When Colonization Goes South: Understanding the Reasons Behind the Failure of Wakefield's Systematic Colonization in South Australia

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Abstract
Britain after the Napoleonic wars saw the rise of colonial reformers, such as Edward Wakefield, who had extensive influence on British colonial policy. A version of Wakefield's "System of Colonization" became the basis for an 1834 Act of Parliament establishing the South Australia colony. We use extended versions of Robert Lucas's 1990 model of a colonial economy to illustrate how Wakefield's institutions were designed to work. Actual practice followed some of Wakefield's principles to the letter, with revenues from SA land sales used to subsidize passage for more than 15,000 emigrants over the 1836-1840 period. Other principles, such as surveying land in advance of settlement and maintaining a sufficient price of land, were ignored. Initial problems stemming from delays in surveying and a dysfunctional division of executive authority slowed the economy's development over its first three years and led to a financial crisis. These difficulties aside, we show that actual SA land institutions were more aligned with geographic and political conditions in SA than the ideal Wakefield institutions and that the SA colony thrived after it took measures to speed surveying and reform its system of divided executive authority.

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I. Introduction

After the Napoleonic wars social and political problems plagued Britain, particularly in relation to low wages, depressed returns to capital, and the rise of pauperism that imposed high costs on the state. These circumstances resulted in a slew of political economy theories from social and political reformers aimed at relieving these ills, particularly the burden of the working poor. A major theme of such theories was how colonization may provide some outlet for the impoverished working class thereby improving living standards both at home and abroad. In the 1820s and 1830s, colonial reformers, such as Edward Gibbon Wakefield, Charles Buller, Sir William Molesworth, and Lord Durham were able to attract attention and followers who had extensive influence on British policy, both towards its existing colonies and the establishment of new colonies, such as South Australia and New Zealand. Wakefield's short pamphlet, *A Letter from Sydney* (1829b), was particularly influential in the 1830s, as it proposed a new 'theory' of colonization—known as *systematic colonization*—designed to avoid many of the economic and social problems found in existing colonies. Wakefield argued that its emphasis on concentrating settlement by setting a sufficiently high price of land and on subsidizing immigration would guarantee returns to capital and yet provide upward mobility to migrant laborers after working for several years. The pamphlet takes the perspective of a convict just returned to England from New South Wales, Australia, who details the evils of the convict labor system and then outlines how a new colony might successfully rely on free labor.

Wakefield's scheme became the focal point for policies propounded by the National Colonization Society, a group that Wakefield helped establish. In the early 1830s, the Society began to advocate for the establishment of a new British colony located between the New South Wales and Swan River (Western Australia) penal colonies. After much debate and several draft plans being refused, a somewhat watered-down version of Wakefield's "System of Colonization" became the basis for an August 1834 Act of Parliament that established the South Australia (SA) colony. The experiment commences in 1834/1835 with the establishment of a Colonization Commission tasked with organizing colonization, recruiting migrants, selling rights to lands in yet-to-be-explored SA, and funding ships to bring surveyors and, later, migrants to the colony. From April 1836 ships sailed to the other side of the globe to implement the colonization plan, with land buyers convinced their investments would pay off and migrants anticipating a better future than in Great Britain.

We start by documenting how Wakefield expected his design of colonial institutions would work and what their implications would be for landowners, laborers, and the British public. We then use extended versions of Robert Lucas's 1990 model of a colonial economy to explicitly model Wakefield's institutions and investigate whether they were potentially capable of performing as expected. A simple static model focuses on how a colonial authority that acts to maximize profits of landowners chooses both the amount of land to make available for purchase and the number of subsidized laborers brought to the colony. The two choices are closely connected because in the Wakefield system the sole source of immigration subsidies is the revenue derived from land sales.

Next we examine whether the actual institutions set forth in the SA Act and the Colonization Commission's instructions were capable of implementing Wakefield's system of colonization. Some institutions followed Wakefield's principles to the letter: Land was sold rather than distributed via land grants or settler claims; land sales revenues were used to subsidize passage for more than 15,000 emigrants; and land was sold at a fixed price. Two SA land institutions did not follow Wakefield's plan: Special surveys and sales of land at a relatively low price. Wakefield severely criticized the low price (£1/acre) set for all SA country lands by the Commission in 1835 as inconsistent with his principles of systematic colonization, and disavowed the experiment months before any ships ever sailed from England (Wakefield, 1849: 20).[1] Land regulations adopted in October 1835 allowed for anyone who paid £4,000 upfront to call for a "special survey" of 15,000 acres anywhere in the colony from which the investor could select 4,000 acres. Special surveys allowed settlers to disperse far from Adelaide, thereby dispensing with Wakefield's principle of concentrated settlement. Other principles, such as surveying land in advance of settlement and maintaining a sufficient price of land, were ignored.

Despite initial problems stemming from delays in surveying and a dysfunctional division of executive authority, we show that the land institutions implemented in SA were more aligned with geographic and political conditions there than the idealized Wakefield institutions. We then provide evidence supporting the Colonization Commissioners' decision to allow investors to select and purchase large tracts of surveyed lands, at a constant, relatively low price. We conclude by briefly examining SA's booming economy after 1844 and consider whether elements of the Wakefieldian institutional experiment contributed to the colony's post-1844 success.

II. A System of Colonization: Wakefield's elaborate plans for new colonies

Economic conditions in Britain in the 1820s were depressed with large population growth in urban centres, low wages, and poor living standards. This led philosophers, radicals, and liberal reformers to focus their attentions on how to improve social conditions via colonization. Colonization was not particularly popular at the time due to changes in public attitudes towards the use of slave and convict labor. Hence, reformers looked to develop alternative methods of colonization that would avoid the moral stain of forced labor in all its guises. This set the stage for the rise in popularity of systematic colonisation, which is most commonly associated with Edward Gibbon Wakefield.

[1] In a May 1835 letter to Robert Gouger, Secretary of the SA Colonization Commission, Wakefield stated: "I have always thought £2 the very lowest price that ought to be required for the object in view … If they [the commissioners] start with 12s., the colony will be a second Swan River, and if you support that price, many people will naturally suppose that I do. It is for the sake of a year or two hence that I wish to guard myself from only a seeming participation, through you, in an experiment which, in my opinion, *must* [original emphasis] fail" (Quoted in Hodder (2013) and Mills, 1915: 237).

Prior to his three-year term in Newgate prison for fraud and abduction of an heiress, Wakefield was unknown in intellectual and political circles. Wakefield ideas gained public attention via the publication of his book, *The Punishment of Death,* an exposé of the brutal treatment of prisoners in Newgate Prison, and the pamphlet, *A letter from Sydney* (1829b) mentioned above. Jeremy Bentham, the founder of modern utilitarianism, became an avid supporter of Wakefield's colonization theory, and it had a significant impact on many radical reformers of the day including Sir William Molesworth, radical politician and historian George Grote, MP Charles Buller, and politician and colonial administrator Lord Durham (Bloomfield, 1961). Due to the social stain associated with his criminal conviction, Wakefield rarely took center stage in the reform groups efforts to change British policy to favor systematic colonization but his extensive writings on the topic were widely circulated and he was a pivotal part of efforts to establish British colonies in SA and New Zealand and to reform the colonial government in Canada (Temple, 2002).

Wakefield's colonization scheme drew its motivation from several factors, including to improve the socio-economic conditions of the English and Irish poor by facilitating colonial emigration; to provide land owners in Britain's colonies with an increased supply of labor; and to create an outlet for a glut of capital in the United Kingdom (Wakefield 1829b: 186-188). His outline of a system of colonization contains nine articles. Briefly, the key features of his proposal were aimed at balancing three factors of production that is, land, labor, and capital. In the first instance, the model required land to be sold at a 'sufficient' price.[2] This would generate a stream of revenue to pay for assisted immigration leading to the establishment of an agricultural workforce.[3] In turn, this would create positive returns to capital for those who

[2] Wakefield (1829b) was not the first person to suggest colonial land should be sold rather than given away. For instance, Robert Gourlay (1822), writing on Upper Canada, argued that colonial land should be sold rather than given away, with the proceeds used to assist migration. Robert Torrens had also advocated land sales rather than land grants prior to Wakefield's advocacy (Kittrell, 1973). In an 1827 speech to reinstate the Select Committee into Emigration to the House of Commons, Torrens stated that:

> a well regulated system of colonisation would … apply the redundant labor and capital of the United Kingdom to the redundant land of the colonies; it would restore the properties on which prosperity and happiness depend … the productivity of labor in the new colonies would be able in a very short period to replace, with surplus, the capital advanced for transportation (Torrens, quoted in Booth (2004:78)).

Hutchinson (1958) argued that, in the 1830s and 1840s, Torrens was only second to Wakefield in advancing both political motives and theoretical justifications for colonization. The major difference between Torrens' and Wakefield's ideas on colonization was that Torren's plan had the British government paying for passage and supporting emigrants upon their arrival with a grant of land and other necessities before they became independent.

[3] Wakefield was neither the first writer to discuss methods of alleviating the poor socio-economic conditions of British workers nor the first to propose a system of colonization. For instance, Under-Secretary of State for the Colonies between 1822 and 1828, Robert Wilmot-Horton, employed a wages-

purchased land. Positive returns were generated by a guaranteed labor supply employed in agriculture to create output that, over time, would be in excess of colonial needs thereby establishing an export sector.

The requirement to sell colonial land at a 'sufficient price' became the centrepiece for Wakefield's theory and he used the failure of the Swan River colony in Western Australia as an example of why setting land prices sufficiently high was critical. At Swan River, economic progress had been stifled because low land prices (at 1s 6d/acre) induced laborers to become land owners, leaving the colony with too few laborers to exploit opportunities on settled lands (Hodder, 2013). In other words, there was an abundance of land but too little capital and labor. Further, the ease at which land was available led to the disastrous dispersal of a few settlers across a large geographical area. Hence, the appeal of Wakefield's notions of systematic colonisation lay in the fact that it would not cost the British Treasury a cent because returns from land sales would provide the funds to pay for the passage of a continuous stream of emigrants. In other words,

> The foundation and cardinal principle of the self-established and self-supporting colony of South Australia is, that the waste and unoccupied land shall be sold at a price sufficient to carry out the requisite supply of labor for its cultivation (British Parliamentary Papers*,* 1836: 465).

