying passengers and c.3,300 horse-drawn lorries, carts and vans lugging goods around the city (Stationery Office, 1926). The removal of horses from the transport network had social and economic consequences for those who worked with them.

For cabbies and jarveys, their lives were completely intertwined with their animals and some jarveys and cab drivers resisted substituting the living breathing animal with new motor technologies. An ancient bond saw the horse serve as the 'natural expansion and augmentation of man's strength' so separating the two 'robbed men of their vital expression' (Raulff, 2017, p.21). Working as a jarvey was a profession where knowledge was handed down through the generations (Kearns, 1991) and successfully working with a horse requires complete trust between both parties (Walker, 2008) – especially in a busy city street where communication between driver and horse requires a continuous flow of hand movements and verbal instructions. Emotionally fulfilling relationships of trust and familiarity were built up between the horse and driver (Walker, 2008; McEwen, 2015) which could not be replicated between man and machine and some of Dublin City's older jarveys who had worked with horses all their lives found themselves unable to embrace the new technology. 'Their heart wasn't in it... no it was with the horse' (Kearns, 1991, p.164). Expertise developed over a lifetime was useless and new skills had to be acquired when dealing with this new inanimate technology which did not recognise or respond to human commands. 'One fella when he was in a motor car learning to drive he'd be saying 'c'mon... yup, yup, whoa whoa!' (Kearns, 1991, p.164).

Jarveys were proud of their horses who functioned as visible symbols of their social status on the streets of the city and removing the horses threatened to remove a whole social group from Dublin's social hierarchy. Horses occupied a different place to livestock animals in Dublin's animal landscape, and class determined whether 'your animals displayed economic fortune or (you) depended upon them to prevent economic misfortune' (Adelman, 2020, p.25). Jarveys tended to intermarry and when a jarvey's son married another jarvey's daughter the girl would bring 'horse, hackney car and harness' (Kearns, 1991, p. 48) with her as a

dowry. The girl's family were giving the new family the opportunity of a decent livelihood. Horses are high status animals (Brugger, 2021) and Dublin's jarveys got their status from the quality and presentation of their horses. Competing with each other for both status and fares, jarveys took great pride in the jaunting cars and carriages, keeping the horses 'magnificently groomed' and their 'brass and leather gleaming'(Kearns, 1991, p.48).

The injuries sustained by horses in the city as the number of motorised vehicles on the city's streets rose increased the incentive to replace them with more durable materials. Horses are sensitive animals and if involved in a collision with a motorised vehicle they generally came off the worst and, unlike an inanimate vehicle, 'one cannot exchange their defective parts' (Raulff, 2017, p.44). By 1938 there were more than 21,000 vehicles registered in Dublin City and county and traffic was a real problem (*Irish Times*, 30 March 1938). It's not surprising that half of the 4,869 traffic accidents which occurred on Dublin City's streets were between horse-drawn vehicles and motor vehicles (*Irish Times*, 25 April 1938). Trams also threatened the safety of horses with rows regularly breaking out between the drivers of both although the tram drivers could read a horses body language: 'you'd know a horse was flighty, you could see his ears wagging' and they would knock off the electric current as they passed (Kearns, 1991, p.50).

6.2.2 In pursuit of the humane treatment of horses

The rise in interest in animal welfare from the 1920s in Ireland can be viewed as part of a broader modernising trend characterised by increased ethical awareness, scientific understanding and legislative action. Reformers in Dublin seeking the humane treatment of horses took a more progressive view than their nineteenth century counterparts, seeking to support horse owners to reach high standards of care rather than simply punish those who did not reach those standards.

The plight of the urban horse in the wake of modernising motor transport had become the focus of the DSPCA who were determined to improve the lives and living conditions of animals in Dublin City. The quality of horses bred in Ireland was well known for centuries (Smith, 1998) and was a source of great pride to the

country. Horses were celebrated in the show grounds of the RDS every August at a festival which attracted visitors and buyers from across Ireland and Europe. From 1901 onwards successive Departments of Agriculture would seek to improve all of the native breeds such as the Connemara pony, which was famous for adapting itself to any surroundings, and the Irish Draught which was versatile and much sought after by the British army. Crossed with thoroughbred stallions, an Irish Draught mare produced the legendary Irish Hunter (Bell and Watson, 2008). However, at the same time as modern breeding programmes were improving the quality of horses bred in Ireland, the living conditions experienced by many of Dublin's horses and donkeys remained poor.

The approach to social reform taken by the DSPCA to encourage improvements in animal welfare in Dublin had evolved from simply seeking punishment for those who treated animals cruelly to encouragement of good habits through education. In the nineteenth century the Dublin Society for the Prevention of Cruelty to animals had sought to improve the habits of humans – especially the poor – in how they treated animals (Adelman, 2020). In the twentieth century the approach changed to one of encouragement and reward – they ran poster competitions advocating for the humane slaughter of animals which was won by Miss Lilian Davidson, of 1 Earlsfort Terrace and appeared on hoardings in the city (*Irish Times*, 10 June 1932). They put on shows and encouraged participation through financial remuneration for entrants. Although the annual Horse Show did have some classes in which Dublin workers could exhibit their horses and skills, the show was dominated by upper- and middle-class animal owners and many of Dublin's poor, who often worked with ponies and donkeys, were essentially locked out of participating. In response to this, the DSPCA hosted an annual donkey and pony show which was held in Goff's Yard on Lower Mount Street. The show was aimed directly at Dublin's poor to encourage them to take better care of working donkeys and ponies. Recognising that their target audience was workers, all entrants (presented in good condition) were automatically entitled to 5*s*. compensating them for valuable work-time missed (*Irish Times*, 19 July 1939). This event was very popular, attracting around seventy entrants annually and was very effective in

ensuring the conditions in which the animals were kept were maintained. Entrants were required to register three months prior to the show date and the animals and their stabling were inspected periodically in the time leading up to the show (*Irish Times*, 17 July 1940). Proof of the success of the initiative, as well as the affection with which some owners viewed their animals, which caused them to hold on to animals well past what would normally be considered their period of economic viability, was a special prize which was awarded to the owner of a thirty-one year old pony still in excellent condition (*Irish Times*, 10 July 1946).

The distance between those who sought to reform (the DSCPA) and those deemed in need of reform (Dublin's animal owners) had lessened in the hundred years since the formation of the DSPCA. Instead of assigning moral judgement, members of the DSPCA displayed an understanding of the straitened circumstances of the poor who were dependent on animals for their livelihoods and sought to assist them to take better care of those animals. While many horse and donkey owners were happy to send their animals to the knackers' yard when they became unprofitable, many were not. The DSPCA offered owners who cared deeply about their animals emotionally but were not in the economic position to care for them physically if they became unwell or unable to work, the peace of mind of knowing that their animal was provided for. The South County Dublin branch of the DSPCA purchased a large field in Stillorgan and poor hawkers and traders from Dublin's inner city were invited to send their tired or malnourished animals out to enjoy a break in a 'field of nourishing grass and shelter to become their old happy selves again, or at least spend their remaining days in comfort'. Two years later another seventeen acres were purchased for the same purpose in Rathfarnham (*Irish Times*, 16 September 1932 p.4; *Irish Times*, 24 November 1934).

6.2.3 The resurrection of the horse during the Emergency, 1940-1945

The pace of modernisation of Dublin City's transport system halted abruptly in 1940 when the demand for horses, horse-drawn vehicles and people with skills to

support the horse-drawn industry rose sharply. The onset of the Emergency and fuel shortages would see life slow down to a horse pace again. Fuel shortages would limit motor transport and see the number of horse-drawn vehicles on the road rise dramatically (Evans, 2014). For this to happen the number of horses exported through Dublin Port would drop from c.5,000 per year throughout the 1930s to 1,440 by 1944 (Thom, 1946). This is in stark contrast to what happened between during WWI when unprecedented numbers of animals flowed out through the port leaving Dubliners short of the draft energy provided by these animals. By April 1942 the supply of petrol was so limited that it was necessary to remove non-essential vehicles from the road; it was illegal for commercial vehicles to carry passengers and private motoring was banned (Bryan, 2014). 'During the war years when petrol was rationed the city literally ran on horse-power' (Kearns, 1991, p.58).

During this brief hiatus in the inexorable removal of horses from the city, there was a short-lived resurgence in demand for the outdated horse-related technologies and skills as commercial life in Dublin returned to being entirely horse dependent. The value of horses and all forms of horse-drawn vehicles soared in response to their scarcity in the city. More bidders than Goff's auction house could hold turned out to bid as much as £75 for a working horse, and up to £20 for a pony, while the usually popular 'fancy' horses were ignored in February 1941 (*Irish Press*, 14 February 1941). The same article reports on the equipment and skills scarcity – 'the craftsmen are not there today, having been killed off by the vogue of the mechanical vehicle. Harness too in sufficient quantity is difficult to get'. Men 'went all through the country trying to resurrect horse vehicles of all descriptions' to fulfil the market for carts etc (Kearns, 1991, p.150). Others involved in supplying the industry sought to capitalise on the increased demand for basic materials to do with the horse – horse-shoe nails for example – a simple product but without which a horse could not work. In reaction to this the government were forced to set maximum wholesale and retail rates for these simple products without which the transport industry could not function (Lemass, 1943). By 1943, as a result of emigration, the acute shortage of stable hands prompted representatives of Horse Owners Association of Ireland and other interested parties to petition the

Department of Industry to deny potential emigrants travel permits if they attempted to leave the country. The Department agreed and asked the parties to submit lists of their workers (*Irish Times*, 22 February 1943).

For this brief period the renewed presence of substantial numbers of horses on the streets saw occupations which had been on the wane increase again. Horse-handlers whose skills had been rendered obsolete were once again valued and many ex-jarveys were enticed back into the business alongside newcomers eager to avail of an economic opportunity (Kearns, 1991). By 1946 the number of cartwrights, coachbuilders and wheelwrights employed to support this horse transport industry had risen to 555 from 392 in 1936 (Stationery Office, 1936; 1946). Nevertheless, the number of road transport workers associated with horse-drawn vehicles dropped between 1936 and 1946 with the number of grooms dropping from 244 to 134 and drivers from 2,782 to 1,844 (Stationery Office, 1936; 1946).

Pressures to modernise Dublin's transport system were immediately reasserted with the end of fuel shortages and the use of horse-drawn transport contracted quickly after the end of WWII. The evolution of the city as designed around the trend towards private cars and away from public transport was firmly established as Dubliners desired the 'door-to-door convenience' that motor cars provided (Brady, 2014 p.198). The motorised transport system which had played an important role in the expansion and suburbanisation of the city (McManus, 2021) was echoed by the uptake of motorised technologies in agricultural settings which would also see horses removed from this environment. Farmers (including urban animal keepers) were traditionally loath to take out loans but were encouraged in the 1950s to avail of credit from the ACC to update their premises and technologies to modernise (Daly, 2002). Despite a large initial investment borrowed from the ACC of £275 for a van and £450 for a new Ferguson tractor (Nolan, 2022), urban dairymen like the Nolans, with a yard in Terenure and fields in Rathfarnham, 'moved with the times' and traded their horses for vans in the 1950s.

6.2.4 Ditching the horse for good

After WWII the uses to which many draft animals were put would abruptly change, creating a moral dilemma which would divide the nation geographically as well as by class and gender. However, the main divide would be between those who lived and worked with animals and viewed them as commodities and those who simply observed them. Reflecting the drop in the number of horses on the streets of Dublin as fuel rationing ended and motor transport returned to normal, the number of donkeys and ponies entered in the annual DSPCA show in Goff's had dropped to fifty-four by 1949. Many ponies and donkeys would now find themselves at the centre of a trade which divided the country on moral grounds. Those who were vehemently against the export of horses for slaughter – mainly female upper/middle-class Dubliners not involved in animal-based activities, and those who were ambivalent towards it – rural Ireland and Dubliners involved in animal-based activities who viewed animals as commodities.

The appetite for horse meat in countries such as the Belgium and France provided the ideal solution for Irish horse owners seeking to maximise the value that could be extracted from their animals' bodies. The trade of live horses as food which had begun in the 1920s offered economic opportunities to those who sought to modernise by moving from horse-drawn to motor vehicles with Belgian buyers paying more than O'Keeffe's the knackers. In Belgium value was extracted in the form of labour from those horses who still had a little power left in their bodies to work while the rest of them were slaughtered as a source of food for the poor (*Irish Times*, 22 December 1934). Horse-meat had never taken off as a food in Britain or Ireland perhaps because 'it was too noble a creature and too near to man to undergo such a fate' or simply because it did not make practical sense being too expensive to rear for food alone (Thomas, 1984, p.116). A brisk trade in worn-out horses had continued undisrupted until 1940, then ceasing in reaction to the war and its effects on merchant shipping. The decline in export numbers to 1,440 in 1944 (Thom, 1946) reflected the increased demand for horses in Dublin during the Emergency.
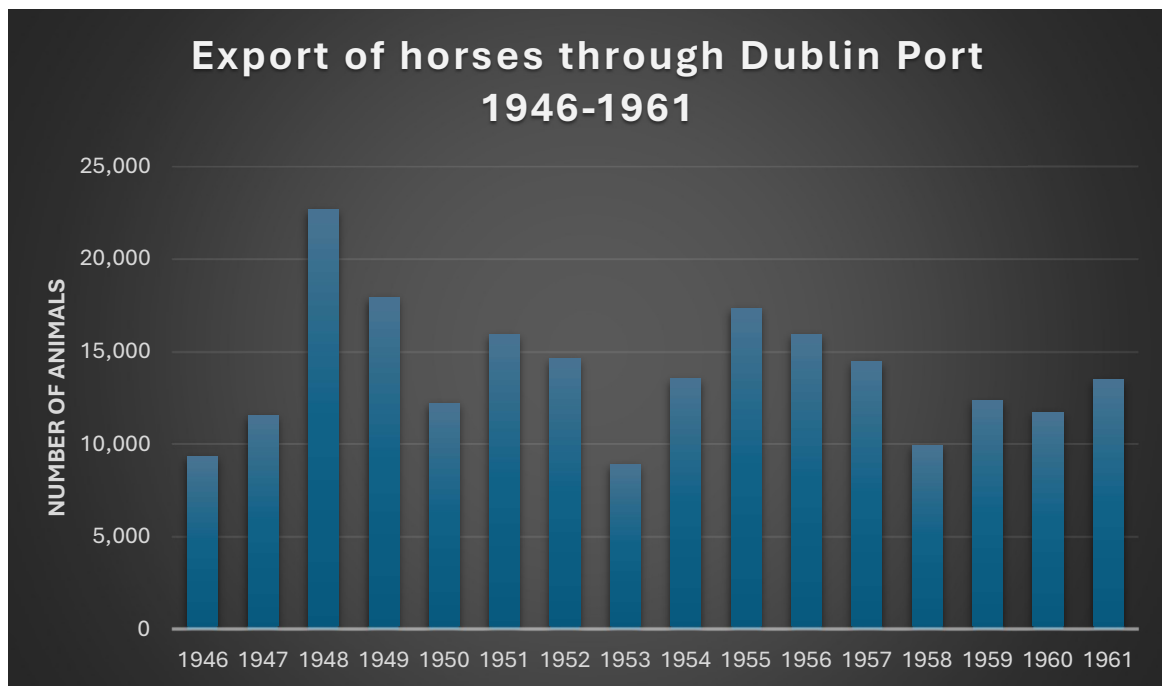
Figure 9: Number of horses exported through Dublin Port between 1946 and 1961. Sources: Thom's Street Directories.

