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“In a country every way by nature favourable to health”: Landscape and Public Health in Victorian Rural Wales

KEIR WADDINGTON

Abstract. Rather than seeing landscape as an invisible backdrop to sanitary reform, this article offers another context through which to consider the problems facing local authorities and sanitary officials in identifying and tackling sanitary problems. Using Wales as a case study, this article first addresses how rural landscapes were imagined and second how as “environments” and “territories” they influenced patterns of sanitary reform. If underlying ideological meanings were attached to the landscape, as this article suggests, the rural landscape was a plural one in that it also acted as a barrier to sanitary reform.

Keywords. landscape, place, public health, Wales

Résumé. Plutôt que d’envisager le paysage comme une simple toile de fond aux réformes sanitaires, cet article en fait un contexte à travers lequel considérer les difficultés auxquelles doivent faire face les autorités dans l’identification et la résolution des problèmes sanitaires. À l’aide d’une étude de cas du pays de Galles, l’article aborde d’abord la façon dont les paysages ruraux étaient conçus, puis comment, à titre « d’environnements » ou de « territoires », ils ont influencé les modalités des réformes. Si des significations idéologiques sous-jacentes ont alors été attachées au paysage, tel que le suggère cet article, le paysage rural était polysémique en ce sens qu’il agissait aussi comme une barrière aux réformes.

Mots clefs. Paysage, localité, santé publique, Pays de Galles.

Writing in 1882, the geologist Jerome Harrison explained how “the scenery which surrounds us, the soil beneath our feet, the mineral treasures beneath that soil, the sites of our towns and villages, the occupation of the people, the nature of the water we drink, and the countless other factors which meet us in our everyday lives ...” all depended on how geology shaped the landscape.¹ While a rich tradition of county and topographical histories and guidebooks shaped popular perceptions of geography, an awareness of the important influence of geology and topography was echoed in how Welsh medical officers of health (MOHs) conceived the landscape around them.² For example, William Williams, in the introduction to his 1895 report on the sanitary state of Glamorganshire, built on

Keir Waddington, School of History, Archaeology and Religion, Cardiff University

the tradition of topographical studies and started with a detailed discussion of the physical features and surface geology of the region. Like Jerome Harrison, he fervently believed that the physical landscape had an important bearing on everything from the "houses, villages and towns" built to the quality of the water supply, while other sanitary investigations suggested that landscape accounted for the different attitudes to cleanliness between "the peasants of mountains and vale."³ When it came to thinking about rural public health, landscape mattered for sanitary officials.

Welsh historians have implicitly acknowledged the impact of geology and landscape on patterns of industrialization and urbanization in a region which covers some 8,000 damp, hilly western square miles of Britain. Although those writing from the 1990s onwards tended to lose sight "of the place in which the past has been lived," an earlier generation of Welsh historians combined social and economic factors with geographical analysis.⁴ They were conscious of how geology shaped the coalfield's development and human activity and settlement in the region.⁵ But geology and landscape did not just determine the development of the coalfield or the slate quarrying region of North Wales. It shaped how Wales was imagined in the 19th century. Writing in the early 20th century, the historian Owen M. Edwards noted in his popular history of Wales how the landscape was integral to understanding Wales and the Welsh.⁶ Whereas 18th-century visitors exaggerated the topographic perils and climatic hazards they faced, 19th-century Wales was viewed as providing all the ingredients of a romantic landscape.⁷ Contemporary accounts acknowledged the tremendous changes wrought by industrialization in Wales and the transformation of certain areas from "highland wilderness" to a landscape of "innumerable cottages and furnaces," but depictions of Wales equally asserted an idealised picture of rurality that revered the land as healthy and moral.⁸ Yet, growing disquiet in the late 19th century about rural overcrowding, damp and dilapidated housing, and poor rural sanitation created a further narrative that pointed to an environment that did not always have the desired rejuvenating properties contemporaries wanted to associate with the rural. The tensions between these two views of the rural landscape are at the heart of this article.

Historians have become increasingly sensitive to the need to examine the local dynamics of public health, but existing studies tend to discount the rural. A relative neglect of the rural in histories of public health not only obscures the hundreds of small rural towns whose local management "affected the activities and attitudes of very large numbers of people," but also, as a growing strand of research on Canada, Europe, and Scandinavia has highlighted, overlooks how rural experiences sit uneasily with assessments of sanitary reform.⁹ As recent work on Canadian medical history demonstrates, medicine and public health were often practised differently in rural areas. Rural practitioners frequently

struggled to apply urban medical doctrines, while isolation and non-traditional settings for medical and nursing practice informed identities and medical work.¹⁰ Just as the differences between the rural and the urban have been marginalized by public health historians, so too has the relationship between landscape and public health. Notwithstanding the growth of environmental history with its interest in how nature influences human affairs and an increasing strand of scholarship on health, place, and region, the impact of the landscape on sanitary reform remains unclear, especially as recent trends in urban history have stressed the “immaterial” over the material aspects of sanitary experiences.¹¹ A focus on the built environment and health or on urban settlements, where patterns of property ownership, business interests, technical concerns, and local finances were more important determinants of intervention than topography, has ensured that the impact of landscape on sanitary reform has been overlooked.¹² As Catherine Preston has suggested, “by revealing the physical forces circumscribing human behaviour,” an awareness of landscape “may provide a new perspective from which to evaluate that behaviour”, while as Megan Davies’ work on British Columbia reveals, thinking about region and regional geography is essential for understanding the ways in which medical provision and public health developed.¹³ Hence, this article is not about how practitioners understood the shifting location and environmental dependence of disease or medical topography, but about rural landscapes and public health, and about the complex material interactions between them.¹⁴

Rather than seeing landscape as an invisible backdrop to sanitary reform, this article draws on a growing strand of work that stresses the importance of understanding region in shaping medical practice and provision, and on ideas that “place influenced numerous medical issues” and “ideas, concepts, and meanings” of medical practice.¹⁵ Understanding the effects of landscape on rural sanitation offers another context through which to consider the problems facing local authorities and officials in identifying and tackling sanitary problems. While not ignoring the other factors that determined the extent of sanitary reform or supporting a form of environmental determinism, this article uses rural Wales as a case study through which to interrogate how rural landscapes were imagined and how as “environments” and “territories,” they influenced patterns of sanitary reform.¹⁶ Informed by work that views landscape as an agent in the formation of culture, and by the idea that landscape is a fundamental aspect of everyday life, this article explores how the landscape influenced perceptions of Wales as a country, in the words of the Registrar General William Farr, in “every way by nature favourable to health.”¹⁷ If underlying ideological meanings were attached to the Welsh landscape just as they were to other rural or wilderness regions in North America and Europe, as this article suggests, it is important for medical historians to consider the rural landscape as a plural one in that it also influenced

the nature of sanitary work in rural communities and acted as a barrier to sanitary reform.¹⁸

HEALTH AND THE RURAL LANDSCAPE

The "spatial turn" has suggested how environment and landscape are mediated by cultural understandings. As scholars have come to tackle space and place as a social product and a shaping force, and explored the performative and cultural aspects of place, both space and place have come to be viewed through the meanings invested in them.¹⁹ For Corbin and Schama, the physical landscape or topography of a region cannot be separated from perception, with Schama arguing that "landscapes are culture before they are nature".²⁰ Attempts to define the landscape necessitated judgements of cultural value as it was subjected to aesthetic, historical, and economic descriptions as knowledge from human activities or experiences was read into or onto particular locations or environments.²¹