Moreover, when all of the revenue from selling land was committed to subsidizing migrant labor, "the capitalist obtains a more ample and constant supply of that indispensable instrument of production, than that which it would be possible, under any other arrangement to obtain at so cheap a rate" (British Parliamentary Papers, 1839*:* 10). The land price therefore, acts as a bounty on the introduction of capital by giving land a greater value than the price at which it is sold.

The price of land sold in the colony had to be 'sufficient' to achieve two goals: (1) generate enough revenue to bring the desired quantity of labor to the colony and (2) prevent laborers, once they arrived in the colony, from becoming landowners too quickly. The logic is that if the land price is set too low, assisted migrants could buy land on arrival and this would reduce the ratio of labor to land below that which would maximize returns to landowners. In other words, the reduction in the labor supply available to land owners and an expansion in the number of land owners would together result in higher wages and depress returns to

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fund approach arguing that wages in Britain were low because labor supply was greater than demand (Kittrell, 1965). To improve wage rates required a reduction in population via colonization while simultaneously creating alternative markets for British output. Reducing population would require pauper emigration to the colonies to be funded by parishes; individuals would forgo parish maintenance in exchange for assisted passage. The sticking point of Wilmot-Horton's ideas was the objection to parishes financing migration. Therein lay the appeal of Wakefield's theory whereby migration would be funded by revenue from colonial land sales.

landowners. But, if the land price was 'sufficient', labor would be compelled to work for three to four years before entering the land market. This would create satisfactory returns to capital while keeping wages low albeit, higher than in Britain. In addition, once laborers had saved enough money to purchase land, the new flow of migrants subsidized by these land revenues would be sufficient to keep wages from rising. The process would continue indefinitely until all land was occupied. However, the question remains, what is the sufficient price of land?

In the article, 'Sketch of a proposal for the colonization of Australasia', Wakefield (1829a) stated the sufficient price was £2/acre. However, in *A letter from Sydney* (1829b: 178) he retracted this quantification and argued that the sufficient price was dependent on context. This context required a consideration of two elements before the sufficient price could be established: first, the length of service that labor should provide before becoming land owners; and second, the general conditions of the colony, such as climate, wage rates, and living costs. Once these were determined, it was possible to establish how much labor could save and set land prices at a rate that would ensure labor provided a period of service before they could buy land and become cultivators in their own right.[4] In other words, no one price would fit all colonies in every circumstance.

Torrens (1835) was the first to set forth the idea that the sufficient price required a reference to wages. Torrens (1835: 70) illustrated the idea as follows: assume wages were 40s/year with a frugal laborer able to save 50 per cent/year. In order to prevent them from purchasing land for three to four years then, the sufficient price would be £3 12s/acre. Nevertheless, because wage rates were likely to change, in practice, the 'sufficient' price would require adjustments over time in order to provide the correct balance of land, labor, and capital. Lloyd Prichard (1968: 255) argued that:

> the price would depend on the rate of increase of population and therefore on migration which, in turn, would depend on many factors. It would also depend on the rate of accumulation which would depend on wages, the cost of living, and the number of acres required to provide the laborer with a living.

Wakefield himself acknowledged that economic dynamics in a given colony mattered for the calculation of a sufficient price, but he ignored two critical factors. First, he paid no attention to the extent of information and forecasting required on the part of officials to continuously adjust the price to achieve his twin goals of sufficient subsidized immigration and deterrence of land purchases by new migrants. Second, he paid little attention to the costs of adjusting colonial labor supplies. Adjustment costs would be imposed by the lags between identifying the need for more labor in a colony and actually receiving the shiploads of migrants to satisfy this demand. If land was released without enough available labor, then returns to capital would be

[4] Mills (1974) notes the flaws in this system in that, over time, the theory becomes more complex in that it was difficult to determine the land price that would achieve the dual objectives of restricting ownership and providing the exact labor supply required by land owners.

stifled, wages would increase, and the whole plan would become essentially inoperable. Alternatively, if land were not released quickly enough, assisted migrants would face unemployment imposing additional costs on already constrained government finances.

Mills (1915:214-215) observes that the Wakefield model does not incorporate any notion of a "limits of location", a boundary beyond which settlement would not be allowed. His principle of a "sufficient price of land" would, however, tend to concentrate settlement on good lands not too distant from the capital city. As distance from the central city and port increased, the cost of transporting goods to market increases and beyond a certain distance, returns to lands purchased at the sufficient price would be negative. Colonies often imposed limits to location because they needed to account for the presence or opposition of local indigenous populations. Wakefield never considers indigenous people in his theory of systematic colonization and thus implicitly adopts the doctrine of *terra nullis*, that the land is not used or occupied. The degree of opposition from indigenous populations could, however, affect the viability of the property rights regimes envisioned for colonies founded under Wakefield's principles (Dye and La Croix, 2013 and 2018). Higher levels of indigenous opposition require more effective third-party garrison protection rather than less effective first- and second-party protection to guard settlers' life and property. Garrison protection allows the government to survey and carefully delineate property rights to lands and then sell surveyed properties to settlers and investors. Lower levels of opposition provide incentives for settlers to squat on lands beyond the boundary of surveyed lands, using first- and second-party enforcement to protect their claims against other settlers and indigenous peoples.

III. Modeling Wakefield with an Expanded Lucas Model

In his 1990 article on colonial investment, Robert Lucas, Jr. poses a question that applies directly to the settlement of British colonies: Why doesn't more capital flow from the home country to its colonies when colonial investment is protected by well specified and enforced property rights and there are high returns to colonial investment? Lucas uses a simple one-period, two-factor production model to provide one answer to his question. He assumes that the colony's production function is $y=f(x)$, where x is capital per worker, the number of workers is fixed, and the colony's government has the ability to choose the amount of home investment in the colony. In Lucas's simple one-period model, the government acts as the agent of investors by choosing x so as to maximize:

$$f(x)-\{f(x)-xf'(x)\}-rx \qquad (1)$$

where r is the opportunity cost of capital and $\{f(x)-xf'(x)\}$ is the wage bill. Following Lucas (1990:95), the first-order condition is:

$$f'(x)=r-xf''(x). \qquad (2)$$

In other words, the marginal product of capital equals the opportunity cost of capital minus the "derivative of the colony's real wage rate with respect to capital per worker" i.e., the opportunity cost of capital plus a "monopsony" wage discount. This implies that the return to capital in the colony is greater than the return to capital in the home country. Lucas's new insight from this simple modeling is that higher measured returns to British colonial investment could be the result of restrictions on capital flows from the home country to the colony.

In the Lucas model, there is a large, fixed supply of indigenous labor and the critical problem for the colony is to provide incentives for investors to bring relatively scarce capital to the colony while controlling overall levels of investment. In some British colonies – think SA – labor was the relatively scarce factor. In SA supplies of Aboriginal labor were relatively small at initial settlement in 1836 due to declines in population from exposure to new diseases and Aboriginal resistance to, rather than cooperation with, invading colonists. From the perspective of SA investors who had purchased SA land, Aboriginals were not a source of labor for colonial enterprises, and thus the central problem for land owners was to induce sufficient supplies of labor to migrate to the colony and work on the lands they had purchased. Obstacles to SA emigration included the high cost of passage to Australia relative to the cost of passage to Canada or the United States and objections by the colony's founders to the use of servitude to facilitate repayment of debts incurred for passage costs.

To account for these initial conditions, consider a second model that is a simple variant of the Lucas model in which we replace capital with surveyed land in the production function and allow labor to be brought to SA at zero cost and property rights in land to be established also at zero cost. In this case, the organizers of the colony would adjust land and labor supplies to generate x^*, the land/labor ratio that maximizes profits to the colony's land owners. All SA arable land would be brought into production and sufficient labor brought to the colony to reach x^*.[5]

Now consider a third model that is a variant of the second model in which it is costly for labor to migrate from Britain to SA and British residents would not choose to travel to SA if they had to pay the full cost of passage. Wakefield's model of systematic colonization was designed to relieve colonial labor scarcity by using revenue from the sale of SA land to fully or partly subsidize passage of selected British migrants to SA. The number of migrants who could be subsidized was determined by the price of land set by the Colonization Commission, the demand for land at the fixed price, and the cost of passage from Britain to SA. We assume that workers were willing to migrate to the colony when net wages in SA exceeded wages in Britain and other colonies; that a worker can be transported to SA at constant cost c; that SA land is sold at a constant price p; and that an acre of newly purchased land is identical to an acre of land already in production. In this case, the colonial government, the agent of the land owners, maximizes:

$$\max_{\text{w.r. } p} \{f(x(p)) - [f(x(p)) - x(p)f'(x(p))] - px(p)\} \Rightarrow xf' - px \qquad (3)$$

[5] The x^* in model one and model two would be identical if the transport cost of bringing the same values of human capital and physical capital to SA are identical.

s.t. $c/p \leq x(p)$

where x(p) is the ratio of land to labor at price of land = p, $x'(p)<0$, and $f(x(p)) - x(p)f'(x(p))$ is the land owners' wage bill. Substituting and solving for the Kuhn-Tucker conditions:

$$c/p \leq x(p) \tag{5}$$

$$x'(p)\, f'(x(p)) + x(p)\, f''(x(p)) - px'(p) - x(p) = 0 \Rightarrow x'f' + xf'' - px' - x = 0 \tag{6}$$

Substitute for x(p), divide by x' and rearrange:

$$f' = p - p\, e_{xp}(1-f'') \tag{7}$$

This result says that the marginal product of land equals the price of land—the standard condition in a one-period competitive land market—plus the monopsony discount to wages attained by providing less land per worker. In this model, the optimal land-labor ratio $x^* \geq c/p$. If all revenues from land sales are spent on subsidizing labor emigration, then $x=c/p$. If the unconstrained profit-maximizing $x^* > c/p$, then land owners will choose this option and devote only a portion of the revenue from land sales to subsidizing migration. If $x^* < c/p$, then owners spend all revenue from land sales on subsidizing migration but are unable to reach the profit-maximizing x^*.[6] By the envelope theorem, we find that $\partial X^*(p)/\partial c = 1/p > 0$. Thus, as the cost of transporting new migrant workers to SA falls, investors purchase more land, provide the land fund with more resources, and thereby allow more assisted emigrants to travel to SA.