Market forces which developed after the war would ensure that the Irish aversion to the idea of consuming horsemeat was overcome by the high prices that foreign buyers were willing to pay for what had become low value commodities in Ireland. Food scarcity followed the bombing and ground battles of WWII. The destruction of large areas of agricultural land, urban spaces and infrastructure resulted in periods of hunger in Western Europe and beyond (Kesternich *et al.*, 2014). The Irish government used the country's ready supply of horses as an economic bargaining chip with countries experiencing food shortages. In the late 1940s, Ireland negotiated several bilateral trade agreements with countries in continental Europe, including agreements where Ireland would provide horses in exchange for produce such as fertilizer which the country was in dire need of (Daly, 2002). This resulted in a sharp increase in the number of horses leaving through Dublin Port (see figure 9 above). In 1948, 22,691 horses left Ireland through Dublin Port, nearly four times the number of horses (5,901) exported twelve years earlier in 1936 (Thom, 1936, 1948).

Despite the fact that many Dublin horse owners professed to have an emotional connection with horses, this connection did not stop them from viewing the animal as a commodity from which they could profit. Horse dealer John Mannion was at the centre of the horse trade in Dublin in the late 1940s fulfilling overseas orders firstly for breeding mares and foals but then in the 1950s supplying the Belgian Government with '7,090 horses a week … at £30 a piece'. In one breath during his interview he extols that the 'great ruination of Ireland was to take horses off the street', while in the next he justifies shipping them off in horrific conditions because 'you couldn't give a horse away in Ireland' (Kearns, 1991, p.187). Horse buyers from France and Belgium far outbid Irish buyers paying between £30 and £35 per horse when the same horse would only have fetched £10 or £12 in Ireland (*Irish Times*, 1 December 1948).

The treatment of horses like livestock animals such as pigs and cattle discomfited the Dublin public who did not own animals, as the higher status in which horses were held in Ireland along with their symbolic significance set them apart from other livestock (Bell and Watson, 2008). Unfortunately, in the eyes of the State they were the same and, because the processes that they endured such as tagging, branding and fasting were identical to those endured by cattle, the then Minister for Agriculture James Dillon representing the Irish government refused to recognise the slaughter practices in Belgium as inhumane and cruel (*Irish Times*, 21 April 1949). Horses were clearly not as robust as cattle who tended to be transported shorter journeys to Britain instead of Antwerp. Most horses were unable to withstand the long journeys. Nearly all were injured in some way and several generally died on each voyage, with their bodies then thrown overboard.

Horses remained an important commodity in Ireland and Dublin Port functioned as a primary network hub for the trade in exporting horses for slaughter where the product originated in rural Ireland and converged on the city. One solution suggested by the DSPCA and other reformers as a realistic alternative was the creation of a modern abattoir in Dublin where controls could be implemented to limit the suffering of the horses by eliminating the sea journey. The idea of slaughtering the horses in Dublin and exporting the meat was rejected for over a

decade because of the reticence of the government to tamper with such an economically successful trade despite the misery associated with it (*Irish Independent*, 8 October 1955).

Female activists and reformers were the first to confront the trade head on and challenge it economically. This most serious opposition would come from largely Dublin-based female reformers actively prepared to financially invest in ending the suffering of horses through this trade. Since the late nineteenth century, women were at the forefront of animal advocacy (Gaarder, 2011) and, in 1959 a group of wealthy women registered the Irish Horse Abattoir Investment Company Ltd. They included Lady William Beresford, Mrs Flora Pennefather, Mrs Charlotte Moreley and Mrs Joan Magahy of the Redundant Working Horses Fund and Mrs Claire Russell of the DSPCA. All pledged their services for free. They proposed that the abattoir would humanely slaughter a minimum of two hundred horses per week for export while also producing hides, fertilizer and bone meal (*Irish Times*, 25 July 1959). A large fundraising campaign was started and, unsurprisingly, although donations were generous, the money came not from the big names in Ireland's horse industry but from ordinary citizens (*Irish Times*, 3 October 1959). In August 1960 the horse abattoir opened on the site of a cattle slaughterhouse which had been renovated to the highest modern standards in Straffan, Co Kildare and the first consignment was shipped to Belgium from Dublin Port in September (*Irish Times*, 6 September 1960).

Until the trade ended completely, the British press would use it to tarnish Ireland's reputation as a modern country at a time when Fianna Fáil, under the leadership of Seán Lemass, were at pains to recreate Ireland as a modern outward looking country (Dickson, 2014). One harrowing event which resulted in forty-seven horses dying on a ship which had left Dublin in high winds bound for Antwerp presented the British press with the ideal opportunity to shame their neighbours. Despite the shocking reality of the case, budding politician Brian Lenihan defended the trade suggesting that the British press had 'created a campaign to horrify people rather than to protect horses' and Senator William Bedell Stanford insisted that 'the interests of the Irish people must come before the interests of Irish horses' (*Irish*

Times, 22 January 1960). Fianna Fáil's modern outlook would not extend to improving animal welfare until Charles Haughey became Minister for Agriculture and finally banned the export of horses for slaughter completely from March 1965 (*Irish Times*, 24 February 1965). Naturally this ban angered rural horse breeders.

The high prices paid by the Belgian and French buyers had ultimately fuelled an agricultural industry across rural Ireland where small farmers turned animals normally used for draft purposes into livestock animals. Rural farmers' organisations would accuse the Minister for Agriculture of taking the side of the DSPCA and their associates against the small farmer 'who were at a loss of £30 by the ban' (*Clare Champion*, 1 May 1965). The imposition of the ban could be seen as the triumph of urban values over rural values.

The location of the horse abattoir"outs'de the city, along with other horse abattoirs which opened to compete with it within several years, fundamentally altered Dublin's urban metabolism by massively reducing the numbers of live animals moving from rural Ireland through the city to Dublin Port. These animals were replaced by animal flesh transported invisibly through the city and port within modern refrigerated containers.

Horses would never entirely disappear from the streets of Dublin City and some roles performed by them continued into the late 1980s, such as the horses who carried multiple loads from the market area around St Mary's Lane and Moore Street into the late 1990s (Foran, 2022b; Deegan, 2022). Those horses who remained working on the street were generally thought of with affection, especially among children who would go to great lengths to get close to them. This was not without risk, unfortunately, and accidents occurred. 'I knew a fella who got a kick of a horse in his face and he had the mark of the horseshoe on his face all his life cos he stood behind the horse' (Foran, 2022a). Injuries were not common though as 'horses at that time were very used to people' (Kennedy, 2022a). They literally knew their place and were happy to wait there as Brid Connolly (2022) recalls of her father's horse who waited patiently outside the family's bakery when his master came home for lunch. As remnants of a bygone age, horses were often

housed in very unsuitable accommodation. 'My uncle who's 86... he seen a horse going through the front door of one of the houses of Henrietta Street' (Deegan, 2022) while a friend of Deegan stabled a coal horse in his back garden in Finglas in the 1970s.

The challenges faced by Dublin's cow-keepers and dairymen to retain dairy yards and milch cows in the city at this time were different to those who kept horses. As mentioned in the previous chapter, ideas around what constituted clean milk, and what was required to achieve it, resulted in heavy surveillance of Dublin's milch cows by sanitary authorities. At the same time, cows were housed in the city for one reason – to produce milk – and cow-keepers would continue to house them in the city only as long as the dairy trade remained profitable. As the next section demonstrates, urban cow-keepers and dairymen would experience increasing pressures during the 1940s and 1950s as their ability to embrace new ideas around dairying, new breeds and new technologies was severely limited by their urban environment.

6.3. Dublin dairymen – limited by their environment

As noted by Atkins (2010), the first three decades of the twentieth century saw milk and dairy industries internationally undergo significant modernisation. Technological advancements such as pasteurisation improved the safety of milk while refrigeration allowed for its transport over greater distances. Scientific and medical advancements highlighted the health benefits of milk while improvements in animal health and breeding enhanced the productivity of dairy cows. After WWII, the trend towards the industrialisation of agriculture resulted in the mechanisation of dairying. However, in Dublin City, the ability of dairymen and cow-keepers to embrace technological advances or mechanisation or benefit from selective breeding programmes was limited by their urban environment and by their dependence on rural farmers to embrace new high-yielding breeds.

During the 1930s and 1940s, the dairy cow of choice across rural Ireland was generally sub-optimal for urban dairymen and limited their ability to modernise production. Rural dairymen and urban cow-keepers required different

characteristics from their milch cows: the modern urban dairymen in Dublin sought to maximise milk yields (and profits) with a Friesian cow while the rural dairyman could maximise the value extracted with a Shorthorn who yielded less milk but their bull calves (the byproducts of dairying) realised better market prices than other dairy breeds (DLGPH, 1946). The reticence of dairy farmers in rural Ireland to embrace new breeds such as the Friesian inhibited the potential for the city's milk producers to improve their yields, making it more and more difficult for the small dairyman in Dublin to survive.

The push to comply with modern legislation around milk production along with economic forces would exert extreme pressure on Dublin's dairymen and cow-keepers after the introduction of the Milk and Dairies Act 1935 and during the Emergency.

By the early twentieth century, Ireland was regarded as a pioneer and role-model for agricultural co-operation with the establishment of dairy co-operatives attracting worldwide attention (Breathnach, 2012). The introduction of pasteurisation opened up the Dublin milk market to the large dairy cooperatives in Munster (Doyle and Smith, 1989). Cow-keepers and dairymen in far flung rural Ireland now competed for the Dublin market with Dublin's dairymen who shouldered additional expenses associated with their urban herds. As in Britain the new production requirements and methods resulted in 'complex politics' between the interests of public health and farmers/dairymen (Atkins, 2010, p.273) and milk strikes over the fluctuating prices offered to dairymen were common (Doyle and Smith, 1989). Interestingly, heavy surveillance by Dublin Corporation's veterinary department meant that milk production in the city generally conformed to the highest standards even before the Milk Supply Bill was enacted (Doyle and Smith, 1989). Maintaining those conditions was a hurdle for all Dublin cow-keepers, but most especially the smaller ones, which resulted in numbers steadily declining after 1933 (Dublin Corporation, 1937).
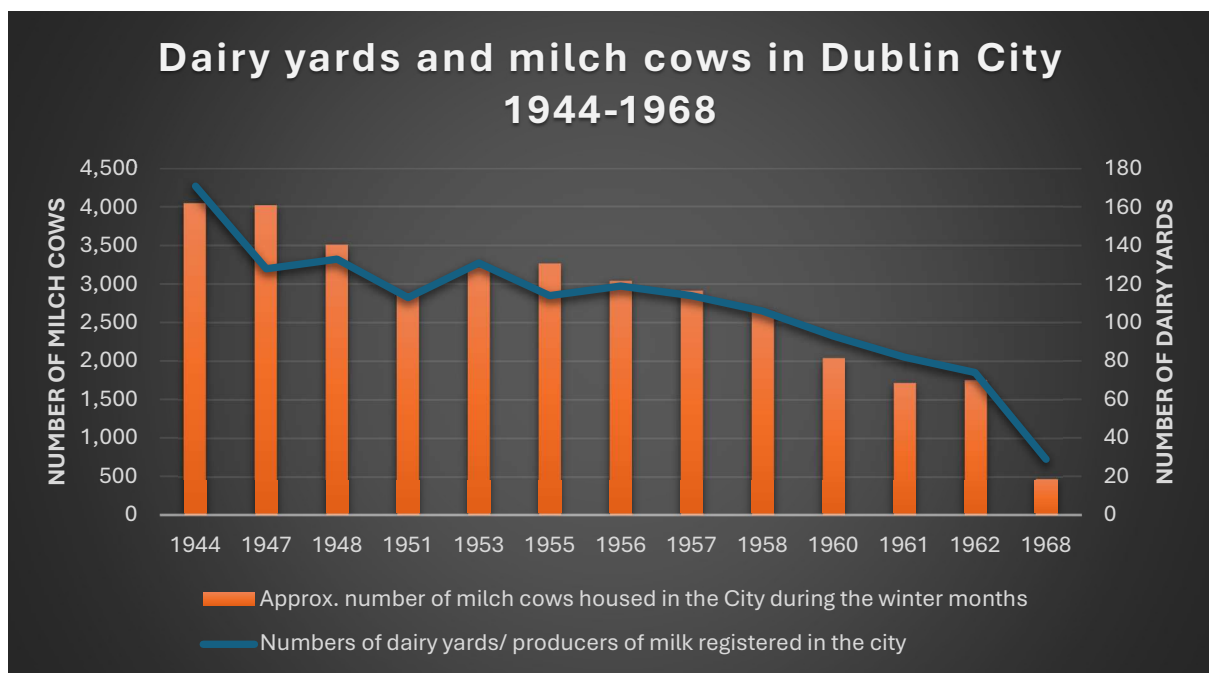
Dairy yards and milch cows in Dublin City 1944-1968

Figure 10: Number of dairy yards and milch cows in Dublin City from 1944 to 1968. Sources: Public Reports for the City of Dublin.

The outbreak of WWII would further constrain the speed at which agricultural modernisation could take place which would ultimately drive smaller dairymen in Dublin out of business. Milk yields per cow had fallen during the 1930s (Daly, 2002) and then fell further during the Emergency. The sustained prevalence of an inferior breed of cow with a low milk yield inhibited progress. As mentioned previously, because all of the raw materials for milk production (cows, animal feed, straw etc) had to be brought into the urban environment, overheads for Dublin's milk producers were higher than their rural counterparts. During times of high inflation, such as the Emergency, their already narrow profit margins were eroded. Cow-keepers and dairymen needed to continuously replace their herds as the cows' milk yield reduced so they could maintain their required gallonage (DLGPH, 1946). 'When the cows went down (the milk yield) they took them and paid you for them and then after a while you'd go and buy a couple of new cows. You were always at that, buying and selling cows' (Nolan, 2022). Added to the cost of continuously replenishing the herd was the cost of buying animal feed on the open market and paying high prices for summer grazing. Inflation was high and the 'real measure of wartime adversity' was the decrease in real income versus the increase in the cost

of living (Evans, 2014, p.7). These factors combined to have a massive impact on dairying in Dublin City at this time. Between 1936 and 1944 the number of dairy yards reduced by 45% from 307 to 171 although the number of milch cows in the city only reduced by 20%, from 5,050 to 4,050, see figure 10 above. By 1947, dairy yards had further reduced by 25% although the number of milch cows had only reduced by 1% (Dublin Corporation, 1936, 1944, 1947). These figures suggest that, during straitened times, smaller dairy yards were disproportionately affected by the animal feed shortages which occurred nationwide during the Emergency due to compulsory tillage and fertilizer shortages. So, where wider economic conditions resulted in wages increasing by 40% and feed by 56%, milk prices only rose by 9.5%. Unsurprisingly, the large wholesale pasteurisers, bottlers and distributors were better able to absorb these increased costs than Dublin's small dairymen (Doyle and Smith, 1989). However, unlike during WWI, there is no press coverage suggesting that Dublin experienced serious levels of milch cow shortages during the Emergency.