From the time of the Greeks to the 19th century, the qualities of place were woven into notions of health. Medical practitioners and patients did not hesitate to make links between environment and disease as the idea that good health was closely related to environment was retained. Connections were established between physical characteristics and topography, climate, fauna or flora, sources of water, and ways of life to create what Rosenberg refers to as an "epidemiology of place."²² Although historians are seldom clear about how this process occurred, an essentialist understanding of place and the relationship between health and place by contemporaries saw certain locations come to be viewed as healthier than others. As the countryside came to be seen as a place of leisure, renewal, and tradition in the second half of the 19th century, an enduring image that equated rurality with health and morality gained ground in Britain, Europe, and North America.²³ In Britain this association of rurality with health was reinforced by the environmental determinism central to Chadwickian conceptions of public health and by explanations for local disease outbreaks, and gained power in the late 19th century in response to growing fears of urban degeneration. As the city and the country became differentiated landscapes in the popular imagination, the importance of rurality and landscape in relation to physical, mental, and moral health was increasingly articulated as the rural landscape was presented as "a 'medicine' for the soul suffering from the effects of weariness, doubt, and the pressures of an increasingly urbanized society."²⁴ The result was "the rise of a cultural-aesthetic idealising of the countryside" across a range of genres that stressed its timeless, natural moral order and rejuvenating properties as an image of the rural became subordinate to metropolitan needs as the antithesis to geographically bounded constructions of filth associated with the urban

environment.²⁵ Higher life expectancies at birth were championed for rural districts and social commentators regularly explained how those living in “largely rural” localities enjoyed “a remarkable vitality.”²⁶ Such assessments were taken as evidence that rural areas were William Farr’s quintessential “Healthy District,” characterized by low mortality.²⁷ As the countryside was increasingly perceived to be under threat, and the more that links were made between urban environments and deteriorating national health, the more metropolitan commentators idealized the rural landscape as a moral and healthy antidote to urban life.²⁸

Similar views were expressed by MOHs and in public health manuals; views which drew on longstanding connections between fresh air and health. Speaking in 1873 before the Society of Medical Officers of Health, Henry Letheby, MOH for the City of London, asserted the commonly held belief that exposure to air and soil was essential to neutralizing the danger posed by putrefying substances, and other writers on public health highlighted how the rural environment contained both properties in abundance.²⁹ They widely acknowledged that the air in rural and mountain regions, such as Wales, was freer from sources of contamination.³⁰ For example, in his *Hygiene for Beginners*, Ernest Reynolds, Victoria University extension lecturer on hygiene and senior physician at the Ancoats Hospital, explained how “pure air is seldom met with except in the country, at the seaside, or on mountains.”³¹ Just as the air in rural areas was considered purer than the atmosphere in towns, so too was the water, echoing claims that stretch back to Roman texts that water from mountain streams and springs was the best water. In his *Manual of Hygiene*, William Heaton Hamer confidently stated that water in rural and upland areas “possesses great purity.”³² Public health manuals were clear in the impression they gave that rural and mountain regions were by their very nature healthier than urban areas. Although these messages were never simply expressions of anti-urbanism, the rural landscape and mountain and wilderness regions were increasingly presented in metropolitan accounts, tourist guides, and public health manuals as an Arcadian symbol of nature and health.³³

“FAMOUS FOR THE PURITY AND EXCELLENCE OF ITS AIR”: THE HEALTHY WELSH LANDSCAPE

The notion that man could thrive in certain environments, and how the rural and the countryside had positive physical and moral benefits, was implicit in how the rural Welsh landscape, and especially upland areas, were represented. Just as in other regions that came to be framed through their associations with rurality and wilderness, such ideas went beyond an aesthetic appreciation of mountains and notions of purity. Welsh rural sanitary officials did draw on ideas associated with

medical geography to point to the problematic nature of the Welsh climate and, like many of their contemporaries, were sensitive to locating outbreaks of epidemic disease in meteorological conditions. However, rather than framing ideas about health and landscape in an explicit analysis of climate or spatial variations of disease, much of the discussion about the qualities of the rural landscape was informed by symbolic and perceptual understandings of the environment and an imagined Welsh nation. As Knightly suggests, national identities have both a historical and geographical component, and "landscapes, whether focusing on single monuments or framing stretches of scenery, provide visible shape" to this identity to help "picture the nation."³⁴ What mattered in the context of the Welsh landscape was a fundamental conviction that health was tied to place and that Wales was "a country every way by nature favourable to health."

Since the 18th century, travel writers and painters had sought to portray Wales as "a place of 'difference' with its own culture, tradition and legends woven into the landscape."³⁵ On the western periphery of mainland Britain, and with limited transport networks until the mid-19th century, Wales was relatively isolated and easily characterized as a wild and mountainous region. This idea of Wales found expression in the Romantic Movement, which saw the uplands of Wales imagined as the epitome of sublimity and an essentially depopulated landscape of mist-enshrined mountains and ruined castles that provoked profound emotions. Directed at a largely urban and middle-class audience as part of what French literary theorist Roland Barthes sees as the "bourgeois promoting of the mountains," this tradition remained strong in Victorian travel writing and in picturesque representations of untamed uplands that dominated representations of the Welsh landscape.³⁶ Even visiting inspectors for the Local Government Board (LGB) found themselves commenting on how otherwise insanitary villages were located "in the midst of some of the most romantic scenery."³⁷ As the Principality became a destination for tourists after 1850 as railway connections improved, as with other regions that aimed to attract tourists, industry was overlooked in favour of presenting a particular vision of the landscape to outsiders.³⁸ A fictional and nostalgic view of "Historic Britain" was asserted in guidebooks on Wales that framed rural Wales as sublime, sparsely populated, and picturesque; a place of myth and natural purity.³⁹

Against a backdrop of a renaissance in Welsh culture and identity in the second half of the 19th century, the land, land reform, and mountains became a central strand of evolving ideas of nationhood in which the cultural timelessness, independence, and spirituality of the land was asserted. Writing in 1901, the historian Owen M. Edwards argued, for example, how Wales's "mountains explain its isolation and its love of independence."⁴⁰ The nature of industrialization and urbanization in Wales did not lead to an alienation from the

land, but strengthened the symbolic meanings attached to the valleys and mountains of Wales. They became wild and untamed places; romantic places of spiritual, moral, and physical renewal. Writing in 1911, one travel guide explained how “almost every hill and mound in the district, has its legends, its romance, which lives in the hearts of an intensely patriotic and imaginative people, and blends the past and the present into one.”⁴¹ This romanticization of the land and uplands of Wales as the ancient and spiritual heartland of the nation connected the Welsh language and culture to the land and geology of Wales. Such romantic views became common currency just as the coalfield region was beginning its most intensive period of development, as writers and politicians looked back to a landscape less troubled by modernity to promote ideas of organic progress in the face of the massive upheavals associated with the coalfield region.⁴²

In these representations of the rural Welsh landscape, ideas of health were asserted that described rural Wales, and especially upland Wales, as a place beyond contamination as the perceived natural advantages of topography, soil, and climate were linked together. The Royal Commission on Land in Wales and Monmouthshire expressed a common view when it noted how the very topography of Wales ensured that it was “generally healthy.”⁴³ Individual rural districts were presented as free from pollution given their location. Writing about his district, H.E. Rawlings, MOH for the Gower, was clear that “The Peninsula of Gower is an exceedingly healthy spot, having a charming variety of scenery and supplied with plenty of pure air.”⁴⁴ If particular Welsh landscapes, rivers, and lakes came to be associated with myths and legends, notions of pure air and water were a recurring theme in how rural districts were framed as healthy because of their location in the landscape.⁴⁵ For example, the St. Asaph Rural Sanitary Authority, Denbighshire, was considered “famous for the purity and excellence of its air,” while the MOH for Gelligar Rural District Council referred to those living in the “wild upland[s]” as being naturally healthy because they had all the advantages of “pure mountain air.”⁴⁶ Similar views were expressed about the village of Cerrig-y-drudion in Conway, North Wales. Here it was felt the people were “able to breathe the pure mountain air in all its purity.”⁴⁷ Given associations between smell and disease, it was easy to imagine the ample supply of fresh air in the mountains and uplands of Wales as healthy.⁴⁸ Limited evidence suggests that individuals accepted this view of the benefits of the rural environment: for example, James Russell of Llandaff was surprised when his family fell repeatedly ill because “This should be quite the reverse in an open country place like this.”⁴⁹

