

Commerce and public water policy: The case of Hobart Town Van Diemen's Land 1804 – 1881

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This paper explores business and commercial imperatives in the development of public water policy in a nineteenth century penal colony. The specific focus is the public water supply in Hobart Town, Van Diemen's Land. The time frame is from 1804 to 1881, with most attention to the decades of the 1830's and 1840's. The paper considers how the public water supply in Hobart Town impacted upon the daily lives of the town's citizens, commerce and health. The shocking public water supply and poor sanitation in Hobart Town ultimately gave rise to an energy and vigour that propelled a public policy where a pure and abundant water supply for all was seen as a non-derogable value. The value of water is emphasized now at the beginning of the twenty-first century with the United Nations General Assembly's proclamation of the International Decade for the Valuing of Water on March 22nd 2005. This paper argues that a look back in time can energise contemporary business to boldly forge appropriate water initiatives for what is a crucial environmental world moment. While this case study uncovers an unacceptable scenario of entrepreneurial activity, twenty-first century business and commerce, with an understanding of ethics and intergenerational equity, can propel powerful initiatives for change to improve the lot of all.

Field of Research: Business management and policy

1. Introduction

The authors examine the impact of the public water supply in 18th century Hobart Town upon the daily lives and health of the town's citizens, together with the development of commerce. Forbearance, illness and stoicism on the part of the town residents gave way to their bitter dissention with the commercial entrepreneurs and the rural settlers. Ultimately it created energy to formulate a public policy where pure water came to be accorded its appropriate value.

The authors posit that the achievement of the 'unalienable and infeasible right' of all to fresh water (Pratt, 1847, at) requires developers to retain an ethical attitude towards their use of this critical resource. Further, the Hobart Town case study is used to emphasize the importance of appropriate legislative measures, together with

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timely administrative action, in overseeing the implementation of policy. The difficulties arising when natural water sources are left solely in the hands of individuals are examined.

However, effective, equitable and environmentally-sound water use can not be left solely to executive action; it depends upon responsible action from commerce, industry and citizens at all levels. To this end, the authors maintain that the do-it-yourself painter is no less culpable when flushing the wash from toxic paint brushes down the toilet than the billion dollar entrepreneur who refuses to adopt environmentally-friendly ingredients in the manufacture of the paint in order to retain high profit margins for voracious share-holders.

The paper examines the Hobart Town case by reference to primary materials including the Report of Arthur Pratt (1847?) with its focus on the manufacturing activities of Peter Degraives. The authors rely on the detailed irrigation account of Margaret Mason-Cox (1994) to provide a valuable platform for beginning to understand the unique traits of the rural population in Van Diemen's Land. The persona of the Van Diemen's Land rural population is also remarked upon by Pownall (1967) in her consideration of Australia's national water history. Powell's (1989) account of water use in Victoria from 1834 – 1988 offers a valuable basis for comparison of early water resource policy in two Australian states.

2. Previous water reports and case studies

The resource of water in Australia and throughout the world has naturally generated various studies, examinations and reports. While they vary in content and specific foci, their common element is the perception that water is a precious commodity.

The Report of William Pratt(1847?)ⁱ emphasises the plight of Hobart Town's 20,000 inhabitants in the late 1840's. Pratt's history is given from the perspective he espouses in his Preface: the citizens have an unalienable and indefeasible right to the mountain stream of fresh water because that was the reason why Hobart Town was settledⁱⁱ. Several relevant documents accompany Pratt's report, enhancing its authenticity. For example, the memorial to Sir William Denison stating "the waters have all along been and continue to be, the property of the public in accordance with the principle of Common Law – that the usufructuary belongs to the first occupantⁱⁱⁱ is signed by five signatories: Thomas Young, George Hutton, Thomas MacDowell...^{iv}

Landmarks in the history of Hobart Town's water according to Pratt (1847?) are shown in the annexed table.

Pratt's document of Hobart Town water in this early period could be said to reveal a sad catalogue of selfish, entrepreneurial ambition.

One hundred and twenty years on, the individualism of the island state is also remarked upon by Eve Pownall (1967) in *The Thirsty Land: Harnessing Australia's Water Resources*^v. The work takes a wide spectrum approach of Australia's use of water resources, nevertheless, Pownall's national perspective fine focuses on the individual Australian states. Tasmania is distinguished as being the state where irrigation is a private activity, undertaken by farmers: their pumping and damming activities being rationed and rostered, at that time, by the Rivers and Water Supply Commission during periods of low stream flows.^{vi}

A study on a smaller scale is found in *Watering the Garden State*, where J. M. Powell^{vii} (1989) examines the use of water in Victoria from 1834 to 1988. Extensive research results in a detailed account of Victoria's water history. It includes Aboriginal eeling^{viii} and land clearing by white settlers and miners.^{ix} The demands brought about by the increasing population and the movement towards valuing and protecting water resources with legislation are fully discussed.

A water study of particular relevance to this paper is Margaret Mason-Cox's (1994)^x monograph, where painstaking research provides the reader with a fascinating journey of discovery: firstly, it details the attempts of early Van Diemen's Land settlers to harness water and use it for their own individual agricultural advantage, and secondly it shows the development of a water policy for the wider island state.

The sources for this monograph include diaries of the settlers, newspaper reports, together with photographs of people, places, maps and diagrams. The retention of the original language of these authentic documents preserves historicity and enhances the work's authority for the reader.