At a time when they were unable to modernise their herds, Dublin dairymen were under increasing pressure to modernise milk production in their yards and maximise yields. Even so, their contribution to Dublin's milk supply was invaluable when the overall supply was compromised and insecure. They were heavily pressed to bring their milk up to the highest grade even though it was recognised that it would be prohibitively costly for most of them to do this (*Irish Press*, 16 January 1943). Complying with the regulations regarding sterilization of milk utensils required considerable amounts of fuel and by 1941 at least one graded milk licensee had already surrendered his licence as he could comply (*Irish Press*, 17 September 1941). Occasionally milk supply shortages became so acute that even the free milk scheme for children was suspended (*Irish Independent*, 11 November 1942). Overall, milk producers' costs rose 100% during the Emergency due to the increased costs of cows and feeding (*Irish Press*, 14 April 1944). The inability to produce milk cost-effectively drove several Dublin dairymen out of business (Doyle and Smith, 1989) and milk consumption in the city dropped by 20% (*Irish Independent*, 16 January 1943). Despite these difficulties, the potential

profit retained Dublin's larger cow-keepers and they produced between 13% and 16% of the city's milk requirements from herds of between twenty-five and one hundred and twenty-five cows in the County Borough in 1944-45. (DLGPH, 1946, p.39).

Even after the Emergency, opportunities for Dublin's dairymen and cow-keepers to modernise were impeded by market forces and lack of progression within dairying nationally. Firstly, Dublin's dairymen could not compete for high-class heifers against the export market which was draining the national supply of quality animals (DLGPH, 1946). At the same time, insufficient encouragement was being given to the development of superior strains of dairy cow and insufficient information was being collected about the milk yield of the progeny of high-class bulls. The Live Stock (Artificial Insemination) Act 1947 opened up the genetic potential of dairy cattle in Ireland and from the 1950s onwards high yielding Friesian Holstein stock from Britain and Germany were rapidly replacing the Shorthorn across the country (Doyle and Smith, 1989). However, the impact of the introduction of higher yielding dairy cows could not be fully realised until animal feeding techniques had moved away from the 'wasteful rhythm of summer abundance and winter privation' (Daly, 2002, p.344). Between 1947 and 1951 the number of registered dairymen and purveyors of milk increased by 12% although the number of milch cows in city yards decreased by 28.5% (Dublin Corporation, 1947, 1948, 1951). This suggests an increase in small dairy yards at this time implying that newcomers were enticed into the industry despite the difficulties that it faced.

Advancements in nutritional science saw milk and other dairy products identified as vital foodstuffs for the young. Pressures to continually improve public understanding around the need for ensuring the highest standards of hygiene grew during the late 1940s and in the 1950s. The fall in adequate nutrition in Ireland experienced by the population during the Emergency had resulted in an increase in health concerns among Ireland's younger population, especially in Dublin, which made the state appear backwards in comparison to Britain (Adamson, 2023). Carelessly handled milk was still an unnecessary killer of babies (Dublin

Corporation, 1944) and tuberculosis levels were still unacceptably high with 25% of Dublin Corporation's budget expenditure for public health tuberculosis-related (Dublin Corporation, 1947). The Emergency had shone a light on the 'vulnerabilities of the young republic' and its shortcomings in realising its new social and economic vision (Adamson, 2023). In response to this, food policies devised by the new Department of Health, established in 1947, and the National Nutrition Survey in 1953 would have 'important bearings on food production' (Adelman, 2017, p.241).

The standards required to implement the state's new food policies would quickly limit the ability of Dublin cow-keepers and dairymen to continue producing milk in the city centre. This altered the city's urban metabolism as the distance between producer and consumer grew. The Milk and Dairies Act 1956 would ultimately see enforced pasteurisation finally distancing milk from the 'messy environments, practices and connections necessary for its production' (Towne Hirtenfelder, 2023, p.214). Many small independent dairymen in Dublin would come under intolerable financial strain as pressure mounted on them to invest in new equipment to comply with the new regulations regarding bottling and then pasteurising in 1962. It can be seen in figure 10 above that the number of dairy yards in the city declined sharply after 1958. Some dairymen like the Nolans shifted their production to rented land in rural locations while others ceased entirely, and their production quotas were filled by cows in more distant locations. Small dairymen who struggled on found that their earnings could only support living standards well below their neighbours, even in the Liberties where living conditions were generally low (Connolly, 2022). By 1966 most Dubliners received their milk from one of two large firms: Hughes Brothers or Premier Dairies – an amalgamation of Dublin Dairies, Merville Dairy and Tel-el-Kebir Dairy (*Irish Times*, 12 October 1966). The days when three or four men in their gaily painted floats vied with one another on a street for business (Doyle and Smith, 1989) was well and truly over and the direct link between the cow and the customer was broken while the distance between the producer and consumer grew.

Technological change outpaced cultural change and public acceptance of pasteurised milk was slow. The new legislation was greeted with some resistance, especially in rural Ireland as, in the minds of rural folk, 'loose' milk was associated with strength and vigour (Doyle and Smith, 1989). This mindset was carried into the city where new arrivals settled in the city centre and happily consumed 'warm, frothy' locally produced 'loose' milk procured directly from the local dairy yard (Connolly, 2022). Dublin Corporation may have considered city dairy yards as problematic but Dubliners who worked in them or lived close to them mourned their loss (Doyle and Smith, 1989).

As dairy yards became empty in Dublin City over time, this research suggests that pig-keepers took over these urban spaces. The next section demonstrates how urban pig-keepers were accepted players in the national plan to grow pig production in the Free State which began in the 1930s. Although Dublin City was embedded in the new Free State's agricultural economy, the urban environment offered unique opportunities for pig-keepers which are shown to have advantaged them over their rural counterparts at times. Oral histories and memoirs reveal the everyday experience of human-pig relations in Dublin City while newspaper articles about piggeries in Dublin between 1930 and 1973 demonstrate attitudes of public annoyance but governmental acceptance.

6.4 Dublin pig-keepers – sustained by their environment

Dublin's urban pig-keepers appear to have resisted the powerful forces of modernisation shaping pig production internationally which drove legislation, industrialisation of farming and improvements in production practices, and cultural change during much of the twentieth century. This resulted in large numbers of pigs remaining in Dublin City up to and beyond the end of the research period in 1973.

In the 1930s, it was felt that the lack of uniformity among the Free State's pig stocks 'would eventually lower the reputation and the value of Saorstát bacon' (Department of Agriculture, 1933). The state did not differentiate between urban and rural pig-keepers in the findings of the 1934 Pig Tribunal which aimed to modernise and grow pig production in Ireland and its recommendations were aimed at both. Contributions were made from all aspects of the national trade including Dubliner Michael Bowe on behalf of the Irish Pig Dealers Association and representing the Irish wholesale provision trade, Dubliner Thomas O'Connor along with P. F. Dolan, Chief Veterinary Officer for the City of Dublin (Department of Agriculture, 1933). Although a handful of large-scale producers existed in the city, for the small backyard pig-keepers, pigs were a short-term, relatively high-yield investment. Many kept pigs on a casual basis, buying and fattening piglets when prices were high and abstaining when prices were low. This echoed similar practices across the state which hindered the development of a sustainable pig industry. According to the Pig Tribunal report, the pig market was worth just over 10% of Ireland's agricultural output being valued at £8.9 million out of a total of £84.8 million (Department of Agriculture, 1933) but, as mentioned in the previous chapter, the pigs and bacon markets were volatile as the number of pigs being fattened in Ireland at any one time had always fluctuated and this stymied the ability of pig industry in Ireland to grow.

Scientific developments in animal nutrition and breeding sought to create the optimum pig body from which bacon and ham could be produced, while the mechanisation of farm equipment and improvements in housing and sanitation sought to create the optimum conditions in which the pig could flourish. The methods advocated to modernise pig-keeping focussed on conserving pigs' energy enabling them to grow quickly. This could be achieved through moving them indoors and altering their food from a rough fibrous diet of foraged roots to grains (Woods, 2012). Modernising pig production techniques aimed at setting precise production targets for pig-keepers and 'animals whose bodies were specialized in one production target were most profitable' (Settele, 2021, p.529). Ultimately, market forces drove the Free State to harmonise with Britain, Denmark, Sweden,

Germany, Poland and Canada in favour of the Large White (pig) (Department of Agriculture, 1933). While Dublin pig-keepers had the power to strive to create the optimum conditions for pig rearing (they already kept them indoors), they were entirely dependent on rural pig-keepers to improve the pig's body through breeding.

The one big advantage that Dublin's animal keepers (both cow and pig) had over their rural counterparts was access to nutritious brewery and distillery grains. This proved invaluable during the Emergency when imported animal feed was not available (DLGPH, 1946). Unlike during WWI when production at the Guinness brewery was heavily curtailed, barter arrangements between Britain and Ireland saw Guinness exported to Britain to slake the 'British thirst for beer' in exchange for wheat, barley, coal and eventually fertilizers and machinery (Evans, 2014). Essentially when the British supplied the Guinness brewery with the raw materials to produce stout, they were inadvertently supporting Dublin's animal keepers and cocooning them from the full impacts of the Emergency experienced by rural farmers. Even so, Dublin's dairymen were not immune to the effects of the Emergency as during that time they were only receiving 75% of their pre-war supplies from Guinness (*Irish Independent*, 6 November 1943).

Although utilizing pigs as 'living breathing filters for city refuse' (Robichaud, 2019, p.21) was not considered modern, it was very efficient and it kept the cost of inputs low so that Dublin's pig-keepers could maximise the value they could extract from their pig. While domestic food waste may have declined due to rationing, restaurants thrived in 'neutral Dublin' during the Emergency and for a number of years after as 'diners crossed the border or came over from England to enjoy a solid meal' (Mac Con Iomaire, 2015, p.381). So, along with the waste grain, the cluster of facilities such as restaurants, hotels and hospitals in Dublin City appears to have created a niche where pig-keeping could profitably survive.

The rejection of modern feeding methods in Dublin City in favour of traditional methods of pig production protected Dublin's pig-keepers from the vulnerability of dependence on cheap imported maize experienced by many rural pig-keepers. The

national pig economy reacted quickly to the outbreak of WWII and the pig export industry crashed entirely in 1940 (Daly, 2002). The costs of maize and other animal feed quickly rose as they became scarce, increasing the cost of inputs for pig farmers (O'Connor, 1953). This prompted farmers to cease pig rearing and fattening and start selling off their sows, which had the negative effect of reducing the national supply of breeding stock thereby leading to a shortage of piglets on the market and driving their price up (Linehan, 1941). When called upon to put in place policies to increase pig production, the Government was forced to choose between a cereal shortage – which would be exacerbated by increasing the number of pigs – or a bacon shortage. The bacon shortage was seen as the lesser of the two evils (*Irish Times*, 25 July 1942).
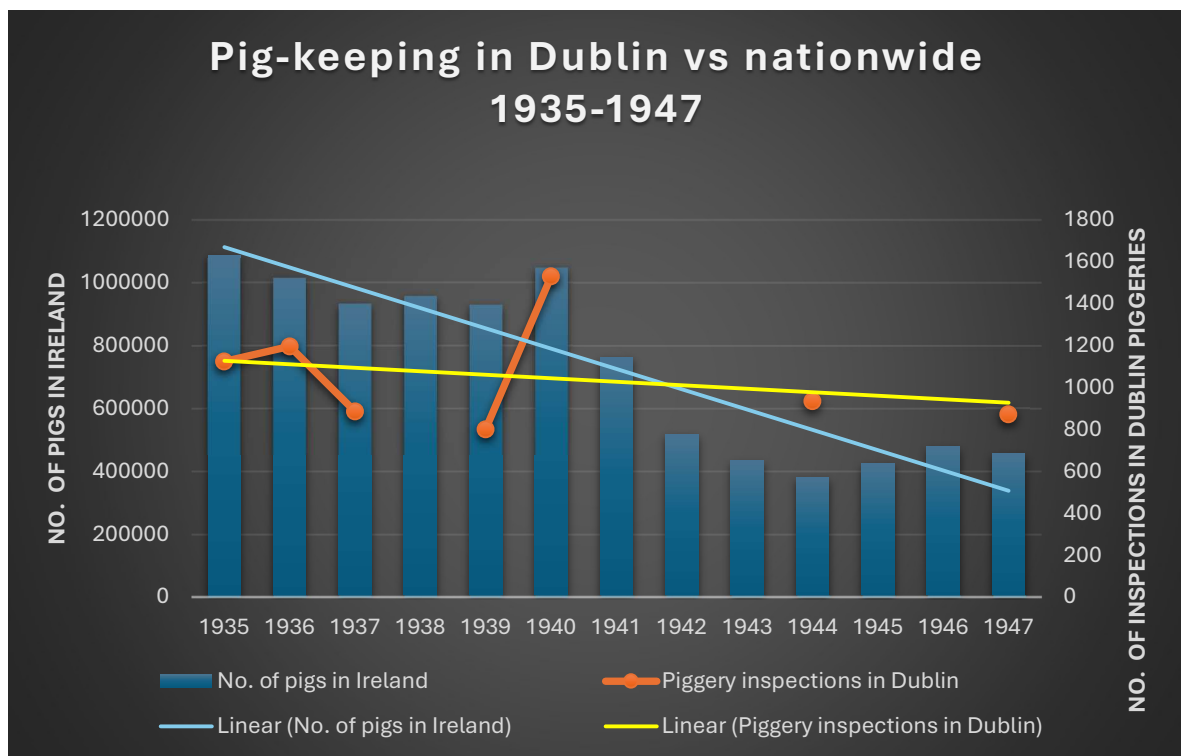
Figure 11: Establishing trends in pig-keeping in Dublin vs pig-keeping nationwide between 1935 and 1947. The numbers of pigs nationwide were recorded in the Agricultural Statistics. In the absence of records for pigs in Dublin the number of inspections of piggeries performed by Dublin Corporation sanitary inspectors is used as a proxy for their presence. The linear line represents the trend. Sources: Public Health Reports for the City of Dublin 1935 – 1947 and Agricultural Statistics of Ireland 1934-1956.

It appears that the methods of pig production utilized in Dublin City cushioned pig producers from the full effects of the pressures experienced by their rural

counterparts. In figure 11, above, the trend lines (linear) suggest that, even though there were annual fluctuations, during this period the number of pigs nationwide seriously declined while the number of pigs in Dublin only slightly declined. From this we can construe that pig production in Dublin appears to have stood apart from national trends which saw national pig production drop from just over one million to just under 400,000 (-60%) between 1940 and 1944 (Central Statistics Office, 1960). Although exact figures for the number of pigs in Dublin during the 1930s and 1940s are not available, figures for the inspection of piggeries in Dublin showed drops between 1940 and 1944, but to a lesser degree (-38%), strongly suggesting that pig production in the city was not as badly affected as rural pig producers (Dublin Corporation, 1940, 1944).