IV. Experimentation: What Went Right and What Went Wrong

Led by two close associates of Wakefield, Robert Gouger and Major Anthony Bacon, the National Colonization Society's initial (1832) plan for colonizing SA revolved around a powerful company with £500,000 in capital selling SA land and controlling the colonial government. The Colonial Office rebuffed this proposal and the Society responded with a revised plan that retained a profit-making corporation, the SA Land Company, as the organization that would make and enforce rules for colonization. James Stephen, permanent counsel to and later Under-Secretary of the Colonial Office, derided the new plan as "wild and impractical". Hopes for approval increased with the change of government in 1833 and the appointment of Lord Stanley, a politician more sympathetic to rational colonization ideas, as Secretary of War and the Colonies. However, a revised plan failed in March/April 1833 after renewed objections from the Colonial Office (Pike, 1967:64-65). Later that year promoters of SA colonization

[6] Sales of additional lands do not change this result. It is important to stress that model 3 indirectly incorporates Wakefield's condition that migrant labor find it unprofitable to quickly purchase new colonial land. This is because the model's results require the colonial government to distribute less land than demanded by all individual investors.

offered a new plan based on a non-profit SA Association. In March 1834, the Association's governing committee devised a new bill that established a hybrid colony, "something between a Crown and a charted colony." It stipulated that the Association's governing committee administer the Crown colony and have a role in nominating and replacing the colony's governor (Pike, 1967:68). Lord Stanley insisted that the bill provide for immigration to the colony only after a loan of £50,000 was raised, £35,000 of land sold, and the Association replaced by a government-appointed South Australia Colonization Commission. A much-amended version incorporating Lord Stanley's requirements passed through the Houses of Commons and Lords in August 1834 and was ratified by the King.

A. What Went Right: Preliminary Land Sales and Subsidized Migration

The eight SA Colonization Commissioners—four Tories and four Liberals--were charged with selling £35,000 of land and setting a single price of land that was sufficiently high so as to prevent emigrating laborers from immediately buying land. This issue became a source of some contention between the Commissioners and Wakefield because, as mentioned, Wakefield had quantified the 'sufficient' land price at £2/acre. Wakefiled lobbied for his preferred price but in June 1835 the Commissioners set the price of a "Priority Land Order" (PLO), consisting of 80 country acres and 1 city acre at £81, i.e., an average price of £1/acre.[7] Wakefield criticized this price as far too low and distanced himself from the SA colonial experiment. Despite the lower price, by August 1835 land sales had stalled, with just over half of the required sales achieved. Rowland Hill, Secretary to the Colonization Commission summed up the problem: "there is quite an essential difficulty, namely the necessity for selling land … which no one knows anything about" (cited in Sutherland, 1898:40; see also British Parliamentary Papers, 1836:4).

To prevent the collapse of the scheme before settlement had even commenced, three investors closely connected with the venture – George Fife Angas (a Commission member), Thomas Smith, and Henry Kingscote – formed the South Australian (SA) Company offering to buy the remaining packages at a reduced price of 12s/acre. Their offer prompted a surge of buying activity at the 20s/acre price by other parties, bringing the number of 81-acre PLOs sold to 334, still far short of the required sales (Price, 1924:33-34). The Commission responded by temporarily reducing the price of land to the legal minimum, 12 shillings, and allowed the three main SA Company investors to purchase 103 PLOs and transfer them to the Company. Investors who had already purchased PLOs (or put down deposits) were compensated for the reduced price paid by the SA Company by being awarded rights to an additional 54 acres of country land, thereby providing them with one city acre and 134 country acres. By the end of December 1835, the Commission had secured land sales of £35,000 as well as the stipulated £50,000 loan. The government then allowed the Commission to begin the process of recruiting migrants and setting up the machinery of colonial administration.

[7] There appears to have been little attention paid to the fact that upset prices for land in neighboring New South Wales (including Victoria) was 5 shillings/acre from 1831 to 1838 when it was increased to 12s/acre. By 1842, under the Imperial Wastelands Act, the upset price was further increased to £1/acre.

The Colonization Commission moved quickly to recruit emigrants eligible for assisted passage. Settlers applying for assisted passage were required to complete a form detailing their occupation, age, married status, and number of children. The form included the name of a recent employer who would vouch for the applicant as well as the minister of the local parish in which they resided. Preference was given to married couples and those with trades that would be required in the colony, including, for example, agricultural laborers, coopers, smiths, boat-builders, tanners, and brickmakers (British Parliamentary Papers, 1836:27-28). Of the 9,422 applications (submitted by family) for assisted passage between 1836 and 1840, embarkation orders were issued to 5,070, comprising 3,942 adult males, 3,548 adult females, and 4,718 children (Pike, 1967:180). On arrival, adult emigrants were expected to enter the labor market and work until they could buy their own land.[8]

In spring 1836 hundreds of eager migrants had wound up personal business, quit their jobs, and sold most of their belongings. Impatient to start their colonial adventures, they chartered their own ships and left earlier than planned for SA, arriving well before colonial officials were ready for them. Adult emigrants totaled 753 people in 1836 and 858 in 1837, and they brought 609 children with them (Table 1). Much larger flows of emigrants were triggered in 1838 and 1839 with the influx of revenues from special surveys and the 1837-38 rebellions in Canada, an alternative destination for British migrants. During 1838 and 1839, 5,445 adults and 3,029 children emigrated to SA. Migration continued at high levels through August 1840 when it abruptly ended. Reasons include the Colonization Commissioners suspending assisted migration, perceptions by migrants of brighter prospects in the newly opened Wakefieldian colony of New Zealand, and reports that lands outside of the immediate area around Adelaide were unsuited for arable agriculture.

In sum, Wakefield's plan for using proceeds from land sales to subsidize emigration to SA was broadly carried out as designed, with more than 50 percent of proceeds from land sales devoted to subsidizing passage for emigrants. The time lag between sale of SA lands and arrival of subsidized emigrants in SA was variable. For example, revenue from the special surveys requested during the first eight months of 1838 subsidized the large emigrant flows arriving in the colony in 1839 and the first eight months of 1840.

B. What went Wrong: Survey Delays and the Split Executive

Delays in Surveying. The first and most deleterious effect on the SA colonial experiment came from survey delays, which had their roots in a number of factors. First, even before there had been any systematic exploration of SA, the Colonization Commission sold claims to unidentified lands at unknown locations in the colony. Once land claims had been sold but before the first ships of emigrants arrived, the survey team was supposed to travel to SA,

[8] Those who purchased land could also secure free passage for one servant to accompany them for every £20 subscribed (Bloomfield, 1961:138). During the first five years of settlement, servants travelling with employers represented less than one in ten migrants (Pike, 1967:150). The SA Company used this provision to bring more than 300 employees to SA free of charge.

identify a port and capital city, survey lots in the capital, and then identify and survey country lands suitable for cultivation. After these surveys were completed, the resident commissioner was to conduct a lottery to determine the order of selection by PLO holders; they would then choose their land parcel and have the right to use it immediately. This process went awry right from the start. Ships with surveyors left England on March 20 and May 1, 1836 but were preceded by two ships from the SA Company carrying officers and settlers. Once the Surveyor-General, Colonel William Light, and his small team of surveyors arrived in the colony in July 1836, exploration of the coastline ensued to identify a suitable location for a port and a capital city. This took several months and was delayed by Light's decision to explore numerous port locations as well as a disagreement with Governor Hindmarsh as to the most appropriate sites for the capital city and port. The sites were finalized in January 1837 but this decision was preceded by the arrival of four commission-sponsored ships with emigrants. Emigrating PLO investors and agents of absentee PLO investors were shocked to find surveys had not been made in advance and that the city and port location had not yet been selected.

In February 1837, Light completed staking out 1,042 one-acre rectangular lots that fully encompassed the new city of Adelaide, with 42 lots reserved for various public purposes. PLO rights holders who had migrated to the colony, family members acting as their agents, professional agents, and the other recently arrived migrants were able to see staked-out lands to gather information before PLO lots were selected and remaining lands purchased in the subsequent auction. On the morning of March 23 the colony's resident commissioner held a lottery to determine the order in which the owner of each PLO would choose a town lot. In the afternoon PLO rights holders or their agents selected 402 lots within the city boundaries. Sequential English auctions with an upset price of £1 per acre were then held for each of the remaining 593 lots on March 30. (See Harris and La Croix (2018a) for a complete discussion of the allocation of Adelaide lots.)

Survey of country districts to the north and south of Adelaide—promised to be available to PLO holders on arrival – would take more than five years to complete due to the rugged terrain in those regions, lack of equipment, the absence of roads, and interruptions forced by diversion of surveying staff to conduct special surveys.[9] No lands outside of Adelaide would

[9] Contemporary observers characterized SA surveying operations through August 1838 as far too small and underequipped. The small size of the SA surveying staff was in part due to a mistake made by Surveyor-General Light in ascertaining the breadth and depth of his tasks while he was still in England. Light did not complain about the size of his staff or the resources afforded to them when he left England, and his opinion was obtained by the Commission. However, letters from the surveyors suggest the delay in surveying was the result of "the difficult circumstances of survey in a new country without resources at the command of surveyors at home…instead of that reasonable allowance and that credit for work done which they feel conscious of deserving, they have been taunted with incapacity and neglect of duty" (British Parliamentary Papers, 1838:35). In April 1837, one month after city lots had been surveyed and selected Light informed the commissioners that it would take three years to complete the preliminary surveys of country lands that were supposed to have been available to land owners on arrival. Boyle Travis Finniss, a deputy surveyor, notes that surveys were delayed for a myriad

become available for selection until May 1838, and then only in Districts A and B in the immediate vicinity of Adelaide (Figure 1). Twenty-seven of the 437 PLO holders cashed in their rights to select a 134-acre parcel of country land for the right to select a special survey (described below) outside of the A-G surveyed districts available for selection. Only 216 PLO holders would choose parcels in Districts A and B in May 1838 (Figure 2); ten were absent or "passed" on their selection and the remaining 211 reserved a selection in the C-H districts still to be surveyed. PLO holders who made selections in the A-B districts did not receive access to them for several months after their selection, because despite being surveyed and mapped, the parcels had not been staked out. Price (1924:149) states that "[s]ections gradually became available in Districts A and B … from July, 1838, onwards, and in Districts C and E from June, 1839" and "[s]ections at Rapid Valley and Encounter Bay were finished from July and August," 1839. Oldham (1917:53) observes that the majority of claims in District D were not issued until June 1841, only a few grants in District E had been issued by 1840, and no surveying had been done in Districts G and H (Kangaroo Island) at the start of 1841. Table 2 illustrates the slow progress of agricultural production between 1837 and 1842.