Early irrigation measures include serious intervention with the land such as pick and shovelling a 120yard tunnel through a solid sandstone hill,^{xi} construction of retaining walls and sluice gates^{xii} man-made drains^{xiii} dams^{xiv} and the alteration of river courses^{xv}.

In the first part of the work, Margaret Mason-Cox's emphasis is on the histories of individual properties and their use of water; however the reader is also alerted to the problems confronted by town-dwellers seeking water access. For example, Arthur Ransley in 1898 refused to allow the construction of a water race through his property to supply water for domestic purposes to the town of Fentonbury, despite the fact that he had cut his own irrigation race to water his hops^{xvi}.

The author^{xvii} credits Captain Arthur Cotton with being probably the first person in Australia to posit public interest in water as a resource, citing from Cotton's report of 1842^{xviii}:

“...Care should at once be taken that every river and natural reservoir should be, as far as possible, kept from falling into the hands of individuals, in such a manner as to place the districts concerned with them in a situation of dependence on them for this invaluable treasure...”

The supply of water for townfolk, as distinct from farmers, is touched lightly, retaining paramount attention upon the farming community. For example, the Campbell Town Water Act 1878^{xix} giving Trustees authority to make By-laws to prevent fouling, regulate fishing and the use of the Elizabeth River for irrigation and other purposes, is considered in the light of obstructive battles mounted by land-owners such as John Meredith, Charles Leake, David Taylor and Frederick Hart to prevent equitable access to water.

Snippets from local newspapers, such as the Hobart Town Courier of 20th April 1857^{xx} reveal the public health side of such battles, with land-owner George Carr Clarke being accused of putting in peril “the life of several hundreds of residents” [of Bothwell and Hamilton] in disputing the River Clyde Bill.

The complicated issue of this legislation is clearly and succinctly dealt with in a lively style. The Bill sought to dam the River Clyde at Lake Crescent in order to “protect the sources of the River Clyde and to secure a water supply to the inhabitants of the townships of Bothwell and Hamilton”^{xxi} and was passed on 22nd December 1857. Its significance is that it democratised the water resource by vesting the constructed dam in five Trustees of the River Clyde who were either “inhabitants or landowners” in the County of Cumberland. Thus exclusive control was legislatively removed from the rural sector of inhabitants and land-owners.

The Report of Allesandro Martelli^{xxii} in 1860 is comprehensively discussed, in particular its premise that as the river bed was the property of the Crown, the Crown had the right to regulate the distribution of the water flowing in that bed according to equity and justice.

The priority of rural as distinct from town water, however, prevailed. A Select Committee Report recommended interference with Lakes Sorell and Crescent in order to provide water for farm irrigation^{xxiii}. The Irrigation Bill, however, which resulted from this report was defeated in its second reading in October 1888 because it did not guarantee riparian rights and the costing was a concern.^{xxiv}

The plight of the town-dwellers was seemingly ignored until January 1889. It was then that a death occurred from typhoid and an investigation by Clyde Mault, Engineering Inspector with the Central Board of Health revealed that it was due to the poor water quality in the Clyde^{xxv}. Subsequent outbreaks of diphtheria in 1895 and typhoid in 1896 and 1897 in the Bothwell-Hamilton areas^{xxvi} resulted from drinking water that was unfit for human consumption. The water had been fouled by a channel cut from Lake Sorell to Lake Crescent by Richard Pitt for Robert Kermode^{xxvii}. This channel was named Kermode's Drain and it prevented Mr Kermode's property from being flooded by water in Lake Sorell^{xxviii}. Mault's Report urged further democratisation of the water resource by giving representation to the towns for voting to elect the trustees, rating town properties for water use and introducing charges for water used for irrigation and motive power^{xxix}.

Mault's ideal of democratisation underlies the Midland Water Act 1898 (62 Vict No 63), which provided that water was to be available:

“to any person...for irrigation, or steam engines, or working machines or apparatus, or for horses or cattle, or stables, or for any trade, manufacture, or business, or for any other purpose not domestic”^{xxx}.

Pursuant to this Act, on 30th January 1901, the elected trustees allowed the Australian Carbide Company to generate electricity to manufacture carbide of calcium from the Lake Sorell water; fortunately, this agreement was found to be ultra vires of the trust's powers and subsequently invalid.^{xxxi} The water quality of Lakes Sorell and Crescent was investigated by engineer K.L. Rahbek's and found to be barely fit for human consumption in March 1901.^{xxxii}

It could fairly be argued that it was not until the Water Act 1957, under which the Rivers and Water Supply Commission was established^{xxxiii}, that equity of water resources began to dawn. The Commission was given the power to establish and maintain waterworks to supply water for domestic, industrial, agricultural and other purposes, prevent pollution and to control the taking of water from rivers and lakes^{xxxiv}. This can be seen as the beginning of recognition of the public's right to equity of access to water, following the warning of Arthur Cotton:

“...The most trifling private right will often greatly obstruct the prosecution of a public improvement of a thousand fold greater importance; and this will be in great measure avoided by taking advantage of the circumstance of a new country.”^{xxxv}

3. White settlers and drinks in early Hobart Town

In early 1827, however, that notion of equity of water access was waiting to be discovered. Lieutenant Governor Arthur wrote to Earl Bathurst in England: "I should consider of the greatest convenience to the colony would be the successful brewing of malt liquor..."^{xxxvi} While this development would provide a valuable commercial enterprise for the colony, the regular availability of brewed malt liquor would provide an alternative beverage to the strong spirits that were being sought in the colony.