This research suggests that pig rearing in Dublin City during the Emergency provided pig-keepers with much needed extra cash, and access to bacon during times of acute shortage, placing them at an advantage to those who did not raise pigs. It is highly likely that Dublin's backyard piggeries made their owners a pretty penny by feeding directly into the thriving black market for illegally cured bacon. By 1942 it was estimated that more bacon was being illegally cured than was being cured by licensed curers (*Irish Press*, 11 November 1942). Reduced pig numbers nationwide had created a thriving black market in bacon with the 'wholesale killing of animals in insanitary places throughout Dublin' (*Irish Times*, 18 October 1943). Illegal curing reportedly took place in lavatories and bathrooms (*Irish Times*, 16 October 1943) and, because the pig carcases never underwent veterinary inspection it posed a direct threat to public health as at least 10% of inspected bacon was found to contain signs of tuberculosis (Dublin Corporation, 1944). At a time when many poor Dubliners could not afford bacon, there was outrage when large quantities of illegally cured bacon were seized during hotel raids in the city (*Irish Times*, 15 October 1943). Such were the rewards that the black market in illegally cured bacon would continue into the late 1940s.

A key force driving the modernisation of pig production from the 1930s was the need to secure a predictable year-round supply of pigs not subject to seasonal fluctuations. Successive plans failed to deliver this until the 1960s, although

Ireland's pig-keepers were slowly embracing new ideas and new technologies in the 1950s. Innovations after WWII saw the pig's relationship with the outdoors severed as pig farming followed the model of intensive indoor chicken farming (Mizelle, 2011) and the Landrace pig would displace the Large White and the Yorkshire as the breed of choice in Ireland (Guiry, 2016). Little was recorded about Dublin's piggeries although the animals living within them were sporadically counted and the patterns of peaks and troughs identified in the 1930s continued into the late 1950s (Dublin Corporation, 1953, 1956). Efforts to regulate the numbers of pigs in production in Ireland had failed during the 1950s so that it was impossible for Irish bacon factors to establish long-term export contracts (Daly, 2002). The continual flux in the number of pigs raised in Dublin during this time was reflected in the figures recorded for pigs going for slaughter to the Dublin Corporation Abattoir, private slaughterhouses and pig factories such as Donnelly's. However, the vagaries seen in the Dublin pig market vary far less than those seen across the country where national supplies saw the amount available for export jump from

55,000 cwt in 1954 to 300,000 cwt in 1957 (Daly, 2002). According to Boyle *et al*. (2022), in 1960 pig farming across Ireland, including in Dublin City, was dominated by small producers keeping an average of eight pigs. However, an RTE radio interview with Brendan Dukes, a pig farmer from Dolphin's Barn in March 1959, about the lifting of a two-and-a-half-year ban on pig-keeping because of a swine flu outbreak, sharply contradicts Boyle's suggestion that pig-keeping in Dublin was small scale. Dukes himself kept between one hundred and one hundred and fifty pigs at any one time and suggested that this was not in any way out of the ordinary and that several Dublin pig-keepers kept between three and four hundred ('City newsreel', 1959).

Boyle *et al*. (2022) suggests that, outside Dublin City, those involved in pig production became much more specialised and technologies around housing, feeding and fertility modernised as did ideas around the pigs' bodies resulting in pig production in Ireland almost doubling by 1970. This research suggests that Dublin pig-keepers benefitted from modern technologies embraced by breeders in

rural Ireland, although there is no evidence that they modernised the housing conditions in which the pigs were kept in the city. As mentioned above, it is likely that when the horses and cows were removed from Dublin City's stables and dairy yards, pigs were moved into these vacant spaces. Before their removal, pigs and cows had regularly shared city yards, albeit at the appropriate distance dictated by Dublin Corporation legislation to protect the animals from cross contamination (Doyle and Smith, 1989; Nolan, 2022).

6.4.1 What oral histories can tell us about pig-keeping in Dublin from the 1950s onwards

Oral histories demonstrate how and why Dublin pig-keepers resisted the forces of modernisation through their everyday activities. Although urban pigs were fed a different diet to rural pigs, the practices around feeding and caring for them were broadly similar in both locations. The widespread presence of these practices in Dublin City until the 1970s continued to blur the urban/rural divide and deny Dublin the status of a modern city.

Before today's 'brown bin' waste collection, the practice of feeding pigs on household waste and bedding them on commercial waste from the city operated as a disposal service at multiple scales: from individual households to large institutions such as hospitals, hotels, carpentry shops and sawmills. Because of this, pig-keeping could be very economical: 'We used to get the shavings from the big carpentry shop… all free… they were glad to get rid of them… we were providing a service…' (Kennedy, 2022a); especially when the labour was freely provided by child family members: 'We didn't get paid… but we did see the work' (Kennedy, 2022b). Although the practice appears to have lasted longer in Ireland, it was also common to fatten pigs on household waste until the end of the 1950s in villages, towns and cities throughout Britain (Guiry, 2016) and daily rituals were built up around households who supplied the local pig-keeper: 'My mother would save all the peels from the different vegetables and apples… and stuff like tea' (Deegan, 2022).

Unlike milk production, which was male dominated, pig-keeping appears to have been female dominated in Dublin. One gender dominating an animal-related industry was not unusual. Women had dominated the poultry industry nationwide since the late nineteenth century after men had pushed them away from dairying (Bourke, 1987; Bourke, 1990). Economic opportunities in Dublin City were few at this time and emigration was high (Foster, 1989). The oral histories suggest that pig-keeping was especially important to women, offering them the opportunity to make money. 'It was primarily my mother's business, the pigs were, I would think she probably got most of the revenue, the profit from it' (Kennedy, 2022a). 'It was mostly the women… a lot of men was away…' (Nolan, 2022). Many men in Dublin worked as general labourers and occasional work offered them little protection (O'Carroll and Bennett, 2017), even against something as simple as a rainy day: 'If there come a wet day they were sent home' (Nolan, 2022). Money from the pigs provided many families with the ability to pay for the extras in life. 'That money bought the communion outfits… and that ladies… that was their savings box' (Nolan, 2022). If the pattern of piggery ownership remained similar in the 1950s and 1960s to the pattern in 1911, the vast majority of large piggeries were owned by men as businesses rather than the backyard affairs referred to above.

For the Kennedy's in Rathmines in the 1960s, raising pigs was a family affair. The purchase and the sale of the pigs was dealt with by their father while their mother looked after the day-to-day needs of the pigs and eleven children, but once each of the children hit about five years of age they took on roles caring for the pigs allowing their mother to step back. The rhythm of life was set by the pigs' needs during the years the children cared for them. David Kennedy (2022b) recalled how, as a boy: 'we fed the pigs once a day… before lunch or dinner we'd have to go out with a hand cart and pick up this waste or slop… we'd put it into the barrel and we might go in and have our dinner then and by the time we got back out it would be boiling away. We'd clean out the pigs first… fill up the troughs and let the pigs at it'.

Scraps collected for the pigs required processing before they could be fed to them, and food supplied to the pigs was often grossly inappropriate. Food needed to be processed for a defined period of time to meet regulatory requirements (Kearns,

1989, 1991). 'We'd a big boiler down on the end of the yard near the pigsties. You'd fill it up with water and put in the waste and you'd have to light a big fire to heat it and boil it' (Kennedy, 2022b). The widespread perception that pigs would eat anything meant that they were often fed on morally inappropriate animal products including the byproducts of pig slaughter. Feeding pigs heads or organs to pigs revealed a dystopic indifference to pigs, especially since it has been shown that pigs are unlikely to cannibalise each other given that their nearest wild neighbours avoid eating another wild boar, even dead ones (Probst *et al.*, 2017). 'Sometimes from the butchers down the road you'd get pigs heads... there'd be little bits of scrapes of meat... but pigs would eat anything...' (Kennedy, 2022b).

Profits from the pig economy were shared with those in the local community prepared to participate in what was considered an unsavoury business. City piggeries offered children the opportunity to make a few pence collecting scraps saved by local residents and Mick Foran (2022) explained how he was recruited to collect slops for pig-keepers: 'Mainly around Ballybough or in the back lanes of Corporation Street... sometimes fellas at the piggeries, they'd ask you to collect slop for them. And you had a box car and a bucket, and people would hold the slop in the house'. But this was not a glamourous occupation, and children were ridiculed and sneered at for participating in it. 'The boys that would be collecting it, there'd be a smell off them, it was kind of a low-grade job... you got a bad name for it as sloppy or smelly... Smelly Mulligan I went to school with, his people had piggeries' (Foran, 2022a). 'They'd make snide remarks, and they'd make a piggy sound' (Kennedy, 2022b).

Human emotional responses to pigs varied. The Kennedy family treated the pigs as living commodities and took good care of their physical wellbeing – 'we rarely lost any to disease' (Kennedy, 2022b). Affectionate relationships formed – 'to me they were pretty enough... I can remember scratching them' (Kennedy, 2022a). Fun was had with them, especially if they got out onto the street – 'the excitement... the kids on our road... they'd be loving this' (Kennedy, 2022b). But this affection did not stretch to naming them, an action which turns a commodity animal into a pet which is never eaten (Thomas, 1984). However, despite caring for their intimate

needs for months, when the time came for them to go for slaughter, their own discomfort rather than the pigs was uppermost in their minds. As Noel Kennedy (2022a) recalled: 'The squealing actually was probably the hardest part to put up with at the time… because to get them on to the lorry you'd grab them by the ears and the tail and lash them up onto the lorry…'

People who were not actively involved in pig production were more likely to experience anguish at a pig's suffering than those who were. Living opposite Kehoe's slaughterhouse on Garden Lane, Bríd Connolly (2022) recalled how the squealing of the pigs as their ears and tails were grabbed to stop them escaping was a source of anguish to children and adults alike. On the other hand, some adults took pleasure from the behaviour exhibited by the pigs due to the unnatural environment in which they were kept and when pigs from different farms were put together in a sty. 'Pigs'll take to fighting… oh in me father's time you could be standing over them for a couple of hours watching them scrapping. They'd do serious damage to one another. Oh, often I've seen them in bits' (Kearns, 1991).

Dublin pigs provided companionship for at least two of Dublin's many colourful characters. Recognising the similarities between humans and pigs some people feel a kinship with them where they can become partners in everyday life (Mizelle, 2011). The presence of the pigs in the Kennedy's pigsty turned it into a warm welcoming environment. 'In the morning time if you crept down and had a look in at the pigs they'd be all huddled together for heat. The heat that used to radiate out was incredible' (Kennedy, 2022a). The Kennedy's pigsty became a place of refuge and comfort for one homeless man, Cowboy Bill. 'So this guy thought he was a cowboy and I don't know if he had anywhere to live… and it would be pitch dark, pitch black and he'd open the pigsty door and he'd go in and I don't think he ever came out 'til the morning. He'd sleep with them, he had affection for them…' (Kennedy, 2022b). Meanwhile, another local character in the Ballybough area in the 1970s who was related to one of the piggery owners regularly sought companionship from a pig, walking with it on a length of twine in the green space behind the flats on Sackville Avenue (Deegan, 2022).

Although many Dubliners would object to the presence of piggeries in the municipal district the Corporation did not have the power to prohibit them unless they could be shown to be injurious to public health and good hygiene methods seem to have been in place. Yards were equipped with running water and drains and 'everything was swept down the shore and it was gone then, there was no pig manure, you wouldn't see nothing' (Nolan, 2022). 'I would say that most people didn't like the smell in their neighbourhood... to me I wouldn't have identified a health risk' (Kennedy, 2022b). Unfortunately, not all piggeries were clean. In 1956, when 7% of the city's four hundred piggeries were considered a public health hazard, an outbreak of swine flu gave sanitary authorities the opportunity to shut down piggeries on Bridgefoot Street and in Pimlico (Dublin Corporation, 1956).

Dublin was slow to join other modern European capitals as livestock free zones. Dubliners grew optimistic in the 1960s as the various programmes of economic expansion released between 1959 and 1963 promised to turn Ireland from an inward looking economy to an outward-oriented export economy which would improve employment and reduce emigration (Brady, 2016). Unfortunately, the programmes would fail and pigs would remain constituent parts of the Dublin landscape although cows had largely been removed by this time as explained above. A survey in 1961 revealed that there were 234 piggeries in the city housing 8,850 pigs and averaging 38 pigs each (*Irish Times*, 13 July 1961). These figures suggest that the Kennedy's piggery, with between thirty and forty pigs, represented the average piggery in size in Dublin at that time. Efforts by the Town Planning Committee to ensure that piggeries be placed at a distance of two hundred feet from the nearest building came to nothing in 1963 because it would have been too expensive to compensate the owners, 90% of whom would have been affected (*Irish Times*, 20 February 1963). Piggeries would continue to be regularly inspected and numbers gradually decreased – from 395 in 1954 to 193 in 1966 (*Irish Press*, 19 October 1966). However, even when bylaws were introduced in 1970 which forbade the keeping of pigs within two hundred feet of any house, shop, school, church or factory, they appear not to have been strictly enforced (*Irish Press*, 3 November 1970).

The next section discusses the impact that government decisions made during and after the Economic War with Britain had on the development of Dublin City between c.1930 and 1973. It argues that the 'anti-modern' ideas that were embraced to grow and support offensive trades in Dublin made economic sense but hampered the ability of the city to flourish as a modern European capital. Once again, it is shown that ideas around what was appropriate for a city were challenged during WWII when animal manure quickly rose in value as a replacement for artificial fertilizer which was unavailable.

6.5 Unwelcome in the city

6.5.1 Offensive trades

Much to the annoyance of Dublin Corporation who actively encouraged the use of the city's modern abattoir, approximately 50% of butchers and slaughtermen rejected the modernising force of centralisation which facilitated mass production and inspection. The continuation of the preference for private slaughterhouses over the Dublin Corporation Abattoir would buck international trends as the twentieth century wore on. As shown in the previous chapter, many cities in Britain and Ireland had already removed slaughterhouses in favour of modern abattoirs where mass production could be achieved on disassembly lines (Cronon, 1991; Philo and MacLachlan, 2018). In these cities, butcher craft experienced a 'vertical split' as butchers of the industrialized era in general either focused on killing or on meat selling (Leiderer, 2021, p.548). This split was much less pronounced in Dublin where many butchers slaughtered their own animals in private slaughterhouses located around the city, instead of in a central area. This practice ensured that poor working-class Dubliners were routinely exposed to animal death more than the middle-classes who had largely abandoned the city. The modernising socio-economic forces behind suburbanisation had resulted in a social restructuring of the city which saw the poorest left behind in tenements and social housing (McManus, 2021). Hidden today, the 'animal origins of meat' (Buscemi, 2014, p.958) were still highly visible in Dublin right up until the 1980s. According to George Nolan (2022), many of the butchers had small slaughterhouses close to

their shops where, on a Wednesday, they killed the animals they had purchased at the market that day. Larger retailers with multiple retail units such as Eastmans had the animals slaughtered in one location and distributed the carcasses to the individual shops often in open horse-drawn carts. Dereliction and neglect of many inner-city areas enabled industries such as slaughtering to remain in Dublin City and hinder the city's modernisation. Small slaughterhouses availing of the extensive dereliction in the city would remain problematic in the city until the 1980s, having actually increased in number after the closure of the Dublin Corporation Abattoir in 1976 (*Irish Times*, 19 March 1982).