Slow surveying would delay the development of farms and this was particularly important in the SA context because some purchasers of priority land orders and laborers had migrated to Australia in advance of the surveys, making them particularly reliant on surveys being completed expeditiously. Slow surveying would force consumption of capital needed to start new farms or reliance on the government to provide relief and rations.[10] We note that slow surveying might not have been as harmful to non-resident speculators who intended to hold their selected lands for development at a future date. As their place in a priority queue was still ensured, they had little to lose.

The Split Executive. Further adding to the problems that confounded the experiment was the lack of concise detail regarding colonial administration in the Foundation Act of 1834. The Commission filled this gap by providing letters of instruction to various people appointed in government positions including, the resident commissioner, treasurer, and colonial

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of other reasons including lack of transport to survey locations and irregular provision of rations in the field to survey workers (Finniss, 1886).

Deputy-Surveyor Kingston was sent to London in June 1837 to request additional help. Upon Kingston's return in June 1838, Light was informed that the Colonial Commissioners had rejected his requests for additional help with surveys, and instructed him to conduct a running survey of a 150-square-mile area. Light refused and was replaced by Kingston. He fought with PLO holders and the resident commissioner over the running survey order which was never implemented. Surveyors continued using a trigonometric survey.

[10] Finnis (1886:9) identified the delays in obtaining possession of land purchased in England as producing a 'fatal effect' on bona fide settlers as their small capital was absorbed by the high costs of living and housing. He argues that this dissipation of capital would have been prevented if only large capitalists had been given access to land.

storekeeper. Instructions to the resident commissioner, James Hurtle Fisher, were relatively broad guidelines designed to allow him flexibility based on particular colonial circumstances. He could alter land prices as he saw fit to balance the supply of labor and capital but was required to keep the Commissioners "constantly informed of the extent of the demand for labor within the colony". Fisher was to set relief at a level ensuring no settler fell into a state of destitution, while not creating disincentives to finding private employment (British Parliamentary Papers, 1837: 14).

In addition to the resident commissioner appointed by the Colonization Commission, the Colonial Secretary appointed a governor. The particular and distinct function of the governor's office was never outlined in the Foundation Act. When Torrens was asked about the division of powers between these two offices he noted, "the Act of Parliament was not sufficiently distinct to enable us to draw any precise line" (British Parliamentary Papers, 1841b: 3). He further adds that while it was generally understood all matters of finance and land would be within the purview of the resident commissioner, "finance and government are so blended, that it was difficult to separate the two" (British Parliamentary Papers, 1841b: 3). It was obvious to officials that the governor had to be able to spend money to provide basic services but his ability to do so was constrained under the 1834 Foundation Act which restricted borrowing to £20,000. By the end of 1837, the governor had spent £17,200 almost the entire amount for which he was authorized to borrow (British Parliamentary Papers, 1837:12/13).

This vague division of authority not only led to financial difficulties in the colony, but very public disputes between Governor Hindmarsh and Resident Commissioner Fisher. Hindmarsh also clashed with the Surveyor-General, Colonel William Light, regarding the site for the city of Adelaide, a dispute that lingered long after the city had been surveyed and owners were developing their lots. The bitter feud between several public officials led Fisher, Light and Hindmarsh to write to London asking for the recall of their opponents. By the end of 1837 it was obvious the divided authority was leading to dysfunction in colonial administration because of the, "want of that unity of purpose and effectual cooperation which ought to have existed" (British Parliamentary Papers, 1837:4). In 1838 Parliament legislated to combine the two positions. Governor Hindmarsh was recalled and his replacement, George Gawler, became both governor and resident commissioner.

C. The Enigma of Special Surveys

Douglas Pike (1961) claims that the colony of South Australia was established to allow rich investors to claim valuable lands in the new colony at below-market prices. Pike cites the reduction in the price per acre in the 81-acre PLO packages from 20s to 12s in October 1835 as evidence of a "land job". He notes that three wealthy investors led by George F. Angas forced the Commissioners to temporarily lower the price and almost immediately thereafter—on March 15, 1836—the price for new land orders was returned to the previous price of 20s after the Colonization Commission's land sales floor had been met. In his critique, Pike (1961) ignores the consideration by commissioners that in the absence of the price reduction, the colony would probably have been unable to generate £35,000 in land sales, thus delaying or foregoing its establishment.

Better evidence for a "land job" might lie in Angas's insistence that the Commissioners also amend the land regulations to allow for special surveys. The amended regulations (October 1835) state that "anyone who shall pay in advance to the proper officer, either in England or in the colony, the price of 4,000 acres of land or upwards shall have a right, for every 4,000 acres thus paid for, to call on the Colonialization Commission to survey any compact district within the colony, of an extent not exceeding 15,000 acres, and within a reasonable time after such survey to select his land from any part of such district before any other applicant" (British Parliamentary Papers, 1836: 22). The first 28 special surveys were requested between January 1, 1839, and August 31, 1839, and became available to their owners in 1839 and 1840 as government-paid surveys were completed. Table 4 provides a list of who purchased each survey and the dates when they became available to their owners, while Figure 2 shows that the locations of each survey were concentrated along the Murray River, on the eastern side of the Lofty Mountain Range, and at several locations off the map, including two ports.

The surveys enabled investors commanding sufficient wealth, such as the SA Company or the agent John Morphett or the South Australian Town Association or G.F. Angas, to claim large tracts of the best lands in the colony outside of the areas set aside for PLO investors. As Figure 2 shows, special surveys allowed investors to select valuable tracts of land anywhere within the boundaries of South Australia; the special surveys were colloquially known as "picking the eyes out of the country." Special surveys implemented at the price of £1/acre essentially made a mockery of the Wakefieldian principle of concentrated settlement, as they allowed speculators to make claims of potentially valuable lands no matter how geographically scattered they were. The underlying rationale for a special survey is to establish property rights on all potentially valuable lands and then to let the market determine when the lands will be brought into production. Because the price of land was set at relatively low levels, the patterns of land ownership and settlement became, in many ways, the antithesis to the Wakefieldian doctrine of planned concentrated settlement.

V. New Explanations for SA Land Institutions

Is it possible that the land institutions adopted in SA were actually more suited to the conditions in the colony than the institutions Wakefield designed? To examine this idea, we consider how the presence of Aboriginal resistance to British settlers and the existence of valuable lands far from Adelaide would have affected the design and evolution of SA land institutions.

A. Aboriginal Resistance to British Settlers.

Resistance from SA Aboriginal tribes was muted in the first 20 months of settlement, and expanded in the second half of 1838 beyond the immediate area around Adelaide and the country districts. This conflict did not come as a surprise to colonial authorities, as it mirrored experiences in other Australian colonies as settlement expanded beyond coastal enclaves. The possibility of confrontation in SA would have been apparent from as early as 1831 after Captain Collet Barker was killed during his exploratory mission to the area. As a result, sales of property in such a potentially dangerous environment would require third-party protection from the government. The Colonization Commission was, however, not prepared to incur substantial police expenditures to protect settlers and their new properties against Aboriginal resistance. Governor Hindmarsh's hands were tied. His official instructions said Aboriginals had equal protection under the law as did any British subject. But in the absence of a military or police presence, there were little means available by which to provide this protection either to settlers or natives.[11] However, in early 1838 Hindmarsh, with unanimous consent of the Legislative Council, retained the 16 marines that accompanied settlers a year earlier as the colony's police force (Pike, 1967:285/86).

Early settlers at Adelaide record the local Kaurna people who occupied the Adelaide plain as being relatively harmless and rather irritating (Barrit Diaries, 20/5/1840: 5; Castles and Harris, 1987).[12] In areas outside the immediate vicinity of Adelaide, there were reports of conflict between Europeans and local tribes in 1839 (Foster and Nettelback, 2012:26). These concerns were magnified in July 1840 when 26 settlers were ship wrecked off Coorong, about 180 kilometres south of Adelaide. An Aboriginal tribe killed all survivors, making it the largest massacre of Europeans by Aboriginals in Australia's history, an affair which caused "consternation, fear, and outrage" when it was reported in Adelaide (Foster and Nettelbeck, 2012:26; see also Foster and Nettelbeck, 2009; Foster, Hosking, and Nettelbeck, 2000; Booth, 2004; Lendrum, 1977).

Further conflicts occurred on the overland trails, increasing in frequency, as use of those routes became the preferred method to supply stock to SA from late 1839.[13] Conflict was centered around the Murray and Rufus Rivers where tribes proved more hostile than those encountered earlier on the Adelaide Plains. As profit maximizers, overland parties were lured

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[11] This section refers to the attitudes toward settler protection by the first three governors; the dates of their appointment and recall were: Hindmarsh, 28/12/1836 to 16/7/1838; Gawler, 17/10/1838 to 15/5/1841; and Grey, 15/5/1841 to 25/10/1845.

[12] Barrit notes this but so too do a number of other settlers. See accounts in Booth (2004: 224, 237, 261;) and Clarke (2005:62, 64, 69). It was one reason a Native Location (referred to as "Piltawodli" by the Aboriginals) was established on the north side of the Torrens between North and South Adelaide in 1838, to discourage Aboriginals from wandering the streets begging for food and being a nuisance.