The British encouraged the use of alcohol in the fledgling penal colony from the time of Governor Arthur Phillip who, in 1787, was authorized to purchase 3 years' supply of spirits for consumption by the Marines in the colony^{xxxvii}. He made the purchase at Rio de Janeiro on the voyage to Australia with the official daily ration for each Marine being ½ a pint^{xxxviii}. No liquor was given nor sold to any convict during Governor Phillip's Administration from 1788 – 1792^{xxxix}.

The availability of a pure water supply was essential for the brewing of ale. Hence Lieutenant Governor Arthur's call to establish a brewery industry in Van Diemen's Land might well have been superimposed over the wish to establish a pure and safe water supply for Hobart Town.

4. The natural streams of Hobart Town

Hobart Town had the natural benefit of being situated at the foot of Mount Wellington, where a natural spring formed Hobart Town Rivulet. Its water was to provide for the needs of the residents as well as to replenish the visiting ships that entered the Port of Hobart Town.

About five miles north-west of Hobart Town was the settlement of New Town, on the west bank of the River Derwent. Free settlers landed at New Town Bay, then known as Stainsforth's Cove. It was the site chosen by Lieutenant Collins, in 1804.^{xi} The New Town Rivulet sprang from a natural spring and flowed through New Town. This reliable stream encouraged the building of a flour mill and mill race by Mr Robert Nash in 1809.^{xii}

Both Hobart Town Rivulet and New Town Rivulet were continuing streams, bounty from nature to cultivate a reliable water supply for the settlers.

5. The value of land near water

The value ascribed to water is evident in valuing statistics of the early government Land Commissioners, whose task was to determine the commercial value of land in the colony. They valued land at New Town, adjoining the government farm at 4 pounds an acre in 1827. This land was situated in close proximity to the New Town Rivulet. By contrast, land on the opposite side of New Town Road, further from the rivulet, was valued at 2 pounds per acre^{xlii}. Thus proximity to running water increased the value of the land.

6. Hobart Town's water, 1829 – 1831

The reality of Hobart Town's public water supply, however, was far from satisfactory. Joan Goodrick^{xliii}, examining life in old Van Diemen's Land refers to the filth in the creeks in 1829. Pigstyes and tan-yard remains were being drained into the creek, before the greater part of the inhabitants obtained their supply of water from it. In 1831 washerwomen who regularly worked at the side of the creek, the forerunners of today's dry cleaning businesses, could not continue to use it for washing^{xliiv}.

Nevertheless, those who had influence in the colony had access to pure water. Hobart Town Rivulet was harnessed from the foot of Mount Wellington and carried by a water-course, to pumped wells in various parts of the town. While the poor people had to visit and draw water from the well at Wellington Bridge^{xlv}, the officers who lived at the Battery had the benefit of the water channel being turned and twisted to pass by their homes. Similarly, Captain Montagu, who lived at New Town, always had a profuse supply of fresh water^{xlvi}. This inequitable distribution of water resources was clearly apparent in 1832 when those in office chained the pump handles; as a result the ordinary folk were forced to use the town ditch water^{xlvii}.

7. Dirty water, commerce and health, 1831 to 1835

The implications for the health of the people of Hobart Town were serious. Between 1831 and 1835 outbreaks of a sudden illness occurred, with symptoms including the body becoming suddenly freckled with scarlet spots and vomiting^{xlviii}. Doctors disagreed about the cause of the illness, even though it had been pointed out to them that only water drinkers suffered from the infection; those who drank wine or beer seemed to be immune^{xlix}. However after evidence was presented such as the better health of people living in the interior and rural districts compared with those living in Hobart Town^l, at least some of the medical practitioners publicly stated that the impure water was responsible for causing the illness^{li}.

The importance and need for water was also confirmed in the market place, the commercial heart of early Hobart Town. This was the place where hay, straw, live and dead stock, fish, eggs, butter, corn, other grain, fruit, vegetables and other articles were bought and sold. Naturally, water was required for cleaning. Consequently, on 24th September 1834 *An Act for the Regulation of Markets 1834 (VDL)*ⁱⁱⁱ pursued the public benefits of cleaning of the market, the promotion of fair dealing and proper superintendence of selling activities. This Act also insured that the market provided a much-needed source of income for the government, with levies being struck under Section VI such as 2/9d for a vendor's cart. The cottage or amateur sellers were protected in that no levy was attached for selling goods brought by hand, tray or basket.

Commerce, therefore, drew attention to the need for a clean water supply. The marketplace could not function as an acceptable retailing venue without clean water. The poor women who washed clothes for a living could not satisfy their rich customers without clean water. Thus commercial enterprise can be seen as the trigger for an improvement in the water supply for Hobart Town.

The merchandising trigger was not confined to one group, that is, the sellers or buyers. The cleanliness of the market was important to everyone, because it determined health and hygiene. The clothe-washing industry impacted on both the rich and the poor: the families who depended on taking in washing for an income and the moneyed clients of the washerwomen. The impact of water quality, therefore, was felt throughout the intra-income strata of the colony's society.

8. Metamorphosis from penal colony to public policy

The mindset of the administrators in Van Diemen's Land began its transformation from one of penal colony to public policy philosophy with the development of water standard consciousness. Implicitly there was the acknowledgement of the critical importance of pure water for all strata in society. Further, it revealed an emerging awareness of the interconnectedness of all levels of society. The administration was coming to realize that the problems experienced by the poor have repercussions upon the wealthy. Penal colony mentality, where the administration made itself and its own comfort the priority, had begun to give way to a public good mentality, with equity and the general good emerging as primacy.