Ironically, while one arm of government (Dublin Corporation) sought to remove offensive trades related to the byproducts of animal slaughter from the city, from the early 1930s national government encouraged industries such as tanning and fellmongering. Both animals and all forms of animal slaughtering facilities would be removed from North American cities in the early twentieth century as the waste associated with their slaughter was perceived as environmentally problematic (Cronon, 1991; Robichaud, 2019). Not so in Dublin where the modernising force of economic self-sufficiency viewed these industries as indicators of progress (Bielenberg and Ryan, 2012). They formed part of the strategy of import-substituting industrialization aiming to increase self-reliance pursued by successive Free State governments (Ó Gráda and Hjortshøj O'Rourke, 2021).

Although fellmongering and tanning were considered 'offensive trades' it made economic sense to encourage this 'anti-modern' circular economy in the city given the presence in Dublin of the largest livestock market in the country. Fellmongers and tanners in the city were ideally positioned to process the skins of the large number of animals slaughtered annually in the capital in the abattoir and private slaughterhouses – 143,136 sheep and lambs were slaughtered in private slaughterhouses in Dublin alone in 1935 (Dublin Corporation, 1935). By 1936 the number of those involved in the preparation of skins and leather had risen significantly in the decade since the previous census – from 305 to 483 – with the numbers of women employed increasing by 149 (Stationery Office, 1926, 1936). Selling skins to tanners 'afforded butchers with an opportunity to extract more

financial value from an animal's death' (Towne Hirtenfelder, 2023, p. 250) and,
given that animal skins were the most basic component of this industry, anything
which threatened their availability 'threatened the operability of the whole system'
(Settele, 2021, p.533). Dublin-based fellmongers and hide and skin merchants
such as Judd Brothers of Hendrick Street and Hird's of Marrowbone Lane
benefitted from the local economy generated by the location of the Dublin Cattle
Market but they were also part of a broader national and international trade.
Animal's skins, like their meat were valuable on the international market and the
ability of Irish buyers to compete against British buyers was limited and so
measures to protect this Irish industry were frequently implemented. This involved
periodic bans on the export of skins and hides from Ireland (*Irish Press*, 21 March
1934; *Irish Press*, 6 July 1946; *Irish Press*, 13 August 1949).

6.5.2 When animal waste saved the day

Although modernising forces improving public health and sanitation had long
considered animal manure as dangerous to public health and unwelcome in the
city, economic forces ensured its return to favour during the Emergency. The
scarcity of artificial fertilizer in Ireland exacerbated food shortages and manures
rose sharply in value for peri-urban horticulture in allotments and farms
surrounding the city. This marked a return to the traditional 'charmed circle'
(Atkins, 2012b) where the countryside surrounding the city was nourished by waste
from the city rather than dumped into the sea. Dublin's horses were a vital support
to allotment growers who sought to augment food supplies by growing their own.
Horse manure was such a valuable commodity during this time that horse owners
were legally contracted to supply allotments with manure. 'We had a big contract...
we used to supply four hundred tonne... that was four hundred horse loads... to the
unemployed plots up in Terenure' (Nolan, 2022). Allotment holdings tripled
between 1939 and 1941. In 1941 the Royal Dublin Society, in association with the
Royal Horticultural Society, set up an award scheme to encourage the keeping of
allotments to increase food production, providing £84 in prize money. Within a
year, prize money was being awarded to sixteen different areas with two sections
in each area – one for plots tended by wage earners and one by the unemployed.

Unemployed allotment holders could apply for free seeds, implements and one and a half tons of farmyard manure from Dublin Corporation (Forrest, 2011). Manure from pigs and cows was also utilized and instructions on how to use them with maximum effect were explained in newspaper gardening columns. Urbanites new to gardening were encouraged to order a load or two from their dairyman (*Irish Times*, 10 January 1942) and they were reassured that pig manure quickly lost its smell when dug in (*Irish Times*, 24 October 1942). By 1944, The Irish Allotment Holders' association had c.7000 members in Dublin and contracted Dublin Dairymen to supply two thousand loads of manure free to its unemployed members (*Irish Press*, 5 January 1944). Anyone with a garden could supplement their rations by growing food and horse owners boosted their incomes selling horse manure. 'You gave away nothing… everything cost us money' (Nolan, 2022). Even after the end of the Emergency nothing went to waste, and people considered themselves fortunate if a horse or cow deposited a free pile on the street outside their house – 'people would be out getting it off the road for their plants' (Nolan, 2022). However, horse manure, which was prized for roses, also needed to be treated with great care as it was believed to contain potentially deadly bacteria much feared by Dublin's poor: 'if you got a scrape off a rose plant (treated with horse manure) you get blood poisoning into your blood… I was in hospital with people that had it' (Foran, 2022a).

6.6 Evolving attitudinal and physical landscapes

During the period between 1930 and 1970 attitudinal and physical landscapes in Dublin City were evolving. The growing awareness of animal suffering, driven by the work of the DSPCA, would significantly change human-animal relations. This period was marked by the introduction of legislation to ensure the humane killing of animals in 1937 and the banning of live horse exports in 1965. According to Harvey (1989), urban spaces are shaped by economic forces and power dynamics. Activity in the Dublin Cattle Market had quickly returned to normal after the end of WWII and the following sections argue that the impact of the Dublin Cattle Market had implications for urban space which were experienced differently by different

sections of society. It suggests that Dublin Corporation's concerns regarding the public health risks posed by animals, and to animals, did not reflect the changing reality of animals in the city. It suggests that the danger posed by animals was caused primarily by their 'out of placeness' in the modernising city rather than as promoters of disease, which was what Dublin Corporation's public health department was focussed on.

Furthermore, the growing awareness of animal suffering, driven by the work of the DSPCA, had actually deepened the conceptual sorting of animals described by Brown (2016) into different groups which deserved different treatment. These ideas are explored through the voices of ordinary Dubliners from memoirs and oral histories.

6.6.1 Moving towards a more humane treatment of animals

Ideas and attitudes regarding the treatment of animals were evolving during the twentieth century and the progressive development of ideas around animal welfare would alter human-animal relations, changing the way that people thought about animals, and how domesticated animals experienced living and dying. Although the term 'animal welfare' did not exist until the 1980s, the belief that animals could suffer had been around for centuries. According to Anderson (2011 p.33), governments around the world increasingly came under sustained pressure from welfare organisations and 'public opinion shifts' to improve living conditions and slaughter standards in the twentieth century. However, legislation reflecting the change in attitudes generally lagged significantly behind public opinion. Through capitalism, animal's lives and movements have been shaped to accelerate and maximise profits to the detriment of their quality of life (Marx, 1978). This acceleration to maximise profits concerned individuals who criticised the methods of slaughter and the poor conditions experienced by livestock at markets and during transport, and the Council of Justice to Animals was formed in Britain in 1911 (Humane Slaughter Association, 2023). Attitudes of Free State policy makers towards animals shifted as they began to recognise the need to improve animal welfare for two main reasons: Firstly, healthy, well fed and well

cared for animals produced better economic outcomes for those who sought to profit from them. This could be ensured by improving access to education on animal care and increasing the number of veterinary surgeons. However, nationwide the lack of qualified medical carers and care facilities for animals was extreme – Ireland's human population had around two thousand doctors while the country's much larger animal population was served by four hundred veterinary surgeons (DLGPH, 1946).

The nineteenth century had seen some major social reforms – such as child labour laws – where the impetus for reforms were moral and implementation was economically costly to society. Reform could be motivated by 'altruistic, moral concerns' (Anderson, 2011, p.61) although it would require considerable efforts by those early champions of animal welfare to convince others who saw increased costs as a significant hurdle. Those seeking the humane treatment of animals in Dublin were fully aware of modern improved practices being introduced abroad as organisations such as the DSPCA and the Dublin branch of the International League for the Protection of Horses were connected to international networks of institutions. In the 1920s supporters of humane slaughter began promoting the stun gun in preference to the pole-axe with the British Humane Association leading the way internationally (Humane Slaughter Association, 2023). In the wake of laws introduced in Britain, legislators in Dublin were debating the introduction of laws to protect the welfare of animals at slaughter but support for the bill was far from unanimous.

Traditional methods were potentially brutal as well as inefficient and the well-being of all animals were not considered equally within the public debate. During a debate about the Agricultural Produce (Fresh Meat) Bill, 1929, Senator John Thomas O'Farrell, Labour Party politician for Dublin and former president of the Irish Trades Union Congress in 1927, proposed the introduction of a subsection which would see the humane killer made compulsory for the slaughter of animals (except pigs). He argued that the only way butchers learned how to use the traditional pole-axe was by beginning with a live animal and that it was 'only after mutilating scores of animals they can in any sense of the word claim to be experts'

(*Agriculture Produce (Fresh Meat) Bill, 1928 – report stage*, 1930). O'Farrell equated modern forms of killing with reduced suffering and referenced the compulsory use of the humane killer across Europe including in Northern Ireland, Scotland, Germany, Sweden and Switzerland.

Legislating to replace the pole-axe with this new devise for killing animals caused division along class, gender and urban-rural geographic lines. Reformers were largely upper and middle-class where 'kindness to animals became a mark of civilisation' (Adelman, 2020, p.26) and since its inception in the nineteenth century, women were at the forefront of animal advocacy 'marking the movement with a particular sense of ethics, empathy and action' (Gaarder, 2011, p.1). This was not quite true of the Dublin Society for the Prevention of Cruelty to Animals where the majority of senior positions were filled by men at the beginning of the 1930s and 1940s (*The Irish Times*, 24 April 1934; *Irish Times*, 10 April 1943), although there was still a sizeable number of women active and vociferous within the organisation, and on behalf of the organisation, regularly writing to the press. Echoing the views of many reformers as interfering female do-gooders, opponents of the pole-axe were regularly referred to as 'old women' in the Dáil and Senate debates irrespective of their sex suggesting that women were excessively emotional, sentimental and irrational (Craig, 1931). Those who supported the humane treatment of animals were often stereotyped as 'hysterical women prone to irrational ideas' (Gaarder, 2011, p.8). However, as a campaigner for social change for both humans and animals, Senator O'Farrell lambasted the ridiculous notion that to be seen as 'strong', a man needed to be brutal: 'To show anything like consideration for a dumb animal is a sign of human weakness, that in order to be considered a strong man you must, to a certain extent, be brutal, a sort of caveman' (O'Farrell, 1930). Finally, the social-structural position of an individual, including their physical location – be it rural or urban – has been shown to confer 'distinct experiences and worldviews related to concern with animal well-being' (Kendall, Lobao and Sharp, 2006, p.400). Many Free State politicians from rural backgrounds saw no reason to change the status quo, emphasising their superior

knowledge of animals in comparison to urban dwellers. This was absurd, and a denial of the realities of life in urban Dublin.

Many politicians rejected the modern notion that livestock animals possessed consciousness and the ability to suffer while at the same time insisting that they respected the work carried out by the DSPCA. They were demonstrating what is now referred to as 'selective speciesism' whereby certain animals, such as companion animals, are elevated to the status of holders of 'moral consideration' while others such as cattle aren't (Brugger, 2021 p.41). This thought process justifies prioritising profit over the welfare of an animal. For example, regarding the second part of the amendment which stated that an animal could not be killed within the sight of another animal, Senator John Counihan, a cattle trader, denied that animals could be conscious that they were going to be slaughtered and suggested that erecting partitions would only 'inflict unnecessary hardship on the users of slaughterhouses' (Counihan, 1930).

It was not surprising that many members of society were loath to accept the modern concept that animals could suffer mental anguish given that the idea was not even universally accepted among veterinary scientists in Dublin at the time. In an effort to raise awareness around the suffering inflicted on animals, the DSPCA had taken a case to highlight the brutality of the practices common across the city. While the Humane Slaughter Bill was being debated in the houses of the Oireachtas, the DSPCA had taken a legal case against Messrs. O'Neill of 4 Chatham Street for allowing a sheep to be slaughtered in their slaughterhouse at Clarendon Market, off Clarendon Street within four feet of a dozen petrified sheep. Witnesses for the DSPCA stated that it amounted to cruelty to kill an animal in the presence of another animal because the animal would be terrified (*Irish Times*, 29 August 1933). However, when both Messrs. O'Neill and the DSPCA had veterinary surgeons take to the stand to testify about animal consciousness, Professor James Ferguson Craig, Principal of the Veterinary College, the more senior of the two and witness for the defence, swayed the judge with his comment that 'mental anguish implied a certain amount of intelligence... and sheep was one of the least intelligent of animals' (*Irish Times*, 12 September 1933).

As with many of the other modernising forces discussed in this chapter, new ideas and ways of doing things needed to fit into the capitalist economic model and they could not challenge profitability if they were to be accepted. In this instance, Senators and TDs who were dependent on the popular vote were aware how unpopular the measures would be to the owners of slaughterhouses and small farmers who would incur extra costs to implement the measures. With the pole-axe the slaughterman's outlay consisted of one piece of equipment as opposed to the new technology which required those slaughtering animals to purchase an expensive stun gun (c. £5) and incur the running costs of continually replacing cartridges. The extra cost presented a significant hurdle given that individuals only tend to 'pursue legislative goals when the benefits to them exceed the costs of doing so' (Anderson, 2011, p.12). In this case the benefits went to the animals in the form of less suffering while the slaughterman achieved the same ends just at an extra cost to himself. Describing himself as neither a 'sentimentalist' nor an 'old woman', one TD, Sir James Craig, supported the second reading of the Bill once it was not extended to rural areas where it would have put a farmer to considerable expense when he wished to kill an animal or two himself (Craig, 1931). It did not help that the Minster for Agriculture until 1932, Patrick Hogan, rejected the efficiency of the humane killer in favour of the pole-axe and saw it as an unnecessary expense for butchers in small towns across Ireland.

General interest in this legislation was largely Dublin based with almost no attention given to the parliamentary debates in the regional press. In the end the Bill received remarkably minimal attention even in the national press suggesting that there was scant appetite for it outside Dublin. While the Bill may have encountered relatively little resistance outside Dublin, thanks to the tireless campaigning of the DSPCA consumers in the capital were overwhelmingly in favour of the new legislation. 'No butchers… dared to ignore his customer's determination to know how the creatures are killed which provide his food' (*Irish Times*, 17 April 1937 p.6).

Government officials representing rural areas were successful in preventing its application on the farm, softening the blow to rural communities who bred and

raised the majority of animals in the State and objected to having their practices dictated by urbanites. The watering down of the Bill to exclude rural areas was unfortunate because it was likely amongst those who used the pole-axe less frequently that the majority of accidents, and therefore suffering to animals, probably occurred as farmers were less skilled than professional slaughtermen.