Just as the landscape encouraged the belief that the air was pure in rural Wales, the “natural blessings” of Wales equally allowed Welsh water to be famed for its purity.⁵⁰ Although the question of what constituted pure water was

contested and sanitary officials increasingly bemoaned the quality of local water supplies, Welsh water was presented as particularly pure. This association was not only because of its abundance or as a rhetorical device to justify large-scale sanitary works but also because of the landscape in which it was found as connections were fashioned between mountain scenery and water purity. When Ruthin celebrated the opening of its new water works in 1871, newspapers widely reported how it was "proved beyond a shadow of a doubt that the only other water supply that equalled in purity that of Ruthin in the United Kingdom was the water brought to the city of Glasgow from the crystal springs of Loch Katrine."⁵¹ Other rural areas equally laid claim to the purity of their local water because it came "out of the steep rocks on the side of the mountains" and not from "a stagnant lake or a sluggish reservoir."⁵² Just as public health manuals pointed to how water in upland areas "possess great purity," when discussing reservoirs for Welsh communities, a language of health was used as representations played on the essential purity of their location.⁵³ When considering a new water supply for Nantlle Vale in 1893, for example, it was explained how Llyn Dulyn on the edge of the Carneddau range of mountains in Snowdonia, North Wales, because of its location "in a rocky mountain hollow completely out of reach of pollution," was an area of great "organic purity." Similarly, it was felt that Bettws-y-Coed "abounds in lakes the water of which is in nearly all cases free from pollution" because of its location and the surrounding mountains.⁵⁴

A romanticized rural Wales was increasingly represented as essentially healthy because it was ancient, pure and remote from sources of pollution. Framing the rural Welsh landscape in these ways did not mean that social observers were oblivious to the social ills and difficulties encountered by those living in rural communities, but that the values associated with the rural Welsh landscape created a particular sense of place as pure and healthy.

"SANITARY SHORTCOMINGS"?

However, notwithstanding the strength of this notion of the "healthy rural," a dual narrative came to surround the rural at a local or village level in the last quarter of the 19th century as a more defined administrative structure for rural public health was put in place following the 1872 Public Health Act. The appointment of rural MOHs and a rise in the number of nuisance inspectors increased expert knowledge of local rural sanitary conditions, which by the 1890s local and regional newspapers were eager to report on, while at the same time emphasizing the ideal of the "healthy rural." Writing about rural Glamorgan in

1894, the conservative *Western Mail* was conscious that “No places ought to be more charming and healthful than our pretty villages; but some of them are sadly deceptive.”⁵⁵ Rural sanitary officials became increasingly aware that it was “erroneous to suppose that certain districts are healthy because they happen to have low death rates.”⁵⁶ Distinctions were made between healthy landscapes and local insanitary practices as sanitary officials reinforced broader ideas of the benefits of the rural landscape at the same time as they presented a “woeful tale ... of tumbling and decaying cottages on every hand, and all manner of foul insanitation everywhere.”⁵⁷

While picturesque representations of Wales linked rural cottages with an idealized domesticity and located them in a bucolic rural landscape, what Sayer sees as the utopian “Beau Ideal” concealed how many of the poor were reported to live in dwellings that were small, overcrowded, damp, cold, and unsanitary.⁵⁸ Examples can be found of cottages that were “pictures of simplicity, cleanliness and neatness,” such as in the Gower peninsular, but these were the exception.⁵⁹ As more and more inspections were undertaken, rural sanitary officials highlighted how conditions associated with rural housing were on a par with the worst urban slums. Local rural environments became contiguous with filthy habitations. In their accounts of rural villages and parishes, sanitary officials regularly reported conditions that drew on a localized language of filth and disgust.⁶⁰ In many rural communities, it was noted that “heaps of all kinds of rubbish[,] defective drainage[,] small and badly ventilated homes out of repair ...” prevailed.⁶¹ Overcrowding was found to be a widespread phenomenon in rural Welsh communities, while rural sewerage and water supplies were often rudimentary. Speaking about Bryntroedgam in 1895, the County MOH for Glamorganshire noted that “there is no system of drainage. The privies are mere holes in the ground ... They do not appear to be ever emptied,” while in Bridgend and Cowbridge rural district “wherever ... there is a collection of dwellings, the liquid refuse from houses, tables, etc., flows in dilapidated gutters or over bare surfaces to the nearest river, watercourse, stagnant pool or field.”⁶² If water from isolated and mountainous regions could be imagined as examples of “perfect purity” given their rural location, investigation of water supplies at a local level were less sanguine. They found that many rural wells and springs were “not in a satisfactory state.”⁶³ Water supplies for villages and hamlets were prone to contamination and were held responsible for regular outbreaks of typhoid.⁶⁴ As the Registrar General noted in his 1875 report, “Sweet country air is not to be had in villages with open drains in the main street, and festering refuse on every corner.”⁶⁵

Although geographers are aware that decision-makers often “base their decisions on the environment as they perceive it and not as it is,” did discourses about rural landscape and health in Wales act as a barrier to sanitary reform?⁶⁶

Some sanitary officers did argue that because certain Welsh communities were rural in nature they did "not admit of much in the way of sanitary effort." However, rather than being presented as a feature of the rural landscape, narratives of insanitary rural environments were primarily framed in the context of local conditions and practices or as a result of the failure of rural sanitary authorities.⁶⁷ For example, in a meeting of his constituents at Coedpenmaen, Pontypridd, in 1894, Alfred Thomas, MP for East Glamorgan, cited complaints in the *Western Mail* that it was "an unmitigated disgrace to the sanitary authority" that so many sanitary problems existed "in a neighbourhood so favoured by Nature ..."⁶⁸ A year earlier, the County MOH for Glamorganshire had equally bemoaned that in some rural areas there existed "some apathy ... at any interference to bring about sanitary reform," ideas that continued to resonant into the 1930s as complaints were made about "petty officialdom" hampering sanitary reform.⁶⁹

It would be easy to locate poor rural sanitary conditions or a reluctance to implement reforms in a narrative of rural backwardness or a conventional framework which points to inadequate legislation, a vacillating central body, limited resources and parsimony, conflicting expert advice, and resistance from farmers or landowners.⁷⁰ Contemporaries certainly echoed claims made by inspectors for the LGB that highlighted the "sanitary shortcomings" in rural Wales as indicative of "inefficient administration of the Public Health Acts."⁷¹ However, in making these claims, comparisons were being made between rural authorities and towns which often failed to acknowledge the nature of the locality or the resources available.