In 1835 the Lieutenant Governor and Legislative Council enacted an *Act to Enable the Government to Secure a Supply of Pure Water for the Town and Port of Hobart*.ⁱⁱⁱ This Act was forward-looking in that it anticipated the need to obtain water from other sources, particularly the New Town Rivulet, as the population grew. As well, the Act revealed what environmental lawyer Robert Stokes^{iv}, identifies as the two essential environmental legal principles: precaution and intergenerational equity.

These principles are found in the insistence that both the New Town Rivulet and Hobart Town Rivulet, together with relevant watercourses, should be preserved from injury and all obstructions to them prevented.

Under this Act the water of and in Hobart Town Rivulet, together with its soil and bed, was vested in His Majesty the King, his heirs and successors for the use of the public forever. Such vesting established water as the property of the British Crown. It was also a concomitant of European possession, identified by human geographer Richard Howitt,^{lv} as an important element in constructing the dispossession of indigenous people in Australia.

This attempt to create a reliable and safe supply of water was followed in 19th July 1837 by an *Act for the Preservation of Public Reservoirs and Watercourses from Injury*^{lvi}. This Act took a commercial perspective based on the premise that reservoirs, constructed at public expense for public benefit, should be protected from nuisances and obstructions which would render the water unwholesome. Consequently, penalties were struck in order to help the government defray the costs of repairing damage. Again, the public benefit was the underlying foundation of this Act.

Enactment of legislation, however did not free Hobart Town of its water problems. Such was the concern about the water supply that when Lieutenant Governor Sir John Denison arrived in Hobart Town, he personally inspected the creek in March 1837^{lvii}.

Public dissatisfaction with the flow of the creek apparently saw the rise of windmills to harness water. In 1838 a motion by the Legislative Council to the *Police Bill* to make unlawful the working of any watermill or windmill in the limits of a town in any

part of the island on a Sunday, was defeated by 8 votes to 3.^{lviii} Clearly, clean water had overtaken Sunday rest in the priority stakes. This can be interpreted as further evidence of the emergence of the public policy mentality, with the public good priority, as distinct from the penal colony ethos, with administrative dominance.

9. The convict impact on public water policy

In June 1839 the assignment of convicts to free settlers in Van Diemen's Land for purposes of luxury ceased. Convict assignment to all town dwelling free settlers ceased in June 1841. From that time, convicts in Van Diemen's Land were only assigned to rural settlers.^{lix} Consequently, residents in Hobart Town could no longer use assigned convicts to pump water from the town well and carry it to their households. The only alternative to drawing and collecting water personally was to purchase it from water carts; pumping required time and energy while the water

carters^{lx} required money for their services. The water carriers, incidentally, were being criticised for creating a danger in the streets by travelling too fast to and from the pumps^{lxi}. It may be that the public safety ramifications of this poor business practice had some motivating impact on the government's development of public water policy.

10. The rural impact on public water policy

On June 29th 1841, Lieutenant Governor Franklin initiated a plan to effect the establishment of a supply of pure water for the inhabitants of Hobart Town and Launceston.^{lxii} His idea was for the government to lend the iron pipes together with five thousand pounds to supply water to each dwelling house in Hobart Town and Launceston^{lxiii}. The person providing the service would contract to pay 5% per annum or lower on the pipes and money lent^{lxiv}. Every assistance was to be afforded to the contractor by an Act of Council, or otherwise, to enable him to carry out his works through private property to occupy Crown lands^{lxv}.

This latter stipulation is indicative of the prevailing colonial attitude to private property ownership: both the land and the water running through the land was seen to comprise the real property owned. In other words, private land ownership was perceived as indissoluble from private ownership of the water running through the property. Thus rural landholders opposed the laying of water pipes across their land and the harnessing of rivulets to provide town water. The Lieutenant Governor foresaw these objections from landholders hence all compensation for damage by pipes or construction of reservoirs was to be decided by arbitration with a power to appeal to a jury^{lxvi}.

Despite the government's vesting of the bed, banks and water of rivers in the Crown, landowners could not separate their land possession from public water rights. The objections of the rural sector consequently delayed in furnishing the townspeople with a reliable and adequate water supply.

Private property ownership versus public water rights can be seen in relation to the 1841 *Act for Preserving in a Pure and Wholesome State the Water of the New Town Rivulet for the Use of the Inhabitants of New Town, (The New Town Water Act.)*.^{lxvii} At the Legislative Council meeting on September 6th 1841 Captain Swanston presented petitions from the inhabitants of New Town in support of the *New Town Water Act*.^{lxviii} Three days later, in the Legislative Council meeting of September 9th 1841 Captain Fenton presented petitions from John Regan and John Dunn against the *New Town Water Act*.^{lxix} Despite the rural opposition, the requirements of the townsfolk were given precedence, with the *New Town Water Act* being carried in Council by 8 votes to 2.^{lxx}

This was no small feat, considering the strength of the rural sector of the Van Diemen's Land population at that time. Its influence can be seen in the tenor of a petition^{lxxi} from three Legislative Council members -Thomas Gregson, Michael Fenton and William Kermode - presented to the Lieutenant Governor Franklin on November 9th 1842 "...in a colony wholly relying on agriculture for its prosperity and existence and without any foreign trade except what is absolutely necessary for its internal consumption the agricultural interests should be essentially paramount,"^{lxxii}and "...the landed interest who most require relief are those who entirely support the expenses of Government."^{lxxiii}

Certainly agricultural ills were major attributes of the depression in the 1840's money market: 3 unfruitful dry seasons, large absorption of Van Diemen's Land capital to Port Phillip (Victoria) for land purchases and the importation of stock from Port Phillip. There was a lack of confidence in money transactions generally, due to serious crises in the Australian colonies^{lxxiv} attributable by many to the fall in wool prices^{lxxv}. As a result the Lieutenant Governor decided not to sell off any more Crown Land. He reasoned that it was being bought with money borrowed from residents in Great Britain. These British money-lenders, in receiving interest,^{lxxvi} further depleted Van Diemen's Land's fiscal resources.