This research suggests that Part II, Sections 12 to 18 of the Slaughter of Animals Act, 1935, which outlines what was required for the humane treatment of animals in slaughterhouses, recognised that animals suffered. Premises were obliged to provide the animals with food and fresh water, slaughter of an animal was not permitted within sight of another animal, slaughter could only be carried out using approved instruments and all efforts had to be made to avoid unnecessary pain or suffering. Contravention of this would result in fines up to £25. Through this legislation, the Free State would officially recognise animal sentience and a form of intelligence where it had previously been unrecognised in legislation.

Unfortunately, not all animals were treated equally under the new legislation. Pigs did not fall within this legislation even though internationally the introduction of legislation requiring the use of the humane killer saw other forms of killing stigmatized (Leiderer, 2021). Although many of the large slaughterhouses and small butchers in Dublin who specialised in killing pigs had used the humane slaughter method for several years reliably and effectively, its use for pigs was virulently objected to in the houses of the Oireachtas (Craig, 1931). Claims that the humane killer irrevocably damaged the head or discoloured the blood were put forward as reasons not to use it, but the most likely reason that it was excluded from the legislation was that the pig was the most common animal killed on small farms for home use across the country (Bell and Watson, 2008).

While the Act came into operation on February 1, 1937, compliance was already high among the majority of Dublin slaughtermen. Out of 269 slaughtermen, in the first year only six were prosecuted under the new Act – resulting in three fines and three dismissed under the Probation of Offenders Act (Dublin Corporation, 1937). The introduction of the legislation would see the new Free State join Britain in

leading the world in a more compassionate way of killing animals for human consumption. In comparison, a similar act would not be introduced into the US until 1957. Even before the Bill was enacted the DSPCA were celebrating the fact that 119 humane killers were in use in Dublin and 62,900 cartridges had been sold in 1933 (*Irish Times*, 24 April 1934).

The outcry surrounding the export of live horses discussed above in section 6.2.4 demonstrates how horses were traditionally perceived differently to other livestock animals. Attitudes toward the treatment that horses deserved at the end of their lives, were divided along urban/rural and class lines. In Dublin, as in other urban environments, when 'the city wore him down' a horse 'moved through jobs of diminishing prestige' (McShane and Tarr, 2007; Adelman, 2020, p.25). As their strength failed, the energy to which their economic value was attached decreased and, as commodities, old horses lost value. The attitudes of the State and commercial traders, who viewed them as commodities at all stages of their lifecycles, were challenged in the 1950s and 1960s by a growing number of the urban public influenced by the DSPCA and the Dublin branch of the International League for the Protection of Horses. However, the concerns of the mainly middle-class members of these organisations were not always mirrored among those who lived off the labour of their horses. There was no room for sentimentality among some of the poor working classes who viewed horses as tools of the trade: 'When the horse came to the end of its working time, there was no place for a pet horse, you wouldn't have had the resources, you wouldn't have had the money...' (Kennedy, 2022a). When the horse ceased to be able to provide kinetic energy, value was traditionally extracted from its body in O'Keefe's the knackers yard and other spin-off industries in the city. On the other hand, many horses were held in great affection by their owners and were symbols of prestige and prosperity. Boland (2014) describes how his father always tended to the horse's needs before anyone else and how his father's black mare was his pride and joy and never whipped. At the weekend the horse was carefully prepared, groomed, shod and hooves polished to transport the family in their Sunday best for the Sunday drive (Boland, 2014).

By the early 1960s the success of the DSPCA in petitioning against the export of live horses demonstrates that there was broad public support for the humane treatment of animals in Dublin. However, even though the DSPCA succeeded in stopping the trade in live horses, there is no record of them petitioning against the live export of other animals or for the closure of the cattle market. Even amongst members of the DSPCA and their supporters there appears to have been different expectations and standards for what constituted animal cruelty depending on the animal. Differing attitudes regarding animal cruelty were also apparent in the oral histories and memoirs. Some people were highly critical of how animals were handled while others were indifferent to animal suffering. Professional drovers were experts at their jobs, but they could be both brutal and cruel. 'They'd have a cattle stick (an ashplant) and a little nail on the end of the stick… and they'd use it for prodding the cattle' (Foran, 2022). 'It was cruel and used to damage their hides, it was wrong' – docker Christie Donoghue (Kearns, 1991). However, even though they ultimately viewed the animals as commodities, not all drovers were excessively cruel to their charges and some recognised the benefits to be had from kindness and affection. Drover Bobby Walsh found that 'the more kind to the animal you were the better… especially rubbing them under their neck or behind their leg… scratch them and you'd drive them quicker' (Kearns, 1989, p.184). At times an animal was so exhausted that it just collapsed in the streets and no amount of encouragement of prodding would move it. Drovers were also acutely aware of the public nature of their job and, if they showed restraint from prodding the animal excessively to get it moving, it may have been because 'there was people watching for cruelism' (Kearns, 1989, p.183).

Although many ordinary Dubliners were unsettled by the cruelty shown to living animals, poverty and need among the working class in Dublin could over-ride modern ideas regarding the humane treatment of animals. Even at a young age, children were conscious of the 'human dilemma' (Thomas, 1984), that animals were exploited and killed in order for them to survive. Western societies had evolved all sorts of methods to avoid and conceal this relationship (Adelman, 2020) but practices in Dublin, both legitimate and illegitimate, ensured that it

remained visible to the public. As discussed previously, the widespread distribution of slaughterhouses across the city only thinly concealed the legal killing of thousands of animals every year for consumption by the city's human population. Illegal slaughtering also occurred when animals occasionally went missing en route to or from the market, and it has been suggested that unethical drovers stole and slaughtered them and distributed the meat. Kay Foran recalled how her neighbour on Gardiner Street – drover Wilkie Bar – occasionally stole or 'rustled' a calf, slaughtered it in the back yard and distributed it among the neighbours. 'I'd look in the coal box and there'd be a cow or something looking out, a calf looking at me… and I'd get this warm package off Wilkie and it'd be full of banjos, me dad used call them, sweetbreads and all this, the offal…' (Foran, 2022b). This was not an isolated incident – 'I knew a good few cattle drovers and some of them was rustling. Some of them were butchers by trade… they'd actually give bits and pieces of it to some of the neighbours' (Foran, 2022a). It is possible that some of the lost animals which were advertised relatively frequently in the newspapers had fallen victim to these thieving drovers (*Irish Independent*, 28 January 1954; *Irish Times*, 12 October 1957; *Irish Times*, 7 November 1959).

Cultural norms meant that adults and children alike were habituated to the idea that the cattle, sheep and pigs moving through their city had one purpose only – to be transformed into human food. Unlike today where meat is neatly packaged and its living origins concealed, the modes of display in butcher shops did little to conceal the purpose and fate of the city's animals. The presence of animals in the city both as living creatures, and then dead with their body parts on display in butcher's shops, meant children had an intimate knowledge of the living animals that they consumed. This awareness will have made eating those animals a more 'visceral affair' as bodies intermixed and this contrasts starkly with more modern practices around the sale of animal products which has seen the living animal separated from its products (Evans and Miele, 2012). In Dublin during this time the sight of dead animals was completely normalised (Kennedy, 2022b; Foran, 2022b) as animal carcasses and heads were routinely displayed in shops. 'You'd see the cow in half being brought in… and you'd see blood dripping onto the floor… but it

never scared me, I was used to it' (Foran, 2022b). It was a woman's job to transform the animals' body parts into food for her family (Kearns, 1994) and from a young age this knowledge was passed on to her children who learned about the different parts of an animal carcass and the various cuts of meat (Kearns, 1989). Children understood the language which translated animal bodies into human food: 'I'd be sent to Kearns… I'd know about gammon… streaky rashers, back rashers, pigs' tails, pigs' ears, pigs' cheeks… bacon ribs, fresh ribs, smoky bacon… that was your language if you were going to the pork butchers. If you were sent to the chicken shops you'd know to buy the boiling fowl, that was the old chicken, it took longer to cook, the younger chicken, they roast very quick' (Foran, 2022b).

6.6.2 Perilous spaces in the physical landscape

That the turmoil brought into the city on a weekly basis relating to the Dublin Cattle Market in the 1950s and 1960s was tolerated reflected the widespread acceptance of 'anti-modern' agricultural practices in the city by both national and local government at the time. This acceptance by authorities maintained the city's rural-urban hybrid identity and imposed encounters between humans and animals. During this period large swathes of Dublin City became animal spaces on market day as their presence dominated the urban landscape. Although modernising forces shaping both urban and agricultural development in most Western nations had transformed urban environments into livestock-free zones at the beginning of the twentieth century (McShane and Tarr, 2007; McNeur, 2014), national economic policies ensured that Dublin's embedded position within the country's agricultural economy continued. In fact, the Dublin Cattle Market grew in size and importance in the 1950s and 1960s and the transformation of farming and food processing in Ireland would only lead to its closure in 1973 (O'Brien, 2021).

Figure 12 below illustrates the fluctuating flows of cattle, sheep and pigs passing through the Dublin Cattle Market and the adjacent pig market between 1940 and 1962. During this period the growth in importance of the live animal trade was reflected in the growth in the number of animals flowing through the city. Until the market closed, the routes through which the animals moved were briefly

transformed into animal spaces where everyday activities were greatly impacted by the passing of the cattle, sheep and pigs. Animals sold at the market for export walked a specified route to Dublin Port along the North Circular Road. Figures for animals exported through Dublin Port reveal that cattle exports dominated the market with sheep and pig exports much lower – for example, in 1961, 38,235 sheep were exported although 406,655 were sold in the market (i.e. 9.4%) and 1,021 pigs were exported although 60,830 moved through the market (i.e. 1.7%) (Thom, 1961). Different animals had different destinations in the city with the majority of cattle flowing to the port while the majority of the sheep and pigs were dispersed across the city.

Numbers of animals in the Dublin Cattle Market

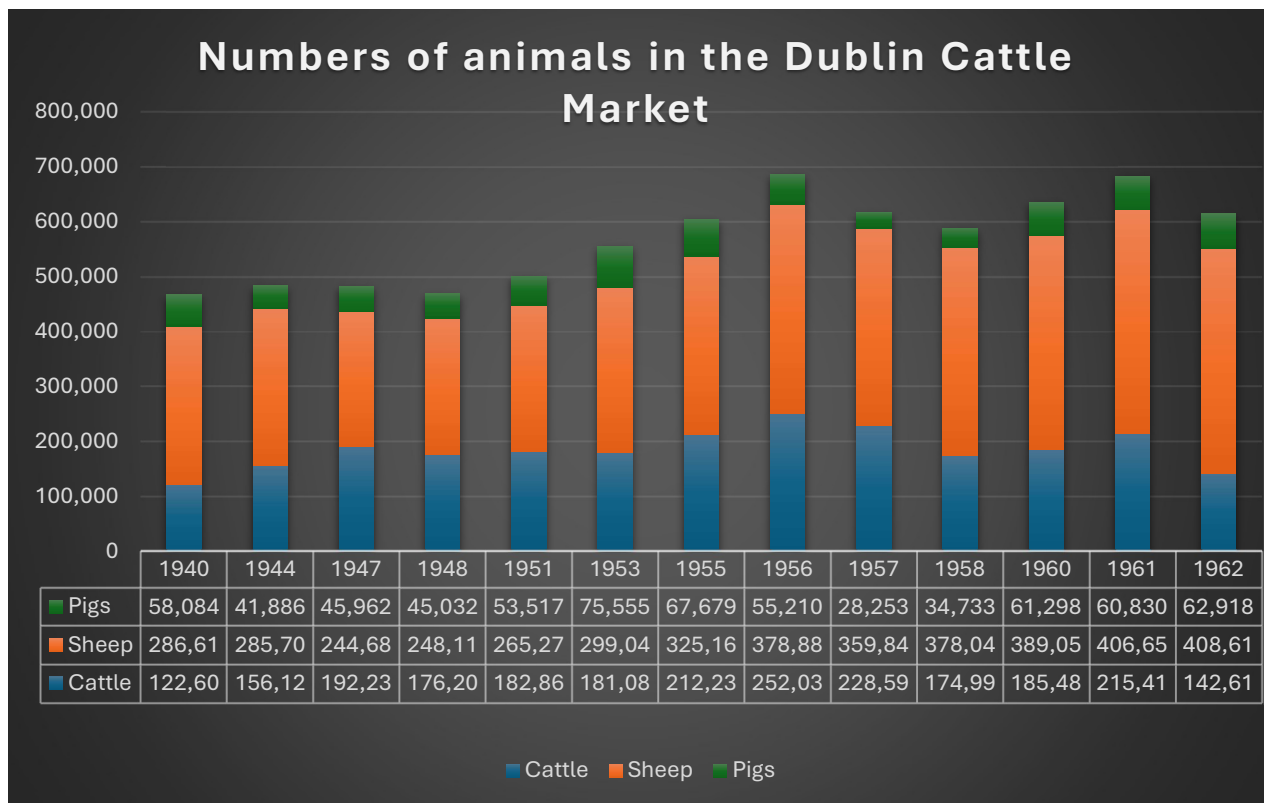|	1940	1944	1947	1948	1951	1953	1955	1956	1957	1958	1960	1961	1962
Pigs	58,084	41,886	45,962	45,032	53,517	75,555	67,679	55,210	28,253	34,733	61,298	60,830	62,918
Sheep	286,61	285,70	244,68	248,11	265,27	299,04	325,16	378,88	359,84	378,04	389,05	406,65	408,61
Cattle	122,60	156,12	192,23	176,20	182,86	181,08	212,23	252,03	228,59	174,99	185,48	215,41	142,61

■ Cattle ■ Sheep ■ Pigs

Figure 12: Number of cattle, sheep and pigs at the Dublin Cattle Market and the adjacent pig market for the years 1940 – 1962. Sources: Public Health Reports for the City of Dublin.

By the mid-1950s, the dwindling numbers of horses and milch cows in the inner city meant that the greatest risk posed by livestock animals to the human population was through encountering them on their way to or from the market. Harvey (1989) argued that the demands for capital accumulation leads to social

and spatial inequalities. Even though the movement of animals related to the cattle market was officially sanctioned by Dublin Corporation, the city lacked modern infrastructure to protect citizens from marauding animals. For decades Dublin Corporation's public health committee had campaigned to separate humans from animals in the city on the grounds of safety and yet the dangers posed by large animals such as cattle moving around the city were overlooked. Similarly, Dublin Corporation's veterinary department do not appear to have questioned the idea that the sights and sounds of a twentieth century city with fast-moving motorised transport was a deeply inappropriate place for cattle where they experienced fear and were often injured. On the contrary, the steady decline of the Dublin Cattle Market and the Dublin Corporation Abattoir from the early 1960s was a cause of grave concern to Dublin Corporation, who were forced to underwrite their increasing loses (O'Brien, 2021). Put simply, the dangers posed by animals and to animals along this route were secondary to the importance of the market to the local economy.