Framing rural reactions to sanitary problems as somehow quaint or backward is to misunderstand them and under-estimate local responses and attitudes to public health or the difficulties facing rural authorities. Rural sanitary authorities were, contrary to assessments by outsiders, not uniformly characterized by passivity or backwardness. The two decades after 1870 marked a watershed of socio-cultural change in the countryside. With control of rural sanitary authorities in the hands of landowners and farmers, many rural authorities were admittedly slow to get to grips with sanitary reform.⁷² Limited financial resources, opposition from landowners, and tensions between villages and towns over responsibility, along with technical difficulties, saw the new cadre of rural MOHs appointed following the 1875 Public Health Act face an uphill battle in their efforts to encourage rural sanitary authorities to embrace reform beyond dealing with local nuisances. However, as attitudes to the need for sanitary reform began to change, the power of landowners waned, and pressure grew for improvements; rural sanitary authorities became gradually more and more active in the 1880s and 1890s in their attempts to tackle nuisances and put in place the rudiments of a sanitary infrastructure. At a local level,

parochial committees and individuals increasingly identified problems and made complaints when they felt that rural authorities or landowners were not doing enough. However, rural sanitary officials were keen to explain that they worked in environments “not encountered” in urban areas.⁷³ While rural sanitary authorities suffered from the same problems and difficulties as their urban counterparts, the very landscape that was celebrated as healthy also acted as an obstacle to sanitary reform. Urban sanitary officials may have faced problems of access and obstruction, but rural sanitary officials also worked in a different and often difficult landscape where topographic perils and climatic hazards were common.

THE WELSH LANDSCAPE AND OBSTACLES TO SANITARY REFORM

Welsh rural sanitary officials understood that it was essential to understand the geological and physical features of the places they were responsible for because, as Henry Acland, Regius professor of medicine at Oxford, wrote to William Williams, County MOH for Glamorganshire, the “varying conditions of Climate, Geographical, Geological and Physical conditions” had an important bearing on the individual.⁷⁴ They were acutely aware of the influence of geology, mineral resources, and topography on health—how they shaped development, migration, and attendant problems of disease and sanitation. To place rural sanitary problems in context, reports on the sanitary state of rural districts started with a discussion of the landscape, topography, and soil. Landscape and topography were used to understand the nature and quality of the water supply, drainage and sewerage, and housing, as well as the sanitary measures that had been adopted or could be implemented.⁷⁵ However, landscape was acknowledged to be important in other ways.

Rural landscapes were seldom straightforwardly rural. Where we might imagine the landscape beyond the South Wales coalfield region as a wilderness in the same way that Romantic painters presented a sublime vision of Wales, rural areas were not just agricultural in nature, remote, or concentrated around the notion of the village or a nostalgic form of “traditional” face-to-face community. Although nearly 50% of the population in Wales remained rural in 1891, at a local level distinctions between rural environments and industrial landscapes were often blurred and were far from static.⁷⁶ Just as many rural districts could include industrial areas or premises, at the end of the 19th century many urban districts continued to include those engaged in agricultural employment. For example, the 10,554 acres of Mountain Ash urban district council also covered three substantial farms, while in the predominantly agricultural Bridgend and Cowbridge rural sanitary authority, there were “several collieries and a tin plate works” in the parish of Llanharan.⁷⁷ In the late 19th century, previously isolated

rural parishes could become a "joined together" collection of urban districts in under a decade, but often the hinterland of even heavily industrialized parishes remained rural in nature given the topography of hills and valleys.⁷⁸ Even in the 1920s, industrial communities and those who lived in them retained "close connections" with agricultural life.⁷⁹ Topographies of the rural were therefore not bounded or sealed off. Sanitary problems and responses to them flowed across them, but they were also influenced by the geology and landscape in which they occurred.

Given the porous boundaries and topographies between rural and urban landscapes, the exploitation of mineral and other natural resources resulted in environmental degradation that had an impact on the rural landscape and on health. Coal mining, metalworking, and slate quarrying, for example, all had an ecological and environmental impact that scarred rural landscapes into the 20th century, as evocatively described in the opening of Cronin's *The Citadel* (1937). Iron- and steel-making produced large amounts of waste in the form of smoke, gas, and slag, which polluted the rural environment. If this was most visible in the Lower Swansea Valley, which visitors felt formed "no bad representation of the infernal regions," "the dark shadows of the valleys" were, as one writer explained in 1893, "made darker by the grime of coal and dust of iron." Many rural tenants "saw their lands encroached by the pollution caused by industry. Ironworks and other industries became sources of rural pollution, choking streams "with refuse from industrial concerns."⁸⁰ Welsh streams and rivers in areas associated with mining and metalworking were considered the most polluted in Britain. For example, in Pontardawe Rural Sanitary District in the Swansea Valley, the streams were "so spoiled by the ferruginous water poured into them from the tin-plate works, as not to be usable for any domestic purpose," while the water in the Rhymney river was reported in 1890 to be capable of killing "minnows in five minutes."⁸¹ Mining both disrupted local water supplies and made them acidic, while both mining and copper works ensured that in the surrounding rural areas "the growth of trees is checked or destroyed ... crops of every description are injured, cattle suffer, and wool is made useless."⁸²

If topography and geology through the exploitation of mineral resources created sanitary problems, the simple fact that over 50% of Wales is above 1,000 feet had implications for rural sanitation. Writing about the rural parts of Caernarvonshire, MOH Hugh Rees commented that "many of our villages and dwellings are at high altitude, unsheltered, and subject to heavy rainfall," factors which he used to explain the higher than average death rate in the county when compared to England.⁸³ Although the air in upland Wales could be presented as pure, sanitary officials regularly reported how because of the nature of the landscape in such "exposed and so elevated districts ... great cold and much rain" brought health problems.⁸⁴ Chief among these was high levels of tuberculosis in

rural areas, which was to become an increasing source of alarm after 1890 and was primarily blamed on the “dampness of the climate” and “the defective cottage accommodation.”⁸⁵ But such an environment and landscape also created practical obstacles to sanitary reform.

Just as in other rural regions in North America or Europe, many Welsh rural sanitary districts covered “a large area of mountain land” and valleys that were “scarcely accessible.”⁸⁶ For example, the MOH for Caernarvonshire rural district was responsible for “nearly 1000 miles,” which included the Carneddau range of mountains in Snowdonia, while the Merthyr Tydfil Rural Sanitary District covered 41,710 acres “divided by deep valleys running from North to South” that included numerous dispersed settlements.⁸⁷ One consequence was that many rural settlements were geographically isolated and hard to reach, especially as the Welsh landscape ensured that transport networks beyond the coalfield region or the North Wales coast were poor: railways did not extend beyond the valley or coastal regions and roads were often poorly maintained and difficult to pass in winter. As one writer explained, in many rural communities “the distance from the railway is often so great” that many remained “lonely,” hard to reach places at the end of the 19th century.⁸⁸ Speaking about Gelligaerparish in 1901, the MOH for the Rural District Council explained how it was a “most mountainous and thinly populated part” where “the roads to this wild mountain waste with scarcely any population are very difficult to travel.” In the 65,044 acres that made up the Aberayron rural district, there were no railways, while the roads “are invariably not well kept,” ensuring that the nuisance inspector often had no means of visiting villages and farms except by walking long distances.⁸⁹ If such places could be imagined by metropolitan commentators or in public health manuals as healthy because of their isolation from sources of pollution, inaccessibility, combined with low population densities in dispersed settlements, ensured that many villages and hamlets were not inspected regularly. For example, Llancarfan parish covered 5,000 acres, had a population of 600, and, as the MOH explained, consequently “requires considerable supervision, the house being somewhat scattered.” Some hamlets were so inaccessible that sanitary officials had to make special arrangements to visit them, and found that outbreaks of diseases, such as typhoid, in these places especially “difficult to deal with.”⁹⁰ Under these conditions, sanitary defects went unnoticed; nuisance orders were hard to impose and, as one farmer from Llandilo in Pembrokeshire explained in 1894, “representative[s] of the sanitary authority” were seldom seen.⁹¹ In the words of the MOH for the Merthyr Tydfil Rural Sanitary District, the result was that “attempts at sanitary arrangements” were often frustrated.⁹²