[13] Edward Eyre travelled 955 miles overland in 21 weeks during 1839 recording a 1 percent loss of stock while Robert Leake, a pastoralist from Tasmania, shipped stock to Adelaide in 1838, losing about 10 percent of his sheep in the five and a half day crossing (MacGillvray, 1982:14).

by large gains from selling stock to settlers in Adelaide (Foster and Nettelbeck, 2012).[14] They encountered Aboriginal groups living along these routes whose native food sources and access to hunting grounds had been substantially reduced or destroyed as settlement expanded. Aboriginals viewed European stock as substitutes for their traditional sources of meat such as, kangaroo, and a natural response to that circumstance would have led natives to steal stock (Booth, 2004). These losses further incited flock owners and shepherds to cooperate and undertake violent means of first- and second-party protection and intimidation.

Third-party protection was difficult to provide because the Colonization Commission did not consider resistance from Aboriginal inhabitants inside the colony's boundaries when it planned the colony. Thus, it could only make *ex post* adjustments in protection and property rights specification.[15] How much third-party protection was to be provided to overlanders was a more difficult issue. Dye and La Croix (2013; 2018) argue a colonial government that sells land to settlers has incentives to incur sufficient expenditures to provide protection to land owners or else new investors would not pay for property from which they rationally expect to be quickly dispossessed. Under these conditions squatting is a better choice. However, overlanders were not squatters. They may have camped at some locations for a period of time to rest stock and men but overlanders were merely transitory trading groups crossing Aboriginal territory to deliver their product. The government's dilemma was whether to provide them with third-party protection.

In August 1841, Governor Grey made it abundantly clear to settlers and Lord Russell in London that individuals "[v]oluntarily withdrawing themselves from the protection of the British Government" (British Parliamentary Papers, 1843:284) would not be afforded government defense. However, those "who enter districts only after the government have declared them open for location…consequently have a right to expect that protection will be afforded to them" (British Parliamentary Papers, 1843:284). As such, if land was purchased, surveyed, and then settled, third-party enforcement would be provided (Dye and La Croix, 2013). In all other circumstances, first- or second-party enforcement had to be relied upon.

Governor Grey's reasoning for not providing third-party protection to overlanders was that their expeditions, which walked sheep from Victoria and New South Wales sheep stations to newly established SA sheep stations, were a "matter of private adventure, and not of public

[14] For example, in 1838, James Crawford made a profit of £3,000 selling 700 cattle (Foster and Nettelbeck, 2012:33).

[15] The colony's boundary was fixed in a way as to prevent conflict with inland Aboriginals who may have had more clear property rights (in the eyes of the British) compared to those in other Australian colonies. Further, the Colonial Office believed the colony must be responsible for its own safety and the lack of provision for military or police was one of the reasons Colonel James Napier turned down the offer to be first governor of the new colony (British Parliamentary Papers 1841c: 53). Contrary to the Colonial Office view however, Gawler believed the desire to promote settlement and special surveys carried with them an implicit guarantee of protection (Price, 1924).

utility" (British Parliamentary Papers, 1843: 286). Grey's argument is strained, as government protection of important trading routes has long been acknowledged as generating public benefits, in this case allowing faster establishment of the colony's wool industry and relieving unemployed emigrants. Another point made by Grey may be more pertinent:

> The tracts of country inhabited by these [Aboriginals] being many hundred miles in length, it appears impossible for the government to occupy its whole extent either with troops or police stations [so that] no effective protection can therefore be afforded by these means to particular travellers overland (British Parliamentary Papers, 1843:284)

Add to that the fact Grey had adopted substantial austerity to reduce public spending after the earlier financial crisis and it appears third-party protection for those crossing the interior would not be forthcoming.

However, during the last few months of 1841 the severity of conflicts accelerated. There with reports of warlike attacks by Aboriginals on overlanders.[16] In response, Grey capitulated, sending a dispatch of 25 police (third-party enforcement) and volunteers (second-party enforcement) from Adelaide to quell further violence. Once the initial skirmishes were over, in October 1841 a permanent Resident Magistrate and Protector of Aboriginals, Edward Eyre, was established at the Murray River. This created permanent third-party protection on the overland trail.[17] By 1842, the Imperial Wasteland Act (5 and 6 Vic c.36.) had legalized squatting to settlers who paid a lease fee to graze cattle and sheep on specific waste lands. In response to increased squatter presence in the interior, mounted police as well as police stations were slowly established in the SA interior to provide third-party protection to legitimate lease holders (MacGillivray, 1982).

B. Valuable Lands Far from Adelaide

South Australia established its land institutions in three distinct phases. In the first phase (1836-1838), the government surveyed land in Adelaide and surrounding districts A-B that were specified by Colonial Surveyor Light. From surveyed 1-acre lots in Adelaide and 134-acre country sections, owners of priority land orders made selections. Remaining lands in Adelaide were sold at auction and remaining lands in Districts A-B were offered via tender at a minimum price of £1 per acre. In this first phase, the government specified the form of property right – fee simple rights including all rights to minerals, payment of property tax, third-

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[16] For details on the conflict, including eyewitness accounts of the apparent ferocity of Aboriginal tribes around the Murray and Rufus Rivers in 1841, see British Parliamentary Papers (1843:267-309).

[17] Colonists had earlier appealed to the governor to do more to quell the violence on the overland trail not only to protect capital (stock) but also to ensure the lines of communication between colonies was maintained (British Parliamentary Papers, 1843:270-271. We note that shipment of sheep from Tasmania to SA virtually ceased once the overland routes from neighboring colonies became established.

party protection—and delineated the areas which would be surveyed and made available for sale. Phase two (1839-1841) began in January 1839 when the government began to accept requests to conduct special surveys of colony lands. Upon payment of £4,000 any investor, settler, or group could order a government-paid survey of 15,000 acres anywhere in the colony outside of the original A-H settlement districts. From the special survey area, the buyer could pick 4,000 acres to which fee-simple rights were assigned.[18] Within the colony's vast boundaries, there were no limits on the extent of settlement, no boundaries beyond which the government would refuse to sell land and provide third-party protection. In phase two, the type of property rights in land was specified by the government, while private parties determined the particular lands in which property rights were to be delineated. Phase three (1842-1851) was triggered by passage of the Act for Regulating Sales of Land (1842), which both expanded and restricted special surveys and repealed previous regulations governing them contained in the 1835 'Modified Regulations for the Disposal of Land' (British Parliamentary Papers, 1836:22). For a minimum payment of £20,000, an investor could request a perimeter survey of a compact tract of 20,000 acres and be awarded for fee-simple rights to the entire tract. Further surveys within the tract were not initially conducted. These larger special surveys were utilized by buyers in the mid-1840s to establish rights to lands showing signs of rich copper deposits (Blainey, 1969).

Why did the SA government both specify and delineate property rights in land during the first phase of settlement (1836-1838), while during the second phase (1839-1841), the government only specified the form of property right, leaving investors with the choice of lands to which property rights would be delineated. Yoram Barzel (1997) has argued that the value of a resource will be maximized when the decision to delineate property rights in the resource is reserved to the party who has the least cost of measuring its likely value.[19] Measuring land quality is, of course, only important when the value of unclaimed land varies considerably. Land heterogeneity poses a problem for any von Thünen-based model of frontier settlement and property rights, as it eliminates the simple relationship between distance from the land to the market city and port.[20] If a government were to set compact boundaries of settlement based on distance from the central city and port, valuable properties would be excluded from survey and sale. Settlers would have an incentive to forego payment for surveyed properties within the boundaries and squat on valuable properties outside the boundaries (Dye and La Croix, 2013). One way for a colonial government to proceed in the presence of land

[18] Unselected survey acres within the special survey were available for sale at a minimum price of £1/acre.

[19] Measurement costs are composed of the costs incurred to find particularly valuable tracts of land and the cost incurred when low-value lands are identified as high-value lands and erroneously purchased and surveyed. Minimizing measurement costs is a necessary condition for maximizing gains to society from the land resource. Barzel (1997:90) observed that "individuals have a comparative advantage over the government in various delineation activities and actually undertake many of them."

[20] For examples, see Alston, Harris and Mueller (2012) and Dye and La Croix (2013, 2018).

heterogeneity is to survey and sell particularly valuable tracts unconnected to other surveyed areas. But this raises another question: How would the government decide which tracts of land are valuable enough to warrant survey, sale, and protection? If determination of the value of far-flung lands requires exploration of particular lands (rather than a larger region) and evaluation of their commercial potential, then in some cases the value of the resource would be maximized if government stepped aside and allowed private parties to determine whether a tract of land is valuable enough for property rights to be established.

Economic historians, in particular Gary Libecap (2007) and Terry Anderson and P.J. Hill (2005), have carefully documented numerous examples from the American frontier in the nineteenth-century in which private parties selected tracts of land and natural resources and effectively specified and enforced property rights to them. Examples include gold mining in California, silver mining in Nevada, ranching lands on the Great Plains, and water throughout the West. Examples are not confined to the United States: Lee Alston, Gary Libecap, and Bernardo Mueller (1998; 1999) have analyzed the complex interaction between private parties, indigenous groups and the state in Brazil's Amazon region in specifying, delineating, and enforcing rights. In many of these cases, authors have emphasized that individuals establishing land rights had an informational advantage over the state in identifying which resources were the most valuable, thereby reducing transaction costs associated with rights delineation.

SA land settlement provides some interesting insights into Barzel's argument regarding who should delineate rights. This is because property rights were delineated by the government in phase one and by investors in phase two.[21] In 1837 and much of 1838, the government focused on surveying lands in Districts A and B and then staking out 134-acre and 80-acre plots so that PLO selectors and buyers could take possession of them (Figure 2).[22] From the middle of 1838 through 1842, the government also surveyed lands in Districts C-F and made them available for selection by PLO holders and purchasers. Surveyors noted that lands in Sections C-F were extremely rugged and "very intricate" (Price, 1924:132). Resident

[21] Private investors clearly have more incentives than government officials to keep investigative costs low, as they, unlike government officials, are able to keep residual returns from finding valuable properties. Private investors do not, however, have incentives to account for the government's surveying or third-party enforcement costs. One way to partly account for this would be for the investor to pay for the survey. This would, however, reduce incentives for government officials to conduct least-cost surveys. Another way to correct misalignment of incentives would be for the investor to pre-pay for the land prior to the survey and to set a floor on the size of the survey.