Although the markets began at 5am, before much of the city was even awake, and all business was completed by noon, there was still much disruption to the city as drovers escorted lines of cattle and sheep 'up to half a mile long' down to the North Wall (O'Brien, 2021). The animals posed a great danger to human life and an encounter between a pedestrian and a bullock could prove fatal – 'Ah, it was murder going down that North Circular Road… you had people coming up the paths… oh they were afraid of their life' (Kearns, 1991, p.59). The weekly flood of animals through the streets was a cause of great concern for parents who became especially vigilant and kept their children close (Crosbie, 1982). The cattle drives tended to happen around noon when children were in school but the babies who spent their mornings in their prams tied to the railings outside tenement buildings were taken in and the toddlers enjoyed the spectacle from afar: 'The little ones who wouldn't be in school, they'd have a cowboy hat and they'd be roaring at the cows going by' (Foran, 2022b).

En route, the modern transport system came into direct conflict with the 'anti-modern' economic policy to retain the cattle market in the urban centre where

modern motor vehicles risked directly colliding with animals. Drovers and tram drivers often clashed especially if the tram drivers honked their horns. Similarly, the journey to Dublin Port was stressful for the animals as they intermingled with motor and pedestrian traffic. Sometimes drivers deliberately honked or beeped to spook the animals causing them to 'run their hearts out all the way down the circular road' often suffering terrible injuries as they ran blindly (Kearns, 1991 p.183). If the cattle drive was later than normal it ran the risk of clashing directly with hundreds of children pouring out of Rutland Street and O'Connell's' schools for lunch where they would join 'the melee' and cause great confusion as they tried to cross the flow (Deegan, 2022). Older children enjoyed watching the cattle drive and would eagerly join in to help the drovers 'hunt' the cattle down the road (Foran, 2022a). Unfortunately, their enthusiasm for catching a runaway could enhance the animal's fear and confusion which sometimes led to a deadly outcome for the animal if it panicked and fled. Deegan recalls an incident where a panicked bullock swam the canal and climbed onto the raised railway line. Unfortunately, it proved too difficult to rescue the animal and it was put down on the spot. Other animals badly injured themselves bursting through the windows of shops or jumping railings (Kearns, 1991).

6.6.3 Implications of modernisation for urban space

Irrespective of the advances in animal welfare and humane killing methods, animals would continue to experience unnecessary suffering in slaughterhouses across Dublin until the 1970s as slaughtermen continued to reject centralisation. Likewise neighbouring residents were routinely exposed to the brutal sights, sounds and smells that accompanied animal slaughter. Recalling the slaughterhouse at the end of their street – Church Gardens in Rathmines – brothers David and Noel Kennedy described frightened cattle and sheep being beaten off trucks, and occasionally running away and causing chaos on the Rathmines Road before being herded back to a bunker like building. With their friends, Noel and David Kennedy watched on with morbid curiosity while at the same time hoping the animals would escape: 'We really wanted to see them getting away because we knew what would happen to them' (Kennedy, 2022a).

Even though the killing took place behind locked doors, sounds and smells and liquids escaped: 'You'd hear the bang of the humane killer... there'd be blood rolling out under the gate... and that's when the smell got very bad... 'cos all the innards were coming out and then they'd skin them and the truck would come and take all those skins away. Sheep or cows.' (Kennedy, 2022b).

Political efforts to modernise Ireland's economy in the 1960s in line with other European countries would change the character of Dublin's landscape as the flow of animals between the city and rural Ireland reduced. Despite the government's increased investment in agriculture in the 1960s, the limited ability of agriculture to 'act as an engine for growth' was accepted in 1967 and the Second Programme for Economic Expansion was jettisoned (O'Brien, 2021, p.48). Hopes for modernising Ireland's economy rested firmly with its accession into the European Economic Community which it joined in 1973 (Foster, 1989). Until then, animals making their way to and from the cattle market made the streets dangerous for all.

The changes in Dublin City's animal populations and animal-related activities were reflected in the physical landscape as animal spaces were abandoned or remade. Dereliction and decay were defining features of Dublin's north inner city in the 1960s as twentieth century social ideals guiding the development of Dublin favoured a co-operative model of society through suburbanisation resulting in the movement of the inner city population out of the centre (McManus, 2021). At the same time many areas of the city were ignored by commercial investors who chose instead to invest in the already wealthy areas around the south-eastern quarter of the city which had a pre-existing developed commercial centre (Brady, 2017). By 1971, Lewis Mumford, invited to Dublin by the National Institute for Physical Planning and Construction Research, was shocked at the dilapidated condition of the city. He announced that Dublin was 'on its way to becoming a non-city... exhibiting the worst aspects of the collapse of twentieth-century urban structure' (Hanna, 2010, p.1033). As the number of horses and milch cows declined, it is likely that these animals' former spaces were subsequently occupied by pigs who would remain largely unopposed until their spaces were eventually redeveloped for human housing. Some piggeries located in the city centre would face

compulsory purchase orders as Dublin Corporation sought to expand social housing in the city. These included piggeries in the Fitzgibbon Street Housing Area in 1966, Finglas in 1969 and Ballybough in 1975. In the suburbs, one piggery located at the Sandford Road/Woodstock Gardens junction in Ranelagh became the centre of a compulsory purchase order controversy where the Corporation sought to evict two hundred pigs to remake the space into fifty-five family flats (*Irish Press*, 6 April 1977). By 1985 Dublin had the 'advanced symptoms of a doughnut city', was without a middle-income population in the inner city and had sixty-five hectares of derelict inner-city land (MacLaran, 1999, p.22). This dereliction would allow pockets of piggeries to remain in place in Island Street, in the Liberties, Clanbrassil Street, Stoneybatter and Portland Place until the early 1990s by which time piggery owners recognised that they no longer belonged in the city. When he was interviewed in 1991, Jimmy Riley (50) acknowledged that piggery owners had defied the Corporation for too long: 'there's not many pig raisers around now... I'm just seeing an old thing out' (Kearns, 1991, p. 192).

6.7 Conclusion

From the 1930s, human-animal relations in Dublin City were shaped by evolving ideas and attitudes towards animals and the place of animals in the urban environment. This evolution was driven by technological and scientific innovation and the growth of the animal welfare movement. Technological innovation in transport systems internationally eroded the human dependence on the horse for draught purposes rendering the urban horse largely obsolete. However, modernising Dublin's transport system during the twentieth century by replacing horse power with motor power was not seamless and one directional. The speed at which horses were replaced by motor technology during the 1920s and 1930s meant that the supply of horses and carts etc was unable to meet demand when motor technology was suddenly withdrawn during the Emergency because of fuel rationing. Their value to society at this time was comparable to their demand. Unfortunately, as soon as fuel became available the status of horses in society

dropped to the same level as cattle, sheep and pigs as this once high-status animal was reduced to a source of food.

The early twentieth century saw significant movements advocating for social justice which fostered a broader cultural shift towards empathy and the ethical treatment of animals. The introduction of legislation regarding humane methods of killing animals demonstrated how the DSPCA had become a powerful organisation whose political reach stretched beyond urban Dublin across rural Ireland. The growth in the live-horse trade during the 1950s once again highlighted the strong divisions within Irish society regarding attitudes towards animals.

This chapter has demonstrated how Dublin's animals were entirely integrated into Ireland's rural agricultural economy. Ultimately this meant that Dublin's animal keepers had limited autonomy to modernise their practices because of their complete dependence on rural farmers to provide them with their principal raw materials – their animals. Modernising pig-keeping and dairying required embracing new breeds of animals which had been selectively bred for better growth rates, feed efficiency and meat quality. However, although the government strongly promoted modern agricultural practices, they often encountered resistance. In this instance, rural animal breeders were slow to adopt new breeds because of the extra investment needed.

Despite advances in bacteriology, technology and veterinary science, dairying in Ireland was slow to change until the late 1950s. Before legislative change forced the sector to modernise by introducing the mandatory pasteurisation of milk for sale in Dublin City, efforts at modernisation were instigated unevenly across the country. However, the requirements of the new regulations were so onerous that most Dublin dairymen quickly ceased production while the remainder – including the Nolan family of Terenure – relocated outside the urban district. Removing milch cows from Dublin City distanced Dubliners for the source of their milk and profoundly changed Dubliners' relationships with cows.

Meanwhile, pig-keepers nationwide resisted the forces of modernisation until the 1960s and were slow to embrace the measures suggested by successive

governments to ensure a secure supply of pigs to grow Ireland's pig export market. This research suggests that Dublin's pig-keepers lacked any real incentives to significantly change their operations given that it was the unique practice of feeding pigs on food waste and spent grain in Dublin City which had cushioned them from the political and economic effects of WWII at a time when rural pig-keeping was decimated. While numbers of animals in individual piggeries increased in Dublin City it appears that the method of feeding the pigs remained the same through the 1950s and beyond, it was simply upscaled with large piggeries being contracted by businesses and institutions such as hotels and hospitals to collect their food waste. It is also likely that men and women perceived the opportunities offered by pig-keeping differently. For women or men with a small number of pigs, pigs represented pin money or the ability to meet the expense of special occasions. For the mostly male owners of large piggeries, they were run like businesses requiring large inputs of labour and food and producing large outputs of waste which needed to be removed.

The use of oral histories in this chapter has provided unique insights into the cultural, social and economic aspects of human-animal relations in Dublin. Their addition to this research has helped to create a more holistic view of human-animal relations during the research period. They have complemented and enhanced the 'facts' from written records and displayed that attitudes and experiences relating to animals in the city were diverse and dependent on circumstance. Exploring the bonds which existed between animal keepers and their animals revealed how animals were integrated into Dublin life.

7.0 Conclusion

7.1 Introduction

This research was inspired by works such as Atkin's (2012) *Animals Cities, Beastly Urban Histories* and Brown's (2016) *The City if More Than Human, An Animal History of Seattle*, which examine how animals have been fundamental in shaping the development of cities. However, most of what has been written about the place of horses and other livestock animals in cities has concluded at the beginning of the twentieth century with the presumption that animals had been almost entirely removed from urban environments within the first couple of decades. This research is the first of its kind to examine the place of livestock animals in a European or American city up to the last quarter of the twentieth century.

Using multiple methods within the collage methodological framework allowed me to capture the complex, nuanced and multifaceted aspects of human experience that existed within Dublin City where so many lifeways were shaped by human-animal interdependencies. Mapping was the perfect medium for answering the question central to the first findings chapter – where were the animals and animal businesses? The location of animal spaces was the foundation for the relational approach which shaped the entire project. It would have been ideal to finish the research with later maps, but unfortunately adequate source material is not available. Official records including public health reports and reports about the state of agriculture in Ireland, such as the 1934 Piggery Tribunal Report, revealed the answer to the question central to the second findings chapter – how did human-animal relations shape the functioning of the city? These enabled the construction of an image of the city as a rural/urban hybrid with an ecosystem and urban metabolism. Meanwhile, memoirs, oral histories and newspaper reports provided insights into the major social and political transformations which were translated into profound attitudinal changes and answered the question central to the final findings chapter – how did human-animal relations change over time?

7.2 Understanding why animals lingered in Dublin

Ultimately this thesis set out to uncover what was unique about human-animal relations in Dublin City which saw animals remain here far longer than in European and American cities studied to date. It has shown that animals were actively retained within the city because of the important roles and functions they fulfilled. For instance, horse owners often kept their animals until they were no longer serviceable due to the significant initial investment. Horses were particularly valued by those in delivery services for their intelligence and outperformed mechanized vehicles in their ability to memorise routes. Similarly, Dublin's pigs played a crucial role in the urban ecosystem, making their retention economically viable as food and bedding were largely freely available, reducing costs. Dublin's milch cows were kept in urban areas under strict surveillance to ensure milk quality, which was more rigorously monitored in the city than in rural areas. The research, however, questions the practicality of maintaining the Dublin Cattle Market in the urban environment, where increasing urban traffic made cattle drives to Dublin Port hazardous for both humans and animals.

It was established that human-animal relations in the form of exploitation to provide for the city's needs extended far beyond the municipal borders. Animals from across the country provided Dubliners with meat and milk, while the trade in live animals through the Dublin Cattle Market boosted the local economy. Acknowledging the continual movement of animals and animal-related products into and out of Dublin City challenges previous notions of it as a purely urban environment. Instead Dublin City is revealed as an rural/urban hybrid, a 'space of flows' (Castells, 2004) and the volume of agricultural related business and activity taking place demonstrates that the city was an important network hub for Ireland's agricultural economy. Dublin's animal keepers were shown to be constituent parts of the broader agricultural economy which stretched across the country.

This research enquired into whether social conditions in Dublin City could be attributed directly to concentrations of animals and animal-related businesses, but the results suggest that this relationship was complex and nonlinear. This work

builds on the work of geographers and historians who have previously documented social conditions in twentieth century Dublin (Daly, 1984; Kearns, 1989, 1994; Kearns, 1991; Prunty, 1998; Brady and Anngret Simms, 2001; O'Shea and McManus, 2012; Brady, 2014; McManus, 2021). Here it has been shown how human-animal relations both determined, and were determined by, these social conditions. Concentrations of animals were seen to be associated with prosperity in one area of the city and poverty and deprivation in others. Smithfield/Stoneybatter was shaped by its relationship with the Dublin Cattle Market and the prosperity it brought to the area, while the poverty of Dublin's north-east inner city was reflected in, and determined, the density of piggeries in that area. On the other side of the river Liffey the Liberties area was dominated by offensive trades, many of them animal-related, polluting the environment in which many of Dublin's poorest citizens lived. At the same time, human-animal relations in the area today known as Dublin 2 were relatively few in comparison to other areas of the city. This reflected how the relative wealth and power of the local population determined that the area was not exposed to the negative impacts of human-animal relations.

This research sought to understand how animals shaped the surrounding environments in which they lived and worked in Dublin City before what Atkins (2010, p.2) described as the 'Great Separation' of human residences from animal production. For the first five decades of the twentieth century animal-related rhythms marked the time of day, the day of the week and even the time of year for Dublin residents while providing employment directly or indirectly to many. At the same time, urban livestock contributed significantly to environmental pollution of the air through noxious odours and through ground contamination in the courts and alleys where the poorest lived. Whether they remained in one place after they arrived in the city, or their role required them to move around the city, animals posed significant risks to public health both physically and through the spread of zoonotic disease. However, time and again the rural/urban hybrid nature of the city meant that the smells and pollution associated with animal keeping and nuisance businesses were often overlooked because of the economic opportunities relating

to them. Waste management and sanitation issues associated with animal faeces posed significant challenges to Dublin Corporation although the city's animals played a positive role in organic waste cycling of distillery and brewery grains and human food waste. Historically the city had been designed to accommodate the animals required to power and nourish the city, but the evolution of motor transport had resulted in the widespread removal of horses. Subsequently, empty stables were repurposed and transformed to house pigs and milch cows which were considered more offensive than horses.