11. The continuing convict burden

Yet another British-derived problem was besetting the colony. James Fenton^{lxxvii} recorded the year of 1840 as being one of unusual prosperity due largely to the excellent crops of potatoes and the stocking of South Australia and Victoria with Van Diemen's Land sheep and horses. However Fenton^{lxxviii} points out that between the years 1840 and 1844 fifteen thousand prisoners were sent to Van Dieman's Land, far outnumbering the free-settlers; in 1843 there were twenty-six and in 1844 just one. Accordingly, artisans and labourers moved out of Van Diemen's Land to the more prosperous colonies where they did not have to compete with the free labour of convicts^{lxxix}. Ironically, the Lieutenant Governor's decision to offer convicts from probation gangs for the engagement in private service at lower wages^{lxxx}, a move designed to assist the farmers in the colony, depleted the colony's free population and ploughed it into deeper fiscal woes. This lack of money caused by the convict-legacy was therefore further fuel to the postponement of the commencement of the Hobart Town Water supply.

Despite the heavy demands on pecuniary resources made by extensive immigration, the Lieutenant Governor reported to the Legislative Council on September 5th 1842^{lxxxi} that it was impossible to postpone the commencement of the Hobart Town and Launceston water supplies any longer. A pure water supply was indispensable for the health and comfort of the residents who, every year during the latter part of summer, were suffering severely from the lack of a sufficient supply of

pure water^{lxxxii}. Despite these good intentions nothing happened to improve the town's water.

12. Water rivalry

The people themselves took action. On November 3rd 1842 Legislative Councillor Mr Fenton presented a petition from Mr Edward Nicholas praying that a Committee be appointed to examine the Hobart Town and Launceston water plan proposals sent in consequence of the Government's call for tenders of 13th July 1841^{lxxxiii}. Mr Nicholas urged the government to choose the plan most advantageous to the public, most easily and cheaply executed, without detriment to any public or private interests^{lxxxiv}.

The objections of landowners to having water pipes sunk on their properties did not weaken. On 16th November 1842 Mr Degraives presented another petition against the *Hobart Town Water Act* to the Legislative Council^{lxxxv}. Despite these objections, however, the Act was passed 6 to 4^{lxxxvi}. Nevertheless, the numbers against it had increased. This showed a strengthened rural bias in the Legislative Council members.

The town residents were not the only victims of the rural sector's domination of the colony's water resources. The fledgling manufacturers with their newly-born industries also suffered disadvantage. This is evident in the case of *Jacomb v Calder*^{lxxxvii}.

13. Litigation over dirty water

Mr G. Gatehouse began a brewery on his farm beside the New Town Rivulet in 1820^{lxxxviii}. This brewery continued and in 1840 Mr Jacomb, a former seaman, was operating New Town brewery. Being a sailor his knowledge of brewing was limited. Consequently, he employed Henry Ellis as his brewer and Benjamin Jackman as his maltster.

The New Town Rivulet, with its reliable flow of water, had enticed more than one early entrepreneur to base an industry upon it. For example, Mr Calder began operating a sawmill about ½ a mile upstream from Mr Jacomb's brewery. As part of his operations he erected a dam, in contravention of legislation, across the New Town Creek. There was also Mr Regan who established a tannery upstream of the mill. This was a messy operation with residues that included animal hairs, blood and lime. In due course along its journey downstream, the slush from the mill and tannery traveled into Mr Jacomb's brewery reservoir. The reservoir water became contaminated, with catastrophic results for the brewery. This impure water, Mr Jacomb alleged, spoiled 100 hogsheads of beer valued at 3 pounds lime per hogshead and 192 bushells of malt valued at 10/- per bushel. Consequently, on

19th March 1842, Mr Jacomb brought an action in the Supreme Court of Van Dieman's Land, to recover compensation for injuries caused by Mr Calder.

Mr Jacomb presented real evidence in the form of three different samples of malt: the first one bright and shiney, malted before the dam had been erected, the second one of a black and dirty appearance, malted while the dam was *in situ* and a third one, equal to the first, malted within the last week since the dam had been pulled down.

Mr Jacomb's witnesses included his brewer Mr Henry Ellis, his maltster, Mr Benjamin Jackson, his clerk, Mr William Woolnough, who testified that he had repeatedly seen the water bearing lime, hide, hair and other filth when it reached the brewery, and a bricklayer who had been employed to coat the surface of the partition wall in the brewery to prevent the liquid on one side from penetrating to the other side.

Both sides agreed that a phenomenon called 'the fox' sometimes attacks breweries due to impurities being introduced during the handling of utensils and or ingredients. But the critical issues were whether indeed the 'fox' had entered Mr Jacomb's brewery or whether the brews had been spoiled simply because of Mr Calder's dam.

The defendant was well-armed with independent expert witnesses. An engineer Mr Degraves testified to examining the site where the dam had been erected. He concluded that if the water reaching Mr Jacomb's brewery were in any way impregnated with impurities from the mill or the tannery, its influence would be extremely prejudicial to the brewery. Unfortunately for Mr Jacomb's case, Mr Degraves, under cross-examination declared that as tan was heavier than water the weight would counteract its effect before reaching Mr Jacomb's brewery.