It was not just a question of access, however. In such terrain and in “thinly populated districts,” standard sanitary solutions were often problematic or too

expensive to implement. Although John Spear, inspector for the LGB, noted widespread sanitary problems in the Dingestow district on the Welsh borders, which he felt required an "enormous amount of sanitary work," he was also aware that "from the circumstances of the scattered population" this could "in most cases only be carried out in small instalments"⁹³ In his evidence to the Royal Sanitary Commission on public health in rural North Wales, Lord Penrhyn was equally clear that "no great work" to supply water to rural districts "would probably come into operation there because the population is so spread there that it would be very difficult."⁹⁴

If isolation and scattered communities created problems, rural communities also resisted sanitary reform because of the nature of the landscape in which they were situated. For example, in the 1890s, Llambethian Parish Council repeatedly rejected plans for a public sewerage system for the village, believing it was "altogether impracticable" given the surrounding terrain.⁹⁵ Rural authorities often concluded that standard sanitary measures were of little "utility" in rural environments. Instead, they favoured practical local and low-cost solutions that took account of the isolated nature of many communities and the local landscape and geology, even if these solutions were contrary to urban sanitary orthodoxy. This can be seen in the case of water supplies and sewerage. Here, topography, geology, and isolation created major barriers to establishing a sanitary infrastructure. In the village of Harlech in Caernarvonshire, for example, the MOH "confessed that the place presents many difficulties in the way of effectual sewerage," given that it was built on the slope of a steep hill and was "laid out very irregularly."⁹⁶ "Badly kept, badly constructed, and foul cesspools," privies and ash-pits were a constant nuisance in rural districts, but isolation, topography, and the need for local solutions ensured that for many rural communities, these were the only methods of sewage disposal available.⁹⁷

Although the high relative cost of providing public water supplies to isolated communities was an obstacle, so too was landscape. As the MOH for the Cardiff Rural Sanitary Authority was aware, geology had an "important bearing" on water supplies and drainage.⁹⁸ In his reports on the sanitary state of Glamorganshire, William Williams commented both on how "rainfall is closely connected with the surface features, and the contour of the ground determines in a remarkable manner its relative amount in any given locality," and on how geology determined water quality and quantity. For example, he told members of Glamorgan County Council how the shales and clays of the Lias Limestone in the southern area of the county ensured that the quantity of water in the local springs was "generally small"; how in valley areas irregular deposits of gravel meant that shallow wells were only possible but were "not likely to give a continual supply" and were "certain to take in impurities from sewage." Despite Wales having a high average annual rainfall, the very nature and physical

features of the landscape ensured that in many “rural districts there is almost always a scarcity of water.”⁹⁹ For some, this explained “the want of cleanliness” they encountered among those living in isolated villages and hamlets rather than ignorance as water was often hard or expensive to access given that the geology and topography of rural Wales ensured that many rural communities were forced to rely on shallow wells, streams and springs, or more marginal sources of water.¹⁰⁰ For example, the village of Tyn Y Coed Bach was dependent on water from a bog as there was no other source available, while it was common for many villagers in rural Wales to walk one to two miles to gain access to a water supply.¹⁰¹ In Garnfach and Nantyglo, this was hard “during severe weather, when the hill-paths are difficult to traverse,” and the result was an “almost positive dearth” of water in the villages.¹⁰² Such sources of water were believed to be particularly prone to pollution and were felt to be responsible for regular outbreaks of typhoid and other water-borne diseases. Furthermore, changes in the landscape with mining and quarrying saw streams and springs diverted or dry up. For example, in Rudry, the sinking of pits drained the local springs so “that only surface water of inferior quality” was available to the village in the 1890s, while in the village of Caesarea in Caernarvonshire the nearby quarries had an increasingly detrimental effect on the local water supply.¹⁰³ Although rural authorities “spent hundreds and thousands of pounds in tinkering here and there,” in many rural communities, landscape and geology meant that it was not always possible to lay on a public supply.¹⁰⁴

HEALTHY v DIRTY RURAL

Rather than being an exception, Welsh rural landscapes demonstrate what Massey has described as “the pluralism of location.”¹⁰⁵ Elastic in nature, a dual narrative of rural Wales was presented that stressed an idealised “healthy rural” rooted in the landscape and ideas of the nation, and a “dirty rural” that reflected local conditions or the practices of local inhabitants. In Wales and in other rural areas and wildernesses, whether in British Columbia or Newfoundland, specific environments could be imagined in certain ways, but they also presented material opportunities and limitations. Place influenced health outcomes, but in the rural environment place also had an important bearing on public health resources or the sanitary technologies available to local inhabitants, and frustrated or circumscribed the sanitary reforms possible. In this sense, the role of geology and landscape was not just limited to patterns of industrialization or urbanization. Rural public health was not “placeless” but was bounded by geology and topography, and rural sanitary provision could not “triumph over place” in the same way that Livingstone suggests for science.¹⁰⁶

Emphasizing the need to take the material reality of the rural landscape seriously does not negate how these landscapes were invented and represented. Whereas the rural landscape and the mountains of Wales were central to framing an imagined Welsh nation and Welsh identity, this same landscape created conditions that, notwithstanding images of purity, generated pollution and acted as barriers to sanitary reform. Rather than embracing an account that favours geographical determinism or underestimates how factors such as rural poverty, local political power structures, limited resources, administrative inefficiency, and resistance to reform influenced rural public health, this article has suggested how in rural environments, landscape needs to be considered as more than just the backdrop against which sanitary reform occurred. Questions of topography, geology, and accessibility need to be taken into account when considering the dynamics of health provision and sanitary reform in rural areas, not just in Wales but elsewhere as landscape placed limits on medical expertise and what could be done. By thinking about the rural landscape and the problems it created—how landscape aided isolation and had a bearing on what sanitary reforms could be implemented—it is possible to move beyond existing interpretations of sanitary reform and public health provision that have stressed human agency, politics, and expertise to think more about the obstacles the environment presented.

NOTES

¹ W. Jerome Harrison, *Geology of the counties of England and of North and South Wales* (London: Kelly, 1882), p. ii.

² See C. R. J. Currie and C. P. Lewis, eds., *English County Histories: A Guide* (Stroud: Alan Sutton, 1994); Nicolaas A. Rupke, ed., *Medical Geography in Historical Perspective. Medical History* supplement 20 (London: Wellcome Trust, 2000).

³ William Williams, *A Sanitary Survey of Glamorganshire* (Cardiff: Daniel Owen & Co, 1895), p. 1-10, 12.

⁴ Catherine Preston, "Geology, Visualization and the 1893 Hauliers' Strike: An Interdisciplinary Exploration," PhD thesis, Cardiff University, 2010, p. 28; Neil Evans, "'When men and mountains meet': Historians' Explanations of the History of Wales, 1890-1970," *Welsh History Review*, 22 (2004): 222-51.

⁵ For example, see Arthur H. John, *The Industrial Development of South Wales, 1750-1850* (Cardiff: University of Wales Press, 1950); Rhodri H. Walters, *The Economic and Business History of the South Wales Steam Coal Industry, 1840-1914* (New York: Arno Press, 1977); Trevor Boyns, "Work and Death in the South Wales Coalfield, 1876-1914," *Welsh History Review*, 12 (1984): 514-37; David Gilbert, *Class, Community and Collective Action: Social Change in Two British Coalfields, 1850-1926* (Oxford: Oxford University Press, 1992).

⁶ Owen M. Edwards, *Wales* (London: Longmans, Green & Co., 1901), p. 1.

⁷ Daniel Defoe, *A Tour Through the Whole Island of Great Britain*, G. D. H. Cole, ed., (London: Dent & Sons, 1848), p. 56.

⁸ J. H. Wade, *Glamorganshire* (Cambridge: Cambridge University Press, 1914), p. 4.