This research sought to understand how the roles animals played in shaping the functioning of Dublin City's urban ecosystem changed over time. Before motorised transport, the city's transport infrastructure, networks and connectivity were traditionally designed around horses, mules and donkeys. Before refrigeration, cows, pigs and poultry housed within the city were important sources of local food production nourishing the population with food energy. Even after the introduction of new transport and refrigeration technologies the energy provided by these animals remained vital to the city although both technologies enabled Dublin's ecosystem to grow as animal-related networks stretched across Ireland and beyond. This research has demonstrated how animals were core constituents in the city's ecosystem and the relationships which connected Dublin City and rural Ireland through multiple networks. All urban environments depend on their hinterland for food to a greater or lesser extent given the limitations on local food production and Dublin's animal keepers depended on rural animal keepers to breed the animals required for the city's animal-based ecosystem to function. These networks were mediated by Dublin-based horse, cattle and pig dealers and were strongly subject to capitalist market forces.

This research has shown how attitudes regarding the threat of zoonotic disease were uneven across the country and this undermined the effects of the public health measures enforced in Dublin. Dublin City's municipal boundary was permeable to diseased animals and animal products entering the city but impermeable to attempts by Dublin Corporation to enforce legislation beyond the city limits. Until sanitary measures were universally implemented, the only option

available to sanitary authorities in Dublin City to limit this permeability was checking produce at entry points to the city such as at railway stations.

Both before and after Independence, the trade in live animals was central to the functioning of Ireland's economy on a national scale and Dublin City's economy on a local scale. For much of the twentieth century, the Dublin Cattle Market was the epicentre of Ireland's agricultural economy and a large infrastructure existed in the city to support this economy. This in turn supported Dublin's local economy where a large labour force worked either directly with animals or indirectly in the broad range of industries which constituted Dublin's animal-based economy. However, this research suggests that the concentration of infrastructure which supported Dublin as the central hub for Ireland's agricultural economy potentially held Dublin back from modernising at the same pace as cities in Europe and America . Yet networks and flows of animals into and out of Dublin City were rarely stable for long periods of time during the first half of the twentieth century due to political and economic upheaval. This research has highlighted how major political events such as WWI and WWII saw substantial reorientation of established networks which fundamentally altered human-animal relations in Dublin City for periods of time resulting in urban hardship and social change. It has also shown that human-animal relations often differed profoundly between urban Dublin and rural Ireland. This was especially apparent during WWI when Irish farmers experienced something of a boom (Durney, 2014) while Dubliners experienced high rates of unemployment, poverty and hunger (Yeates, 2011). This research shows that the flow of animals from Ireland to Britain profoundly affected Dublin City's urban metabolism. Although the number of horses and cattle available in Ireland at the time dropped, the number of horses, cows and pigs in Dublin City dropped disproportionately. Inflated animal-feed prices fed directly into hyperinflation for meat and milk in the capital and rural producers did not show solidarity with the Dublin poor when they were asked to supplement shortages in the city at reduced prices. Meanwhile, fuel shortages experienced during WWII resulted in a brief resurgence of horse-drawn transport and all the skills and infrastructure required to support this. However, the period after WWII saw the accelerated growth of a

trade which began in the 1930s where horses supplanted by motor technology were exported from Dublin to mainland Europe.

7.3 Animals in a modernising city

The research sought to understand how human-animal relations in Dublin City changed as ideas and attitudes towards animals changed in response to the modernising forces which were sweeping Europe during the twentieth century. These modernising forces included advances in science, bacteriology and technology which drove technological advances in transport, refrigeration and milk production; advances in sanitation informed public health initiatives which resulted in animals living and dying under increased surveillance; evolving social and cultural norms drove movements seeking the humane treatment of animals; evolving social, economic and environmental considerations at the beginning of the twentieth drove the town planning principles which favoured suburbanisation in Dublin.

Some modernising forces were fiercely resisted. In the 1860s fifty percent of Dublin slaughtermen and butchers simply refused to acquiesce to the new centralised system of slaughter and this proportion remained relatively stable until the Dublin Corporation Abattoir closed in 1973. Instead, for much of the twentieth century slaughter continued across the city. Although Adelman (2020) identified several areas where animals were killed, I have only been able to identify two places with certainty where animal slaughter was carried out on a large scale and they stand in stark contrast to one another. The large Dublin Corporation Abattoir was positioned on the edge of the city designed to maximise surveillance potential by veterinary inspectors while at the same time rendering slaughter invisible to the general public. In contrast blood flowed onto the street from the dingy slaughterhouses in the laneways behind Moore Street, and the business within was barely concealed from the public eye. The former protected the surrounding area from the sights, smells and sounds of slaughter while the latter polluted the surrounding environment with offensive materials.

Although Dublin City appears to have been behind the curve regarding modern slaughter facilities, the city was ahead of the curve internationally in relation to attitudes around the treatment of animals, especially regarding the implementation of humane slaughter methods. Indeed, the Dublin Society for the Prevention of Cruelty to Animals appears to have been much more effective in changing the landscape of human-animal relations in Dublin City in the twentieth century than it was in the nineteenth century. Modern ideas about the need to improve the treatment of animals for ethical reasons had been flowing into Dublin since the 1830s after the creation of the Royal Society for the Prevention of Cruelty to Animals in England. Adelman (2020) noted the lack of success experienced by the DSPCA because the movement became entangled with religious and class conflicts. However, this research has shown that the DSPCA remained active and once more came to prominence in the late1920s when the debate about modernising slaughter methods to make them more humane reached Ireland's shores. These Dublin-based reformers were powerful in driving legislation which would ensure the compassionate treatment of animals while living and during slaughter.

The methods employed by the DSPCA to promote the humane treatment of horses had changed significantly since the nineteenth century and demonstrated the shift in focus away from punishing cruelty to encouraging kindness. The largely middle-class reformers viewed the mainly working-class owners reliant on horses, ponies and donkeys for their livelihoods with a more compassionate eye. For example, the provision of fields as resting places for tired or old horses and ponies belonging to the poor offered some owners the opportunity to show the compassion they felt for their animals where previously financial restraints would have prevented them from doing so.

However, this research reveals that, in Ireland's capitalist society, moral compasses were all too often shifted by favourable economic conditions. When horses were rendered redundant as draft animals with the rise of motor transport, many owners and traders were happy to see them repurposed as commodities for the new horse trade between Ireland and France and Belgium. This trade exploded

after WWII growing almost exponentially and fundamentally changing Ireland's relationship with the horse for a period until 1965. This demonstrates that to those who were economically dependent on animals, even those animals considered as high status and coded as inedible, were ultimately commodities. The taboo around the trade in horses for eating was destigmatized when the financial rewards were significant enough. The acceptance of traversing this taboo occurred at all scales, from the individual farmer breeding horses to the fairs where horses were traded to successive governments who refused to stop the trade despite evidence of intense suffering to the animals.

Although the cessation of this trade can be counted as a success for the DSPCA, in the second half of the twentieth century the sorting of animals into those that give us pleasure and those that sustain us physically widened dramatically in Europe and America. New modern agricultural methods introduced after WWII saw the situation improve for some animals such as pets but massively disimprove for other livestock animals through the introduction of intensive farming.

Over the course of the twentieth century animals and animal-related businesses slowly became less visible (although not necessarily less numerous) in inner-city Dublin as modern ideas around town planning shaped the expanding city. Brady (2017) and McManus (2021) have documented the evolution of Dublin City from 1910 to 1963 noting that when city authorities embraced suburbanisation – first of domestic dwellings and then of commercial activity – the city began hollowing out and dereliction increased. In 1971 geographer Lewis Mumford described Dublin's degraded state as almost a 'non-city' (Hanna, 2010, p.1033). This research suggests that conditions remained favourable for animal keeping in Dublin's inner-city even as they were unfavourable in the new suburbs. The development and regeneration of inner-city Dublin was bypassed in favour of new suburbs where animals were excluded by law from the new housing estates. This ensured that there were more animal spaces in Dublin City than in the surrounding suburbs. Inner-city Dubliners were more likely to live close to pigs and cows than most suburbanites except for those living at the periphery where the new suburbs abutted farmland. Similarly, they were more likely to encounter horses working on the streets of inner-city

Dublin where distances were relatively small compared to the stretched-out suburbs where motorised vehicles were more commonly used for haulage.

7.4 Changing human-animal relations

As the research progressed it became clear that location and social status determined how individual humans related to horses, cattle and pigs. Geography and social class strongly dictated how Dubliners were impacted by the close proximity of these animals as well as animal-related businesses and industries. Some negative effects of human-animal interactions were potentially experienced equally across the classes and the research has shown that accidents involving horses on the street struck rich and poor alike. However, by and large the negative effects of human-animal relations were experienced far more by the poorest in Dublin society, than by those higher up on the social ladder. For example, as the maps have indicated, the poor lived closer to animals which represented a danger to their physical health through exposure to disease associated with animal waste. The maps have also demonstrated how animal-related offensive trades were clustered in the poorest parts of the city degrading the environment and the living conditions with noxious waste and smells. Many of those who ran nuisance businesses or practiced offensive trades such as slaughtering were members of strong representative organisations. This bestowed them and their interests with far more power at a municipal level than the poor tenement dwellers.

This research suggests that the proximity of animals meant that social standing in life could determine whether a family's offspring lived or died at the beginning of the twentieth century in Dublin City although this improved by the 1920s. Tenement dwellers were much more exposed to fly-borne disease if neighbouring animal keepers were not diligent in removing animal waste regularly. Poor women's babies were more likely to die from milk borne disease than those of wealthier women because necessity often required them to leave their babies to be bottle fed unpasteurised milk while they worked towards supporting the family. Wealthier women tended to live in healthier housing, could breast feed their children and had better access to sanitation if they bottle fed. This discrepancy between rich

and poor women was somewhat mitigated by the efforts of Women's National Health Association, Dublin Corporation's sanitary department, the free milk scheme and the new Free State's focus on mothers and babies (Doyle and Smith, 1989).

The divergent attitudes towards human-animal relations between rural Ireland and urban Dublin were the result of the complex interaction of public health policies, local government actions and societal attitudes. Rural-urban attitudinal differences were highlighted during the clean milk drive in the late 1920s and 1930s. This research has shown that urban Dublin had a more proactive approach towards addressing public health concerns related to milk contamination and bovine tuberculosis compared to rural Ireland. This was evident in how many in rural Ireland displayed resistance and apathy towards measures introduced as a result of Irish Clean Milk Society initiatives. However, disparities in resources allocated by local governments for dealing with the bovine tuberculosis crisis may have accounted for the different attitudes seen on the ground. The uneven distribution of veterinary inspectors and inconsistent implementation of sanitary laws between urban and rural areas contributed to differences in herd health and milk safety. Dublin Corporation's rigorous monitoring and surveillance of the city's milch cows was not replicated in rural Ireland. This may also have been because Dublin's population perceived the threat of tuberculosis from milk as much greater than rural populations did. This perception was likely influenced by higher overall tuberculosis rates in Dublin due to its dense housing conditions.

After WWII, efforts to curb the trade in live horses by the DSPCA highlighted the attitudinal differences which existed between both rural and urban animal keepers who viewed their animals as commodities and the largely urban population who had come to view animals more sympathetically. It is somewhat surprising then that the beliefs promoted by a relatively small number of mainly urban-based 'sentimentalists' and 'old women' ultimately won out and saw the trade in live horses for slaughter banned. It is perhaps less surprising when the issue is viewed through the social class lens which explains the seemingly disproportionate political power wielded by this small group of wealthy middle-class reformers.

It is important to recognise that attitudes towards how livestock animals deserved to be treated were not uniform across all Dubliners. The oral histories and memoirs proved very useful in highlighting the uneven nature of human-animal relations between those who worked with animals and those who did not. This difference in attitude has broadened today as modern farming, slaughter methods and meat presentation have ensured that the exploitation of animals for food and other products is entirely invisible to urban populations.

7.5 Limitations of the research and future avenues for investigation

Because this was the first research project of its kind to look at animals in Dublin City in the twentieth century, the scope was deliberately broad, so it was impossible to investigate all of the possible lines of enquiry that were revealed over the course of the research period. Furthermore, the project was conceived and designed during the first year of the Covid 19 pandemic, when no one could foretell how long the libraries and archives would remain closed, so it was designed around materials that were readily available. Using a methodological framework which could accommodate this broad approach reaped many benefits including identifying multiple avenues for future investigation.

In themselves, the annual Public Health Reports for the City of Dublin contain a wealth of information. However, they also point to a lot more information which may or may not be available at some point in the future. For instance, Dublin Corporation kept registers of dairymen, cow-keepers and pig-keepers, slaughtermen and offensive trades. The sanitary department also recorded details of inspections of all animal housing and slaughter facilities. Newspaper articles and Dáil debates point to another official account of piggeries which took place in 1954 although I have not managed to find any trace of it. All of the above registers and records may or may not still exist but if they eventually appear in the archives, they will open up numerous opportunities for future scholars.

If records of the names and business addresses of animal keepers, slaughtermen and offensive trades surface, it would enable these animal spaces to be mapped over time. Similarly, as subsequent census materials become available, animal spaces can be located through the Out-Offices and Farm-Steadings Return Form B2 (for as long as that form was in use). This research has demonstrated that there is massive scope for a wider examination of the impact of the DSPCA up to the present date. For this work, information regarding the activities of the organisation was gleaned mainly from newspaper articles and Dáil debates. However, a large amount of material relating to the history of the DSPCA does exist, albeit in substandard conditions, but it is awaiting a suitable scholar to archive it.

As O'Brien (2021) noted, much more work needs to be done on the Dublin Cattle Market, and the ancillary businesses given their importance to the national and local economy, while work has yet to be commenced on the Dublin Corporation Abattoir. Both of these research projects are relatively time sensitive since both closed in the early 1970s and it is likely that many of those who worked there or remember them are either dead or old. As discussed in previous chapters, the presence of the market, slaughterhouses and the knackers' yard enabled the continued presence of multiple offensive trades in Dublin City so long as there was a regular supply of hides and skins generated in Dublin City. None of these trades appear to have been given academic attention to date.

7.6 Endnote

This research contributes to the literature on Dublin City in the twentieth century in several important ways. By extending the timeline of animal presence in the city it demonstrates that livestock remained integral to Dublin's urban environment well into the twentieth century, challenging previous presumptions that animals were removed from cities in the early 1900s. Mapping animal spaces and animal economies revealed the extensive and previously overlooked animal-based economy in the city. The relational approach taken embeds Dublin's urban ecosystem within larger national and international networks, highlighting the city's interconnectedness. It shows how Dublin's urban metabolism depended on

continuous flows of animals and animal products, defining Dublin City as an urban/rural hybrid for much of the twentieth century. It analyses how the city responded to modernising forces, concluding that the concentration of animal infrastructure in the city may have hindered its modernisation in comparison to other European and American cities at the time.

The interdisciplinary nature of the research means it also makes important contributions to Animal Studies. It examines the DSPCA's influence on legislation and public attitudes towards humane treatment of animals, especially during slaughter. It highlights how shifting moral attitudes towards animals were often determined by economic conditions. It captures the nuanced human-animal relationships which existed in Dublin and contributes to a deeper understanding of how these relationships shaped both human and animal lives. It tracks the evolution of attitudes and practices involving animals, driven by modernising forces such as technological advances, public health initiatives and shifting social norms.

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