A brewer, Mr Wilson, testified that the brews failed because they were brewed between January and March, a period which was not conducive to brewing in Van Dieman's Land. A parchment maker testified that his skin dipping was usually successful in New Town Rivulet, in the vicinity of Mr Jacomb's brewery and this was indicative of the fact that the water did not usually hold lime.

The Attorney-General, for the defendant, agreed that Mr Calder had broken the law by building a dam on the New Town but he balanced this with the fact that Mr Calder was a poor man while Mr Jacomb was a sailor turned business man.

Unfortunately for Mr Jacomb, the jury's verdict was for the defendant, Mr Calder. They overlooked the fact that he was a pioneer employer beginning a much needed

industry in a new colony. They overlooked the fact that he needed a pure supply of water to manufacture his product.

The jury's decision favoured the sole operator who had broken the law for his own convenience, over the factory owner, with a product quality control priority. Importantly, the only people who were eligible for jury duty at that time were men who owned real property. Hence, the rural sector mindset prevailed in the decision.

14. The imposition of water equity

Many years passed before the line of Lieutenant Governors managed to persuade the settlers of the need to recognize the rights of the town and manufacturing sectors.

On 21st September 1848, the Lieutenant Governor, expressed his desire to see public slaughter houses erected in order to eliminate the nuisance of informal slaughtering beside streams^{lxxxix}. However, fourteen years passed before *An Act to Regulate the Slaughtering of Animals and Sale of Meat in the City of Hobart Town and the Vicinity Thereof*^{xc} was enacted on 25th February 1858. The two critical sections of this Act are Section X, requiring the licensing of butchers and Section V, requiring animals to be slaughtered in a public slaughter-house. Thus, this Act heralded the establishment of the butchering industry; no longer would animals be slaughtered ad hoc along the banks of the Hobart Town and New Town Rivulets.

The gradual shift from absolute power of property owners over water can be seen in legislation, particularly after the establishment of the elected bicameral legislature in 1856. Section XXX *An Act to Consolidate and Amend the Legislative Enactments Relating to Malicious Injuries to Property*^{xc}, enacted on 31 July 1863, made injuries to sea and river banks and works on rivers, a felony, with the penalty of imprisonment for life on conviction. Clearly, this was a statement to landowners that rivers and river banks were to remain free from tampering.

On 29th September 1865, *An Act to Amend the Laws Relating to the Police Government of Municipalities*^{xcii} introduced two new prohibitions for water: under Section XXI persons were not to bathe within the limits of Sullivan's Cove in Hobart Town...or in any public place within the limits of any town and under Section XXII animals were not to be drowned in the River Derwent or in any stream of water within a municipality, nor were dead animals be deposited in a stream or river. Thus the legislation insisted that the colony's rivers be respected. Property owners were required to think outside of their own comfort zone and to consider the common good. The privileges of property ownership were being balanced with the attendant responsibilities. For example, under Section CCXX property owners were to remove stagnant water and cesspools, while Section CCXL required water not to be allowed

to drain over footways. Absolute rights of property ownership were eroded with Municipal Councils being given power to make sewers through private property under Section CCXL and power to force property owners to construct drains in common under Section CCXLII.

The absolute power of land-owners was further dramatically eroded on 30th September 1875, with the enactment of *An Act to amend the Hobart Town Rivulet Improvement Act*^{xciii}. Section III required retaining walls to be built on land abutting the Rivulet and the cost to be met by the owners of land. This successfully put an end to land owners expanding their boundaries by bank creeping.

The *Rivers Pollution Prevention Act*^{xciv} of 8th November 1881, used the word “pollution” for the first time in relation to water. The colony’s manufacturing sector was established by this stage and the Act was clearly protective of rivers. Specific concerns were for waste from a manufacturing process in Section III and for liquid or solid sewerage in Section IV.

15. The increasing cost of water for Hobart Town

The cost of developing the Hobart Town’s water supply can be traced in the legislation to increase borrowing. As the town’s population increased the demands on the water supply became heavier.

On 4th October 1860 *An Act for Providing a Sufficient Supply of Water for the City and Port of Hobart Town and Places Adjacent*^{xcv}, the water supply in Hobart Town and the suburbs was stated to be inadequate and insufficient for the population and trades. Successive Amending Acts gave government permission to borrow additional money for the water scheme. For example *An Act to Amend the Hobart Town Water Act*^{xcvi} on 3rd September 1863 gave government permission to borrow an extra 10,000 pounds for the water scheme, 11th October 1867^{xcvii} an extra 5,000 pounds, 27th December 1872^{xcviii} a further 5,000 pounds and on 11th December 1877^{xcix} *An Act to Amend Hobart Town Water Act* provided an additional 20,000 pounds to construct a storage reservoir and purchase additional pipes.

Then, as now, the demand for water outstrips its availability.