[22] Government delineation of property rights in phase one has roots in several factors. First, government surveyors were expected to arrive prior to the initial wave of settlers and conduct surveys of city lots and country acres. No private parties were expected to be present. (As discussed above, this plan was not executed properly.) Second, exploratory expeditions of virtually unseen SA surely had some aspects of a public good and might then be best financed by the government. Third, the absence of an existing land or inland water transportation network increased the likelihood of the first few hundred farms being developed near Adelaide and its port.

Commissioner Fisher initially restricted surveys to districts A and B surrounding Adelaide, but PLO holders complained that they had a right to select their lands from any of the A-F districts and, on the basis of information from exploratory expeditions, wanted to select lands in coastal areas to the west of Lake Alexandrina.[23] Fisher responded in July 1838 by opening the southern districts for survey and, later the same year, the Colonization Commissioners repealed their land regulations and "issued new rules which encouraged an even wider dispersion" of settlement (Pike, 1967:175).

How valuable were the lands in Districts C-F to which the government delineated property rights? One indicator of value is whether surveyed lands in these districts were selected or purchased when they became available. Table 3 displays the amount of land surveyed in district A-F and the amount of land selected by investors as of November 30, 1840.[24] PLO holders and buyers had selected or purchased 87.97 percent of surveyed lands in District A but just 41.9 percent of surveyed lands in District B. In Districts C-F, only 28.52 percent of surveyed lands were selected or sold.

In January 1839 the SA government began to accept applications for special surveys, which essentially allowed private parties willing to purchase large tracts of land to delineate private rights in land anywhere in the colony outside of Adelaide and Districts A-H. Because the price of an acre of special survey land was set relatively low at £1, the system ensured investors would rush to establish claims to valuable lands widely dispersed throughout SA. In the first eight months of 1839, 28 special surveys were applied for, another nine through 1840, with a total of 39 being requested before their suspension on May 6, 1841 (refer to Table 4 for a list of purchasers of special surveys and the dates they were applied for).[25] By November 30, 1840, government survey teams had completed special surveys of 185,877 acres from which buyers selected 52,440 acres. The 28.21 percent of surveyed lands selected corresponded closely to the 26.67 percent dictated by the minimum selection of 4,000 acres from each 15,000-acre survey. In October 1839 Governor Gawler cut the size of the area to be surveyed from 15,000 acres to just over 4,000 acres in a bid to reduce ballooning survey costs. (See Section 5C below.). At least 12 special surveys of 15,000 had already been completed, but Gawler's restrictions applied at least partly to the next 27 special surveys.[26]

[23]See Pike (1967:174-175).

[24] Kangaroo Island, encompassing Districts G and H, provides the exception to the rule. Water sources on the island were scarce and the government, at the request of PLO holders who had reserved selection rights on the island, decided to delay surveys on the island given the land's unsuitability for pastoral or arable use.

[25] In 1846, the Colonial Secretary, Earl Grey, instructed Governor Robe to reject any further requests for special surveys (Pike, 1967:306).

[26] Other restrictions included provisions in the surveys claimed along the Murray River to allow the government to reclaim waterfront land.

The vast majority of the special surveys were located more 100 miles from Adelaide, ensuring the Wakefieldian ideal of geographical concentration of settlement radiating from a central city and port would never be achieved. Historians have often viewed the institutions realized in SA as a paradigmatic example of how institutional designs are rarely implemented as envisioned and often generate unintended consequences. It is, however, worth asking whether or not the institutions implemented were flawed due to compromises made in the Foundation Act or whether the compromise institutions better fit conditions in SA? Is it possible that absent the delays in surveying and problems with the split executive, these institutions actually worked pretty well in guiding the extent of settlement and formation of property rights in land?

Consider the establishment of the SA colony within the context of the Dye-La Croix (2013) model of frontier property rights. One of the model's main results is that when a government faces indigenous resistance to settlers occupying land at the frontier, the government will choose to survey and sell (rather than grant) land within official boundaries of settlement and provide third-party enforcement of rights to land owners. Another prediction is that the government will decline to provide third-party protection to settlers who squat outside the boundaries. In SA, three of the four predictions of the model held—surveyed lands were sold (rather than granted), third-party protection was provided to land owners, their workers, and their properties, while third-party protection was denied to squatters who grazed their flocks on "waste" land, i.e., frontier land claimed by the government but not surveyed or available for sale.

One prediction of the Dye-La Croix model fails: That the sale of surveyed lands will take place within limited boundaries of settlement.[27] That prediction is, however, dependent on the model's assumptions that land quality is homogenous and its value falls as its distance from the colony's city and port increases. If, however, there are distant pockets of valuable land, then there could be gains to private parties from delineating land rights in compact areas far from the central city. The dilemma inherent in the SA system is that the type of property rights delineated—fee simple with third-party enforcement—necessarily triggers one-time-only surveying expenditures and ongoing police expenditures by the colonial government. This raises a critical question: Does this decentralized mechanism of property rights delineation generate any incentives for private parties to account for the cost to the government of providing third-party enforcement and initial surveying?[28] Several solutions are possible. First, the government could have calculated *ex ante* that a few distant settlements might not be

[27] Given the enormous size of the colony within its official boundaries—984,377 square miles overall and 18,147 square miles in the south east, it makes little sense to say that the colony boundaries constituted the limits of settlement.

[28] Systems of copyrights, trademarks, and patents have a structure similar to the SA special surveys: The government specifies the type of property right and individuals choose whether to delineate intellectual property rights in their inventions, marks, and creative works.

worth the cost of protection but net gains from a decentralized system would be bigger than net gains from a centralized system. In this case, third-party protection will be provided to distant settlements even when such protection clearly fails a stand-alone cost-benefit test. Second, private parties may rationally expect less third-party enforcement than is officially promised the further away from Adelaide they are. In this case, a selection mechanism operates, with private parties who select distant lands having the capabilities of providing effective first- and second-party enforcement to complement the weaker third-party enforcement provided by the state.[29] Finally, special surveys might have been just another institutional experiment gone awry. Revenues from the sale of special survey tracts allowed thousands of assisted emigrants to travel to SA in 1839 and 1840. Providing relief to emigrants unable to find employment overburdened the government in 1840-1841 and was one of several factors triggering the colony's financial crisis. The Colonization Commission's decision in November 1840 to suspend the surveys might just be characterized as the timely end to an institution with costly unintended consequences.[30]

C. Costly Consequences of SA Special Surveys

Governor Gawler took office on October 17, 1838 and signalled that the Land Office would accept applications for special surveys. The twenty-eight special surveys authorized between January 15 and August 30, 1839 directly triggered additional government expenditures for land surveying and police. Table 5 presents quarterly data from official reports of government expenditures from October 1839 to 1842 as well as extrapolated annual estimates for 1839, 1840, and 1841. Our estimated expenditures on surveying for 1839, 1840 and the first half of 1841 amount to £89,362.[31] This includes surveying expenditures for special survey areas as well as six of the PLO (A-F) districts. (See Figure 3.) Estimated expenditures on police, who primarily served in a military capacity in outlying areas, amounted to £39,972 for 1839, 1840 and the first half of 1841.

Expenditures on supporting newly arrived emigrants were indirectly triggered by the special surveys, as revenue from their sales refreshed the emigration fund and allowed 4,000-

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[29] Anderson and Hill's (1990) classic article on frontier property rights argues that open-access homesteading dissipates rents via a race to claim high-quality lands. Hansen and Libecap (2002) present (limited) evidence that when Montana lands were opened for homesteading, dissipation of rents was limited due to self-selection of settlers on the basis of previous farming experience. We note that while there was a race in SA to claim special survey tracts, dissipation was limited by the use of land sales to make claims, the absence of a beneficial use provision in the delineation of property rights, and by self-selection of applicants capable of providing sufficient first- and second-party protection.

[30] Three special surveys were conducted between 1843 and 1846 to claim rights to land showing signs of copper deposits.

[31] Accounts from 1837, 1838, and the first three quarters of 1839 were never produced. This is usually blamed on the incompetence and disorganization of the Colonial Treasurer, Osmond Gilles.

5,000 thousand additional emgrants to receive assisted passage to SA in 1839 and 1840. Estimates of relief expenditures were only separately broken out by the colonial government in its official accounts from the second quarter of 1841. If we add, say, half of the expenditures on public works (which employed newly arrived emigrants as a form of relief) to explicitly-designated expenditures on emigration relief, then relief expenditures amount to £61,387 over the 1839-1841 period. Our rough estimates of total expenditure on police, surveying, and emigrant relief amount to £190,721.

Table 5 shows that total revenues from taxes and fees for 1839-1841 amounted to just £91,263. The choices facing Governor Gawler in late 1838 were stark: the colony's planners had not thought a police force would be necessary and had never considered the possibility of surveying hundreds of thousands of acres of land during the colony's first five years. The government's revenues from taxes and fees were very small, and there were few revenue sources to draw on to finance additional expenditures. Gawler addressed this issue by using his emergency powers to issue bills against the British Treasury and Colonial Commission to pay for more police, surveyors, and relief measures.

Price (1927:195) estimated that overall colonial expenditures from January 1839 to June 1841 "amounted to £335,505, an excess of £269,537 over the Colonial revenue." Both Pike and Price provide evidence that Governor Gawler made a calculated decision to exceed vastly his borrowing authority to make up for delayed surveying and provide promised police, surveying, and relief services to settlers. In June 1840 Gawler wrote to the colonial secretary that:

> I considered it emergency when the survey department could not keep pace with the demand; when the police force was not sufficient to suppress bushrangers and other lawless characters, to control the natives, and to check contraband trade; emergency, when public officers of value were leaving their situations on account of the insufficiency of their salaries, or were trading and really plundering the Government on what they called authorized principle; emergency, when the survey and land offices being burnt down, there was not a public office belonging to the Government in Adelaide, and none of reasonable permanent suitableness to be hired; . . . These, in addition to immigrant sickness and destitution, are the great and leading objects which have been to my fullest conviction emergencies, and which have absorbed the greater part of the extraordinary expenditure (quoted in Hodder, 2013).