- ⁹For an overview of the literature on rural public health in Britain and Europe, see Josep L. Barona and Steven Cherry, eds., *Health and Medicine in Rural Europe (1850-1945)* (Valencia: Universidad De Valencia Servicio De Publicaciones, 2005) and Astri Andresen, Josep L. Barona, and Steven Cherry, "Introduction: 'Rural Health' as a European Historical Issue," in Astri Andresen, Josep L. Barona, and Steven Cherry, eds., *Making a New Countryside: Health Policies and Practices in European History c.1860-1950* (Frankfurt am Main: Peter Lang, 2010), p. 11-24. For individual studies see, Alan Armstrong, *The Population of Victorian and Edwardian Norfolk* (Norwich: University of East Anglia, Centre of East Anglian Studies, 2000); Steven Cherry, "The Public Health Role of Rural Medical Practitioners: Norfolk and Fife c.1860-1914," in Anderson, Barona and Cherry, eds., *Making a New Countryside*, p. 49-70; J. T. H. Connor and S. Curtis, eds., *Medicine in the Remote and Rural North, 1800-2000* (London: Pickering and Chatto, 2011); Megan J. Davies, "Mapping 'Region' in Canadian Medical History: The Case of British Columbia," *Canadian Bulletin of Medical History*, 17 (2009): 73-92; Barry Reay, *Microhistories: Demography, Society and Culture in Rural England 1800-1930* (Cambridge: Cambridge University Press, 1996); Nigel Richardson, *Typhoid in Uppingham: Analysis of a Victorian Town and School in Crisis, 1875-7* (London: Pickering and Chatto, 2008); and Peter L. Twohig, "Written on the Landscape: Health and Region in Canada," *Journal of Canadian Studies*, 41 (2007): 5-17.
- ¹⁰See Davies, "Mapping 'Region' in Canadian Medical History," p. 73-92; and Jayne Elliott, Meryn Stuart, and Cynthia Toman, eds., *Place and Practice in Canadian Nursing History* (Vancouver: UBC Press, 2008).
- ¹¹See Erika Dyck and Christopher Fletcher, eds., *Locating Health* (London: Pickering & Chatto, 2011); Chris Otter, "Locating Matter: The Place of Materiality in Urban History," in Tony Bennett and Patrick Joyce, eds., *Material Power: Cultural Studies, History and the Material Turn* (London: Routledge, 2010), p. 38.
- ¹²Nigel Richardson, "The Uppingham Typhoid Outbreak of 1875-1877: A Rural Case-Study of Public Health Reform," *Social History of Medicine*, 20 (2007): 281. See Christine M. Rosen and Joel Tarr, "The Importance of an Urban Perspective in Environmental History," *Journal of Urban History*, 20 (1994): 299-310; Bill Luckin, "Pollution in the City," in Martin Daunton, ed., *The Cambridge Urban History of Britain, volume III 1840-1950* (Cambridge: Cambridge University Press, 2000), p. 207-28; and Dieter Schott, Bill Luckin, and Genevieve Massard-Guilbaud, eds., *Resources of the City: Contributions to an Environmental History of Modern Europe* (Farnham: Ashgate, 2005); Genevieve Massard-Guilbaud and Peter Thorsheim, "Cities, Environments and European History," *Journal of Urban History*, 33 (2007): 691-701.
- ¹³Preston, "Geology, Visualization and the 1893 Hauliers' Strike," p. 34; and Davies, "Mapping 'Region' in Canadian Medical History," p. 73-92.
- ¹⁴See Conevery Bolton Valencius, "Histories of Medical Geography," in Rupke, ed., *Medical Geography in Historical Perspective*, p. 3-28.
- ¹⁵Davies, "Mapping 'Region' in Canadian Medical History," p. 73-92; Twohig, "Written on the Landscape," p. 5-17; Jonathan Reinartz, "Putting Medicine in its Place: The Importance of Historical Geography," in Dyck and Christopher, eds., *Locating Health*, p. 30; Elliott, Stuart, and Toman, "Introduction," in Elliott, Stuart, and Toman, eds., *Place and Practice in Canadian Nursing History*, p. 7.
- ¹⁶W. T. Mitchell, "Introduction," in W. T. Mitchell, ed., *Landscape and Power* (Chicago: University of Chicago Press, 1994), p. 1; Prys Gruffudd, "Landscape and Nationhood:

Tradition and Modernity in Rural Wales, 1900-1950," PhD thesis, University of Loughborough, 1989.

- ¹⁷ As the geographer Wilbert Gesler suggests, different places serve to reflect and construct notions of well-being: "Therapeutic Landscapes: Medical Issues in Light of the New Cultural Geography," *Social Science and Medicine*, 34 (1992): 735-46; and Robin A. Kearns and Wilbert M. Gesler, *Putting Health into Place: Landscape, Identity and Well-being (Space, Place, and Society)* (Syracuse: Syracuse University Press, 1998), p. 1-16.
- ¹⁸ See, for example, Gerald L. Pocius, "Tourists, Health Seekers and Sportsmen: Luring Americans to Newfoundland in the Early Twentieth Century," in James Hiller and Peter Neary, eds., *Twentieth-Century Newfoundland: Explorations* (St. John's, NL: Breakwater, 1994), p. 47-77; and Allan Byrne, "'Where the gamely salmon and lordly caribou abound': Anti-Modernism and Tourist Promotion of the Newfoundland Wilderness During the 19th and Early 20th Centuries," *Aspects: A Publication of the Newfoundland Historical Society* 44, No. 3 (2009) in *Newfoundland Quarterly* 101, No. 4 (2009): 39-45.
- ¹⁹ See Beat Kumin and Cornelia Osborne, "At Home and in the Workplace: A Historical Introduction to the 'Spatial Turn'," *History and Theory*, 52 (2013): 305-18.
- ²⁰ Simon Schama, *Landscape and Memory* (New York: Knopf, 1995), p. 61.
- ²¹ Michael Benbough-Jackson, "Ceredigion and the Changing Visitor Gaze, c.1760-2000," *Ceredigion: Journal of the Ceredigion Historical Society*, 14 (2003): 22.
- ²² See August Hirsch, *Handbook of Geographical and Historical Pathology*, 3 vols., trans Charles Creighton (London: New Sydenham Society, 1883, 1885, 1886); Rupke, ed., *Medical Geography in Historical Perspective*; and Charles E. Rosenberg, "Epilogue: *Airs, Waters, Places*. A Status Report," *Bulletin of the History of Medicine*, 86 (2012): 664.
- ²³ See, for example, Byrne, "'Where the gamely salmon and lordly caribou abound,'" p. 39-45; Pocius, "Tourists, Health Seekers and Sportsmen," p. 47-77; and Andersen, Barona, and Cherry, "Introduction: 'Rural Health' as a European Historical Issue," p. 11-24.
- ²⁴ Clare Hickman, "Cheerful Prospects and Tranquil Restoration: The Visual Experience of Landscape as Part of the Therapeutic Regime of the British Asylum, 1800-60," *History of Psychiatry*, 20 (2009): 425-41; Christiana Payne, *Toil and Plenty: Images of the Agricultural Landscape in England 1780-1890* (New Haven and London: Yale University Press, 1993), p. 25; Louis James, "Landscape in Nineteenth-Century Literature," in G. E. Mingay, ed., *The Victorian Countryside*, vol. 1 (London: Routledge, 1981), p. 153.
- ²⁵ Anne Bermingham, *Landscape and Ideology: The English Rustic Tradition, 1740-1860* (London: Thames & Hudson, 1987), p. 9; Amy Woodson-Boulton, "A Window onto Nature: Visual Language, Aesthetic Ideology and the Nature of Social Transformation," in Minsoo Kang and Amy Woodson-Boulton, eds., *Visions of the Industrial Age, 1830-1914: Modernity and the Anxiety of Representation of Europe* (Hampshire: Ashgate, 2008), p. 139-62.
- ²⁶ Cited in Bernard Harris et al, "Long-term Changes in Sickness and Health: Further Evidence from the Hampshire Friendly Society," *Economic History Review*, 65 (2012): 723.
- ²⁷ Robert Woods, "Urban-Rural Mortality Differentials: An Unresolved Debate," *Population and Development Review*, 29 (2003): 43.
- ²⁸ See C. Roberts, "Physiology of Recreation," *Contemporary Review*, 68 (1895): 103-13.
- ²⁹ "Dr. Letheby," *British Medical Journal*, 1 (1876): 451.
- ³⁰ See Arthur Whitelegge, *Hygiene and Public Health* (London: Cassell, 1901), p. 4-5, 63; and Louis Parkes and Henry Kenwood, *Hygiene and Public Health* (London: H.K. Lewis, 1901), p. 204, 339.
- ³¹ Ernest S. Reynolds, *Hygiene for Beginners* (London: Macmillan, 1902), p. 117.