16. Conclusion

The Van Diemen's Land water policy experience shows that wider public interest must become the motivation for managing the fundamental changes accompanying population growth and water reduction. Water is not "an infinite resource;"^{cv} rather it is a limited commodity. As such it requires the development of careful marketing strategies including "constant, watchful management and a concomitant shift in consumer behaviour, conservation design and pricing structure throughout the industry."^{ci}

What is the role of business in this? Now, as in early Van Diemen's Land, it is not acceptable for the interests of one group to monopolise water. In the words of Kenji Yoshinaga, Director of the Land and Water Division of the UN Food and Agriculture Organization (FAO): "It is time to move towards a true valuation of water, through a mechanism that goes beyond economics to include social equity and environmental values."^{cii} The Centre for Science and Environment (CSE) in New Delhi, awarded the 2005 Stockholm Water Prize for its rainwater harvesting procedure. This involves capturing rain in diverse storage systems such as tanks, ponds, stepwells and rooftops and using it to recharge groundwater reserves for irrigation and drinking^{ciii}. In commercial terms "...water cannot become everybody's business until there are fundamental changes in the way we do business with water."^{civ}

The UN Secretary-General Kofi Annan's words at the official opening of the Water for Life Decade on March 22nd 2005 exhorted the world to focus more on water-equity issues: "Let us do more to provide safe, clean water to all the world's people. Let us also reaffirm our commitment to better management of the world's water resources, which are our lifeline for survival, and for sustainable development in the 21st century."^{cv} It is intended that the Decade of Water for Life culminate in 2015 in time to meet the UN Millennium Development goal whereby the proportion of people in the world without safe drinking water and without basic sanitation will be halved will be halved^{cvi}.

The case study of water in the penal colony of Van Diemen's Land contributes impetus to the necessity to UN Secretary-General Annan's call to provide and maintain high-quality water supplies for all. May business and commerce show the way.

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Annexure A Important events shown in Pratt’s (1847?) Water Report

Bourke and Lucadou-Wells

DATE	EVENT	PURPOSE	EFFECT
1804	Springs at base of Mt Wellington feed a natural stream – Wellington Rivulet	Hobart town inhabitants require water	Hobart Town site selected because of Wellington Rivulet water ^{cvii}
11 th 1824	June Peter Degraives arrives in Hobart Town	Peter Degraives, with Macintosh, seeks Land Grant from L-G Arthur.	“Location Order to Surveyor.Evans: locate & measure 2,000 acres to Macintosh and Degraives, per HM’s Sec of Col Dept.” ^{cviii} LGArthur
1824 – 1833	Degraives/Macintosh ^{cix} land is undetermined	Degraives occupies land, erects mill ^{cx}	Degraives occupies as a squatter ^{cxii}
1831	Population of Hobart Town increases	Manufacture and industry begin in Hobart Town	Hobart Town inhabitants ill from contaminated water ^{cxii}
1831	L-GArthur builds an aqueduct for water to Hobart Town from Rivulet ^{cxiii}	Industry competes with Hobart Town inhabitants for water	Hobart Town water passes Degraives’ wheel before entering the aqueduct or tunnel ^{cxiv}
1831	Degraives builds mills, brewery on Rivulet ^{cxv}	Water is restored to Hobart Town	Foul water entering the aqueduct
1831	L-GArthur builds dam 200 yards above Degraives’ mill ^{cxvi}	Aims to restore clean water for Hobart Town inhabitants	Clean water is restored in Hobart Town ^{cxvii}
9 th 1833	January Conditional Land Location Order is granted to Degraives: “a more particular description of Grant will supersede it” ^{cxviii}	“Location Order remains effective as long as the location remains unmeasured”: boundaries are not finally fixed ^{cxix}	Degraives has a mere easement in the Hobart Town stream ^{cxx} Degraives has ‘naked enjoyment at will’ ^{cxxi}
1834	Degraives diverts water from town to his hydraulic engine ^{cxxii}	Water in Hobart Town aqueduct passes first over the flour mill wheel of Degraives ^{cxxiii}	Hobart Town water diminishes in quality and quantity ^{cxxiv}

Bourke and Lucadou-Wells

1835	Act of Council 5 Wm IV No 14 vests “Aqueduct, waters of rivulet, soil and bed of rivulet, with a right of ingress and egress vested in the Crown forever” ^{cxxv}	Crown becomes trustee of public water ^{cxxvi}	Crown has the responsibility to protect water for the public ^{cxxvii}
21 st 1836	June Degraves receives Land Grant ^{cxxviii}	Degraves has legal possession of land ^{cxxix}	
1839	Degraves builds adds another corn mill and hydraulic engine ^{cxxx}	Degraves requires more water for his expanded manufacturing business	Degraves builds another dam, diverts town rivulet through uncovered channel to his property ^{cxxxi} and blocks off town aqueduct ^{cxxxii}
May 1839	Attorney –General and Solicitor-General provide opinions that Degraves is out of order ^{cxxxiii} Report of Director of Works concurs ^{cxxxiv}	To develop a legal argument against Degraves’ behaviour	
June 18 th 1839	Town Surveyor attempts to re-open aqueduct with a working party ^{cxxxv}	Government aims to restore water to Hobart Town ^{cxxxvi}	Degraves’ employees immediately re-block the aqueduct ^{cxxxvii}
21 st Jan 1841	Cheyne/Sprent reports ^{cxxxviii}	Government seeks solution	
3/8/1841	Degraves seeks authority from Col-Sec to stop Guy Faux River entering Hobart Town Rivulet ^{cxxxix}	Degraves wants first use of Hobart Town water and thence to return it to Hobart Town water ^{cxl}	Permission withheld Who says recycled water is a 21 st century phenomenon?

Endnotes

ⁱ William Pratt (1847?) The Right of the Inhabitants of Hobart Town to an Independent Supply of Pure Water, Hobart Town,

ⁱⁱ William Pratt (1847?) at Preface

ⁱⁱⁱ William Pratt (1847?) at 1

^{iv} William Pratt (1847?) at 14

^v Eve Pownall (1967) The Thirsty Land: Harnessing Australia’s Water Resources, Methuen and Co Ltd., London.