The financial difficulties of the colony were partly due to the ideology surrounding its foundation that it would be self-supporting, a notion that Governor Gawler heartily supported as he embarked for the colony (Pike, 1967:176). The other Australian colonies had required large subsidies after their founding (in part in New South Wales to support its gaols) and Colonial Office opposition in the early 1830s to the creation of the SA colony had multiple roots, including worries about the colony potentially requiring large subsidies from Britain.[32] By 1841, the colonial finances were in such a pitiable state the British parliament formed a Select Committee to inquire into the extent of the financial crisis. Part of the investigation was devoted to understanding how and why the so-called 'self-supporting' system had failed. During questioning by the Committee, the chair of the Colonial Land and Emigration Commission, Robert Torrens, doggedly maintained that up until January 1, 1841, the colony had been self-supporting (British Parliamentary Papers, 1841b:16). Rowland Hill's evidence employed a similar argument. Perhaps their reasoning was that, prior to the crisis, the Colonization Commissioners did not have to call on the British Treasury for funds. But, when considered alongside the fact that by 1841 public debt was £305,328, any claim SA was self-supporting was tenuous at best and a delusion at worst. The outcome of Select Committee in 1842 was the advancement of £155,000 to save the colony from certain bankruptcy.

In retrospect the subsidies involved were quite large given initial expectations about the colony's finances but relatively small from the perspective of overall expenditures by the British government. Just before his departure from SA, Governor Gawler estimated the British government had spent £200,000 on Swan River since its foundation in 1827 (Gawler on 22 April 1841 as quoted in Booth, 2004:102). Swan River had just 5,586 people in 1850, whereas SA had 15,486 people in 1841 and 63,700 in 1850. Thus, per capita public debt in the Swan River colony (using the 1850 population and 1840 debt) was £35.8, whereas per capita debt in the SA colony amounted to just £19.7 in 1841. Moreover, the debt incurred during the SA founding was not large relative to Britain's national debt, adding just .04 percent to the 1840 debt of £788 million.

VI. Conclusion: A barrage of positive shocks

Less than six years after the SA colony was established in December 1836, a series of positive shocks floated the colony towards a robust prosperity. First, the early 1840s global depression that had reduced the price of wool by more than 50 percent and trimmed capital flows to SA came to an end in Australia from 1845. As the price of wool rose, capital flows to SA increased and more land was opened for grazing by cattle and sheep. Second, increases in land employed for pastoral and arable uses in SA induced an increase in land sales and demand for labor. Revenue from land sales refreshed the Emigration Fund and allowed large-scale assisted migration from Britain to resume in 1846. Third, British tariff laws applicable to SA corn exports were phased out over the 1846-1849 period. But, from June 1851 SA corn exports to Britain were quickly diverted to Victoria due to the soaring demand from gold miners flooding into that colony.

These developments were overshadowed by the discovery of copper in 1841, the opening of two large copper mines in Kapunda (1844) and Burra (1845), and the swift expansion of the industry through 1850. Speculators used four special surveys, each consisting

[32] James Stephen, Memorandum on the Draft Charter of the South Australian Land Company, 14 July 1832, Colonial Office Papers 13/1. See also Pike (1967:61-63).

of 20,000 acres, to purchase lands suspected of holding copper deposits outside of the proclaimed copper districts and tenders to purchase 80-acre tracts of land inside the settlement districts. The system already in place in Britain to encourage migration to SA facilitated the migration of entire towns of skilled miners from Cornwall to SA. Experienced miners quickly exploited the rich copper deposits and by 1850, SA was producing and exporting roughly 10 percent of the world's supply of copper.

A snapshot of SA at the end of 1850, just a few months before the discovery of gold in next-door Victoria, reveals a colony fully recovered from the array of problems produced by the initial experiment (1836-1838) with a split executive and slow land surveys (1836-1840). Many aspects of the colony's land policies had proven beneficial for its residents. Special surveys had allowed property rights in valuable pastoral lands to be established, sped the development of the copper industry, and subsidized travel to SA for more than 10,000 emigrants. Grazing licenses on crown waste lands had both quickened the development of SA's pastoral industry and effectively dealt with competition for distant lands by squatters.

Despite the good outcomes from SA land institutions, it is notable that they were neither the product of explicit design nor the result of Hayekian experimentation. Rather, they were the result of a deal struck with the SA Company when the Colonization Commissioners could not generate the requisite £35,000 in land sales to start the colony. There was no reason why a deal struck to satisfy a large corporate investor would necessarily increase the colony's overall welfare. In fact, Douglass Pike (1967) called the deal "a land job", a devise to feed land cheaply to rich investors to the detriment of the colony. Edward Gibbon Wakefield labeled the SA land institutions that emerged in 1835 as an experiment that "must … fail." Why then did the experiment succeed so well? One reason is that the central Wakefieldian element in the institutions, using the revenues from land sales to subsidize emigration, worked splendidly and helped to remedy traditional colonial imbalances in land-labor ratios. Another reason is that the Wakefieldian virtue of population concentration may have been oversold. The fifty percent reduction in the price of land from the Wakefieldian ideal of £2 surely allowed more of the colony's valuable lands to be quickly brought into production. All things considered, the good institutions that evolved in South Australia may have been as much the result of luck than the hubristic design of a nineteenth-century visionary intent on implementing institutions unsuited for the colony.

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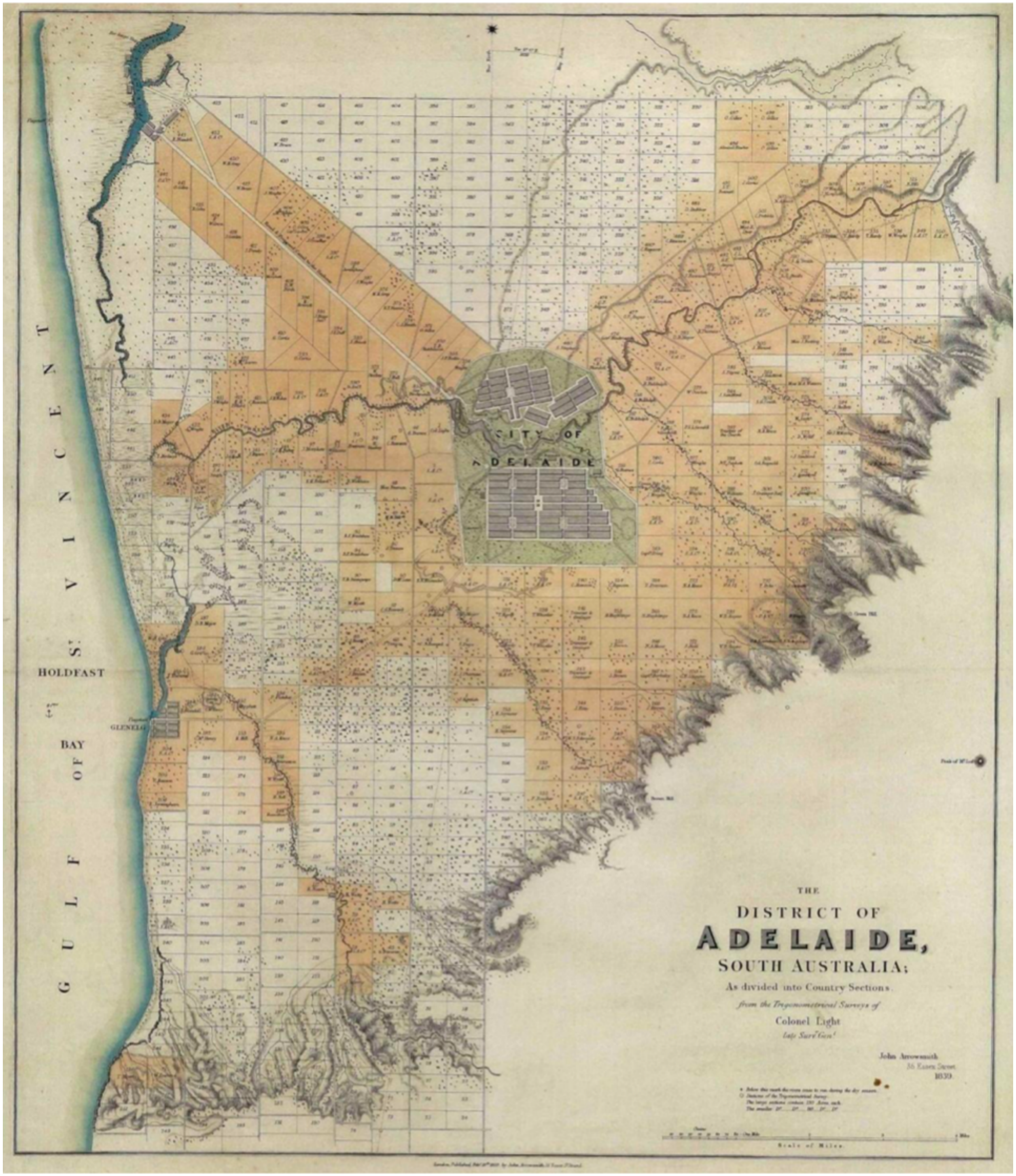
Figure 1: Southeastern Region of SA Colony