- ³² William Heaton Hamer, *Manual of Hygiene* (London: J. & A. Churchill, 1902), p. 107-8; Reynolds, *Hygiene for Beginners*, p. 126.
- ³³ For an outline of these debates, see Jeremy Burchardt, *Paradise Lost: Rural Idyll and Social Change* (London and New York: I. B. Tauris, 2002).
- ³⁴ Cited in Karen Sayer, *Country Cottages: A Cultural History* (Manchester: Manchester University Press, 2000), p. 137.
- ³⁵ Prys Gruffudd, D. T. Herbert, and Angela Piccini, "In Search of Wales: Travel Writing and Narratives of Difference, 1918-50," *Journal of Historical Geography*, 26 (2000): 589.
- ³⁶ Roland Barthes, *Mythologies* (London: Jonathan Cape, 1957), p. 101.
- ³⁷ Dr. S. W. Wheaton's report to the Local Government Board on the sanitary circumstances of the Bettws-y-Coed rural district, and on the prevalence of enteric fever and diphtheria in the district (London: Darling & Son, 1898), p. 1.
- ³⁸ Byrne, "'Where the gamely salmon and lordly caribou abound,'" p. 39-45; and Pocius, "Tourists, Health Seekers and Sportsmen," p. 47-77.
- ³⁹ John Davies, *A History of Wales* (London: Penguin, 1995), p. 319; Shannon L. Rogers, "From Wasteland to Wonderland: Wales in the Imagination of the English Traveller, 1720-1895," *North American Journal of Welsh Studies*, 2 (2002): 15-26; and Jane Zaring, "The Romantic Face of Wales," *Annals of the Association of American Geographers*, 67 (1977): 397-418.
- ⁴⁰ Edwards, *Wales*, p. 1.
- ⁴¹ E. M. Wilmot-Buxton, *Peeps at Many Lands: Wales* (London: Adam & Charles Black, 1911), p. vii.
- ⁴² See H. P. Manning, "English Money and Welsh Rocks: Divisions of Language and Divisions of Labour in Nineteenth-Century Welsh Slate Quarries," *Comparative Studies in Society and History*, 44 (2002): 481-510; and R. Merfyn Jones, "Beyond Identity: The Reconstruction of the Welsh," *Journal of British Studies*, 31 (1992): 47.
- ⁴³ *Report of the Royal Commission on Land in Wales and Monmouthshire* (London: HMSO, 1896), p. 27; Whitelegge, *Hygiene and Public Health*, p. 145.
- ⁴⁴ William Williams, *Glamorgan County Council Annual Report of the County Medical Officer for the Year 1893* (Cardiff, 1894), p. 70.
- ⁴⁵ See, for example, *Wales: Black's Popular Series of Colour Books* painted by Robert Fowler, described by Edward Thomas (London: A&C Black, 1905); and Wilmot-Buxton, *Peeps at Many Lands: Wales*.
- ⁴⁶ "Notes and Comments," *North Wales Chronicle*, 11 September 1886; Glamorgan Archive, Cardiff (hereinafter GA): Annual Report on the Sanitary Condition of Gelligaer and Rhigos Rural District Council, 1902, RDGR/M/1/2; 1908, RDGR/M/1/8.
- ⁴⁷ "Cerrigydruidion," *North Wales Chronicle*, 9 April 1887.
- ⁴⁸ See Christopher Hamlin, "Predisposing Causes and Public Health in Early Nineteenth-Century Medical Thought," *Social History of Medicine*, 5 (1992): 43-70.
- ⁴⁹ GA, Cardiff Rural Sanitary Authority minutes, 11 March 1885, UC/75/3.
- ⁵⁰ "Welsh Water for Wales," *Montgomeryshire Express and Radnor Times*, 18 July 1893, p. 7.
- ⁵¹ "Ruthin Water Works," *North Wales Chronicle*, 28 January 1871.
- ⁵² "A New Water Supply for Bangor," *North Wales Chronicle*, 20 July 1889.
- ⁵³ Hamer, *Manual of Hygiene*, p. 108; GA, Merthyr Tydfil Rural Sanitary District Annual Report, 1881, D404/1/8.
- ⁵⁴ *Cambrian*, 17 September 1875, p. 8; *Caernarvonshire combined Sanitary Districts Report for the Year Ending December 31st 1893* (Caernarvon, 1894), p. 16; Wheaton's report to the Local Government Board, p. 3.

- ⁵⁵ "Crimes of Sanitary Authorities," *Western Mail*, 6 September 1894.
- ⁵⁶ Williams, *Glamorgan County Council Annual Report of the County Medical Officer for the Year 1893*, p. 9-10.
- ⁵⁷ "Another View of the Matter," *Western Mail*, 11 September 1894.
- ⁵⁸ Sayer, *Country Cottages*, p. 2.
- ⁵⁹ William Williams, *Annual Report of the County Medical Officer for the Year 1908* (Cardiff: William Lewis, 1909), p. 131; and Williams, *Sanitary Survey*, p. 95.
- ⁶⁰ Peter Stallybrass and Allon White, *The Politics and Poetics of Transgression* (London: Methuen, 1986), p. 125-48; William A. Cohen, "Introduction," in William A. Cohen, ed., *Filth: Dirt, Disgust and Modern Life* (Minneapolis: University of Minnesota Press, 2005), p. vii-xxxvii.
- ⁶¹ GA, Bridgend and Cowbridge Rural Sanitary Authority minutes, 19 July 1873, UB/68/1.
- ⁶² Williams, *Sanitary Survey*, p. 58, 87.
- ⁶³ GA, Cardiff Rural Sanitary Authority, Report of the Surveyor and Nuisance Inspector, 1874, UC/91/2.
- ⁶⁴ GA, Merthyr Rural Sanitary District, Annual Report, 1881, D404/1/8; GA, Bridgend and Cowbridge Rural Sanitary Authority minutes, 3 January 1874, UB/68/1.
- ⁶⁵ *York Herald*, 4 November 1875, p. 4.
- ⁶⁶ Zaring, "Romantic Face of Wales," p. 397.
- ⁶⁷ GA, Annual Report on the Sanitary Condition of Gelligaer and Rhigos Rural District Council, 1901, RDGR/M/1/2.
- ⁶⁸ "Parish Councils Act," *Western Mail*, 18 October 1894.
- ⁶⁹ Williams, *Glamorgan County Council Annual Report of the County Medical Officer for the Year 1893*, p. 4; and A. J. Cronin, *The Citadel* (London: Victor Gollancz, 1969edn), p. 24.
- ⁷⁰ See Christopher Hamlin, "Muddling in Bumbledom: On the Enormity of Large Sanitary Improvements in Four British Towns, 1855-1885," *Victorian Studies*, 32 (1988): 55-83; Anthony Wohl, *Endangered Lives: Public Health in Victorian Britain* (London: Methuen, 1984), p. 167; Anne Digby, "The Local State," in E. J. T. Collins, ed., *The Agrarian History of England and Wales: Volume VII 1850-1914* part 2 (Cambridge: Cambridge University Press, 2000), p. 1425-64; and F. M. L. Thompson, "Landowners and Rural Community," in G. E. Mingay, ed., *The Victorian Countryside*, 2 vols. (London: Routledge, 1981), vol. 2, p. 457-74.
- ⁷¹ Wheaton's report to the Local Government Board, p. 1.
- ⁷² R. Moore-Colyer, "Wales," in Collins, ed., *The Agrarian History of England and Wales*: p. 430-48.
- ⁷³ GA, Cardiff Union Rural Sanitary Authority Annual Report, 1879; Cardiff Union Rural Sanitary Authority Annual Report, 1893, D805/4/1.
- ⁷⁴ Williams, *Sanitary Survey*.
- ⁷⁵ See Dr Blaxall's report to the Local Government Board on the sanitary condition of the Registration District of Holywell, including the Rural Sanitary District of Holywell and the Urban Districts of Holywell, Flint and Mold (s.l.: s.n., [1876]), p. 1; Dr. H. F. Parsons's report to the Local Government Board on the prevalence of enteric fever in the Pontardawe Rural Sanitary District, and on the general sanitary condition of the district (London: Eyre and Spottiswoode, 1880).
- ⁷⁶ See Prys Gruffudd, "Back to the Land: Historiography, Rurality and the Nation in Interwar Wales," *Transactions of the Institute of British Geographers*, 19 (1994): 61-77.
- ⁷⁷ Williams, *Sanitary Survey*, p. 61, 88.