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- vi Eve Pownall, (1989) at 75
- vii J.M.Powell (1989) Watering the Garden State, Allen and Unwin , Sydney
- viii J.M. Powell (1989) at 2
- ix J.M.Powell (1989) at 46
- x Margaret Mason-Cox, *Lifeblood of a Colony: A History of Irrigation in Van Diemen’s Land, River and Water Supply Commission, Hobart.*
- xi Margaret Mason-Cox, (1994), 120 yard tunnel cut by Isaac Sherwin and son at “Sherwood” in the 1840’s at 14
- xii Margaret Mason-Cox, (1994), retaining walls and sluice gates built at L-G Arthur’s Marsh Farm, 1826 at 3
- xiii Margaret Mason-Cox (1994) man-made drains at John Lee Archer’s “Abyssinian Marsh” in 1831 at 16
- xiv Margaret Mason-Cox (1994) a dam built for a mill by Edward Nicholas on the River Clyde 1833 at 18
- xv Margaret Mason-Cox (1994) creeks were straightened by William Archer at “Cheshunt” in 1850 at 29
- xvi Margaret Mason-Cox (1994) at 76
- xvii Margaret Mason-Cox (1994) at 83 relying on the report “On irrigation in Tasmania” A Cotton , (1842) at 186 – 187, *Tasmanian Journal of Natural Science*, vol 1, pp81 – 93, 161 – 187, Government Printer, Hobart Town.
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- xix Margaret Mason-Cox (1994) at 122
- xx Margaret Mason-Cox (1994) at 135
- xxi Margaret Mason-Cox (1994) at 136
- xxii Margaret Mason-Cox (1994) at 139
- xxiii Margaret Mason-Cox (1994) at 151
- xxiv Margaret Mason-Cox (1994) at 150
- xxv Margaret Mason-Cox (1994) at 151
- xxvi Margaret Mason-Cox (1994) at 151, 152
- xxvii Margaret Mason-Cox (1994) at 152
- xxviii Margaret Mason-Cox (1994) at 152.
- xxix Margaret Mason-Cox (1994) at 152
- xxx 62 vict No 63 in Margaret Mason-Cox (1994) at 156
- xxxi Archives Office of Tasmania 74 in Margaret Mason-Cox at 157
- xxxii Margaret Mason-Cox (1994) at 158, reports of river gauging and examination of lakes.
- xxxiii Margaret Mason-Cox (1994) at 174
- xxxiv Margaret Mason-Cox (1994) at 175, water, sewerage and drainage reports for the period ended 30th June 1956
- xxxv Margaret Mason-Cox (1994) at 84, Captain Arthur Cotton, ‘On Irrigation in Tasmania’ at 177 - 178
- xxxvi *Australian Encyclopedia*, (n.d.) Angus and Robertson, Sydney, Vol 2, at 110.
- xxxvii *Australian Encyclopedia*, (n.d.) Angus and Robertson, Sydney, Vol 5 at 309.
- xxxviii *Australian Encyclopedia*, (n.d.) Angus and Robertson, Sydney, Vol 5 at 309.
- xxxix *Australian Encyclopedia*, (n.d.) Angus and Robertson, Sydney, Vol 5 at 309.
- xl *Modern Encyclopaedia of Australia and New Zealand*, (Sydney: Howitz-Grahame, 1964), at 181.
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- lxx Van Diemen’s Land, Legislative Council, *Votes and Proceedings*, September 9th 1841 at 296.
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- xc1 *An Act to Consolidate and Amend the Legislative Enactments Relating to Malicious Injuries to Property*, 27 Vic No 7, 1863 (VDL).
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^{ci} Ibid.

^{cii} Id at 2.

^{ciii} CSE’s rainwater harvesting site is www.rainwaterharvesting.org.

^{civ} Id. at 4.

^{cv} “Decade of water for Life 2005 – 2015 opens with Hope” in Environment News Service, www.ens-newswire.com/ens/mar2005/2005-03-22-02.asp, visited 13/9/2005 at 2.

^{cvi} Id. at 1.

^{cvii} William Pratt (1847?) at preface

^{cviii} William Pratt (1847?) at 7

^{cix} William Pratt (1847?) at 18

^{cx} William Pratt (1847?) at 8

^{cxii} William Pratt (1847?) at 8

^{cxiii} William Pratt (1847?) at 17

^{cxiiii} William Pratt (1847?) at 2

^{cxv} William Pratt (1847?) at 4

^{cxvi} William Pratt (1847?) at 4

^{cxvii} William Pratt (1847?) at 2

^{cxviii} William Pratt (1847?) at 17

^{cxix} William Pratt (1847?) at 7

^{cxix} William Pratt (1847?) at 19

^{cxx} William Pr5att (1847?) at 7

^{cxxi} William Pratt (1847?) at 18

^{cxxii} William Pratt (1847?) at 4

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^{cxxiv} William Pratt (1847?) at 4

^{cxxv} William Pratt (1847?) at 4

^{cxxvi} William Pratt (1847?) at 19

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^{cxxviii} William Pratt (1847?) at 8

^{cxxix} William Pratt (1847?) at 19

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^{cxxx} William Pratt (1847?) at 20

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^{cxxxiii} William Pratt (1847?) at 20

^{cxxxiv} William Pratt (1847?) at 21

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^{cxxxvi} Williamn Pratt (1847?) at 21

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