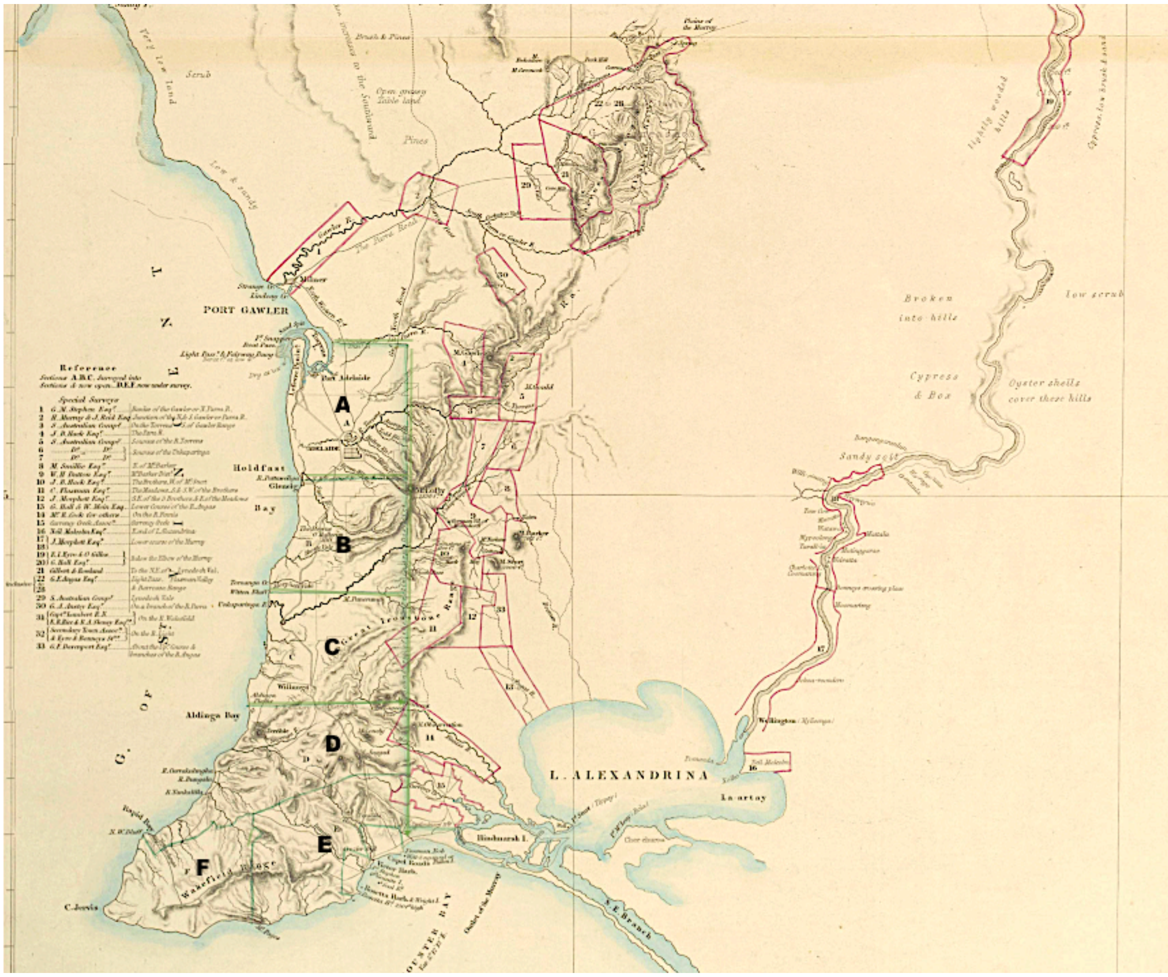
Source: Google Earth, sourced on December 2, 2018.

Figure 2: Country lands in Districts A and B: Selections as of June 1838.



Note: The darker orange colored squares are country sections chosen by PLO holders
Source: Arrowsmith (1839); digitized version taken from National Library of Australia at http://nla.gov.au/nla.obj-231421265/.

Figure 3: Special Survey and Preliminary District Locations



Note: Special survey areas demarcated with red outline and preliminary order districts demarcated with green outline.
Source: Arrowsmith (1841). Digitized version taken from National Library of Australia at http://nla.gov.au/nla.obj-231888370.

Table 1: Emigrants to South Australia, 1836 - August 1840

		Emigrants of the Laboring Class				Emigrants of a Superior Class			
	No. of	Adults		Children		Adults		All	Total
Year	Ships	Males	Females	Males	Females	Males	Females	Children	Emigrants
1836	14	433	201	90	89	78	41	9	941
1837	10	383	349	216	150	88	38	55	1,279
1838	30	900	837	488	472	258	98	101	3,154
1839	37	1,440	1,378	947	825	373	161	196	5,320
1840 to August	19	786	783	739	702	98	25	15	3,148
Total	110	3,942	3,548	2,480	2,238	895	363	376	13,842

Source: British Parliamentary Papers (1843:312).

Table 2: SA acres by crop, 1837-1842

	1837	1838	1839	1840	1841	1842
Wheat	0	20	120	1,059	4,154	14,009
Barley	0	1	28	388	897	2,691
Oats	0	5	30	424	501	700
Maize	0.25	10	60	192	714	850
Potatoes	1.5	20	75	440	456	690
Crops Not Specified	0	0	70	na	na	na
Gardens	6	25	60	na	na	na
Total	7.75	86	443	2,693	6,722	18,940

Source: Data for 1837-1839 are from *British Parliamentary Papers* (1843:320). Data for 1837 and 1838 are not official returns. Data for 1840-1842 are from *British Parliamentary Papers* (1844:21).

Table 3: Survey and Selection of District and Special Survey Lands as of November 30, 1840

A. District Survey and Selection

District	Acres Surveyed	Acres Selected
A	55,248	48,048
B	56,898	23,840
C	48,400	16,400
D	44,880	2,720
E	31,680	8,000
F	6,080	2,640
Total	243,186	101,648
Total without Districts A	187,938	53,600
Total without Districts A and B	131,040	29,760

B. Special Surveys and Selection

Special Surveys	Acres Surveyed	Acres Selected
	185,887	52,440

Source: British Parliamentary Papers (1841c:321), Enclosure 4.

Table 4: Special Survey, 1838-1840

No.	Day	Month	Year	Acres	Name of Purchaser
1	11	1	1839	4000	William Hampden Dutton of Adelaide, Esq
2	14	1	1839	4000	South Australian Company
3	14	1	1839	4000	South Australian Company
4	16	1	1839	4000	John Barton Hack, Esq.
5	23	1	1839	4000	John Barton Hack, Esq.
6	24	1	1839	4000	Matthew Smillie, Esq.
7	31	1	1839	4000	Charles Flaxman
8	31	1	1839	4000	Henry Dundas Murray and John Reid, Esqs.
9	20	2	1839	4000	Hon. G.M. Stephen
10	27	2	1839	4000	Charles Smith and Henry Hawson, Esqs.
11	2	3	1839	4000	South Australian Company
12	26	4	1839	8000	Charles Flaxman, Esq.
13	4	5	1839	8000	Charles Flaxman, Esq.
14	3	5	1839	12000	David McLaren, Esq. for SA Company
15	10	5	1839	4000	John Barton Hack, Esq. and John Russell, Esq.
16	13	5	1839	4000	John Morphett, Esq.
17	13	5	1839	4000	John Morphett, Esq.
18	15	5	1839	4000	George Hall and William Mein, Esqs.
19	20	5	1839	4000	Charles Flaxman, Esq.
20	20	5	1839	4000	Charles Flaxman, Esq.
21	23	5	1839	4000	George Hall, Esq
22	7	6	1839	4000	John Barton Hack, Esq. and John Russell, Esq.
23	8	7	1839	4000	John Morphett, Esq.
24	10	7	1839	4000	Edward John Eyre and Osmond Gilles, Esqs.
25	17	7	1839	4000	Edward Roland and Joseph Gilbert, Esqs.
26	20	7	1839	4000	South Australian Company
27	22	8	1839	4000	Mr. Robert Cock
28	30	8	1839	4000	Neil Malcolm, Esq.

Three other purchases of extra quantities of land, in certain special surveys, already purchased

1	19	7	1839	**1000**	David McLaren Esq for S. Aus. Co.
2	19	7	1839	**1000**	David McLaren Esq for S. Aus. Co.
3	20	7	1839	**500**	John Morphett, Esq.

Source: British Parliamentary Papers (1840:32-33).

Table 5: South Australia Government Expenditures and Revenues

	Revenues	Expenditures	Bills Drawn	Emigrants, Emmig. Board	Public Projects	Surveying	Police
1839							
1839 estimate	22,780	137,168	44,633	6,048	31,516	39,796	15,736
Oct. 1, 1839 - Dec. 31, 1839	5,695	34,292	15,020	1,512	7,879	9,949	3,934
1840							
1840 estimate	36,515	146,826	123,176	3,090	38,221	22,256	18,685
Jan. 1, 1840 - March 31, 1840	10,610	30,114	34,659	762	5,805	4,546	5,057
April 1, 1840 - June 30, 1840	8,143	36,893	34,813	677	6,850	5,878	4,825
July 1, 1840 - Sept. 30, 1840	8,634	43,140	30,693	879	16,011	6,268	4,132
1841							
1841 estimate	31,968	70,426	na	15,040	4,677	21,095	9,056
April 1, 1841 - June 30, 1841	11,842	20,986	15,162	1,558	2,091	13,655	2,276
July 1, 1841 - Sept. 30, 1841	6,766	16,243	8,618	3,904	1,186	1,417	2,342
Oct. 1, 1841- Dec. 31, 1841	5,374	15,604	5,755	5,818	231	750	2,175
1842							
1842 Estimate	49,974	57,204	22,631	16,335	0	3,579	8,503
Jan. 1, 1842 - Sept. 30, 1842	37,490	42,914	na	12,251	0	2,684	6,377
Oct. 1, 1841 - Sept. 30, 1842	42,864	58,518	na	18,070	0	3,435	8,552

Source: Data for Oct. 1, 1839-Dec. 31, 1839 are from the British Parliamentary Papers (1841c:Appendix, 99-101). Data for 1840-1841 are from British Parliamentary Papers (1843:17-18, 108-115, 149-150). Data for Jan. 1 – Sept. 30, 1842 are derived from data in British Parliamentary Papers (1843:149-150, 221-222) and British Parliamentary Papers (1844:16-18).