- ⁷⁸ GA, Annual Report on the Sanitary Condition of Gelligaer and Rhigos Rural District Council, 1902, RDGR/M/1/2; Evans, "Rethinking Urban Wales," p. 125-6; and R. Merfyn Jones, *The North Wales Quarrymen, 1874-1992* (Cardiff: University of Wales, Press 1981).
- ⁷⁹ Raymond Williams, "The Social Significance of 1926," in Raymond Williams, *Resources of Hope* (London: Verso, 1989), p. 105.
- ⁸⁰ Charles Frederick Cliffe, *The Book of South Wales* (London: Hamilton, 1847), 155; Marie Trevelyan, *Glimpses of Welsh Life and Character* (London: J. Hogg, 1893), p. 120; and J. Davies and G. E. Mingay, "Agriculture in an Industrial Environment," in A. H. John and G. Williams, eds., *Glamorgan County History, Vol. V, Industrial Glamorgan* (Cardiff, 1980), p.291, 292.
- ⁸¹ *Parsons's report to the Local Government Board*, p. 2; and W. Fraser, *River Pollution Report*, 13 August 1890, Cardiff Union Rural Sanitary Authority, GC/JR/2/1.
- ⁸² "Sanitation in Glamorgan," *Western Mail*, 8 September 1894; T. Evans, "A Plea for Welsh Streams," *Fishing Gazette*, 10 November 1894, p. 460; and GA, Cardiff Union Rural Sanitary Authority, MOH Annual Report, 1894, D805/4/1.
- ⁸³ *Caernarvonshire combined Sanitary Districts Report for the Year Ending December 31st 1893* (Caernarvon, 1894), p. 6.
- ⁸⁴ GA, Merthyr Tydfil Rural Sanitary District, Annual Report, 1876, D404/1/3.
- ⁸⁵ *Report sent to the Rural Sanitary Authority of the Narbeth Union by J. T. Creswick Williams, Medical Officer of Health to the N04 district of the said union* (1894).
- ⁸⁶ GA, Merthyr Tydfil Rural Sanitary District Annual Report, 1874, D404/1/1; Trevelyan, *Glimpses of Welsh Life and Character*, p. 42; Aubrey Strahan, R. H. Tiddeman, and Walcot Gibson, *The Geology of the South Wales Coalfield. Part IV. The Country around Pontypridd and Maes-Teg, being an account of the region comprised in Sheet 248 of the Map* (London: HMSO, 1903), p. 2.
- ⁸⁷ *Caernarvonshire combined Sanitary Districts Report for the Year Ending December 31st 1894* (Caernarvon, 1895), p. 8; GA, Merthyr Tydfil Rural Sanitary District, Annual Report, 1874, D404/1/1.
- ⁸⁸ GA, Cardiff Union Rural Sanitary Authority, MOH Annual Report, 1894, D805/4/1.
- ⁸⁹ GA, Gelligaer and Rhigos Rural District Council, Minutes, 4 July 1901, RDGR/C/1/2; *Dr. W. W. E. Fletcher's report to the Local Government Board upon the sanitary circumstances and administration of the Aberayron Registration District, comprising the rural district of Aberayron and the urban districts of Aberayron and New Quay in Cardiganshire* (London: Darling & Son, 1907), p. 2.
- ⁹⁰ GA, Merthyr Tydfil Rural Sanitary District Annual Report, 1876, D404/1/3; GA, Annual Report on the Sanitary Condition of Gelligaer and Rhigos Rural District Council, RDGR/M/1/4.
- ⁹¹ *First Report of the Royal Commission on Land in Wales and Monmouthshire*, 526, 729; *Minutes of Evidence taken before the Royal Commission on Land in Wales and Monmouthshire* vol. 3 (London: HMSO, 1894), p. 92.
- ⁹² GA, Merthyr Tydfil Rural Sanitary District Annual Reports, 1876, D404/1/3.
- ⁹³ *Mr. Spear's report to the Local Government Board on an outbreak of diphtheria in the Dingestow registration sub-district of the Monmouth rural sanitary district* (London: Eyre and Spottiswoode, 1888), p. 5.
- ⁹⁴ *First report of the Royal Sanitary Commission, with the minutes of evidence up to 5th August 1869* (London: HMSO, 1870), p. 415.
- ⁹⁵ GA, Cowbridge Rural District Council, Minute Book, 10 August 1896, 17 December 1895, RDCOW/C/1/1.

⁹⁶ *Caernarvonshire combined Sanitary Districts Report for the Year Ending December 31st 1893* (Caernarvon, 1894), p. 13.

⁹⁷ GA, Merthyr Tydfil Rural Sanitary District Annual Reports, 1876, D404/1/3.

⁹⁸ GA, Cardiff Union Rural Sanitary Authority, MOH Annual Report, 1875, D805/4/1; 1886, D805/4/1.

⁹⁹ William Williams, *Annual Report of the County Medical Officer for the Year 1900* (Cardiff: William Lewis, 1901), 44; Williams, *Sanitary Survey*, p. 6.

¹⁰⁰ *Blaxall's report to the Local Government Board*, p. 4.

¹⁰¹ GA, Bridgend and Cowbridge Rural Sanitary Authority, Minutes, 15 February 1873, UB/68/1.

¹⁰² *Spear's report to the Local Government Board*, p. 9.

¹⁰³ GA, Cardiff Union Rural Sanitary Authority Annual Report, 1894, D805/4/2; *Caernarvonshire combined Sanitary Districts Report for the Year Ending December 31st 1895* (Caernarvon, 1896), p. 30.

¹⁰⁴ "The Question of Water Supply," *Western Mail*, 14 October 1892.

¹⁰⁵ Doreen Massey, *For Space* (Thousand Oaks, CA: Sage, 2005), p. 36-47, 81-104.

¹⁰⁶ David Livingstone, *Putting Science in its Place: Geographies of Scientific Knowledge* (Chicago, IL: University of Chicago Press, 2003), p. 3.