Dutch investors and the drainage of Hatfield Chase, 1626 to 1656*

by Piet van Cruyningen

Abstract

This article tries to disentangle the financial consequences of the drainage of Hatfield Chase by Sir Cornelius Vermuyden and a group of Dutch investors. Recently discovered documents in the Noord-Holland Archives at Haarlem throw a new light on this enterprise. They show that losses incurred by the investors were not just caused by the actions of disgruntled commoners, but also by Vermuyden's chaotic financial management. These losses may have been more limited than has commonly been assumed in the past, because the costs of drainage were relatively low compared with projects in the Netherlands. It is argued that only those investors who had not sold their land before the outbreak of the Civil War incurred heavy losses.

'Only optimists dare to invest in land reclamation' was the conclusion of the Dutch engineer Jacobus Korthals Altes in 1925 after he had studied several seventeenth-century drainage projects.[1] But in the early seventeenth-century Dutch Republic the mood was optimistic. Trade and shipping were booming and entrepreneurs were desperately looking for investment opportunities, and compared with alternatives like tulip bulbs or privateering, participation in land reclamation must have seemed a safe investment. What is more, investors in marshland reclamation in the south west of the Republic had made handsome profits in the 1610s and the drainage of Lake Beemster in North Holland (1607–12) was judged to be a financial success.[2] Hence it seemed a good idea to continue to invest in drainage projects. After 1620, however, opportunities to do this within the Dutch Republic decreased, especially since the lucrative marshland reclamation in the south west came to a standstill because of the resumption of war with the Habsburgs in 1621. Dutch entrepreneurs started looking for investment opportunities abroad, for example in France and Germany.[3]

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[1] J. Korthals Altes, 'De eerste bedijking der Groote en Kleine Moeren in West-Vlaanderen', *Annales de la Société d'Emulation de Bruges* 68 (1925), p. 190.

[2] P. van Cruyningen, 'Profits and risks in drainage projects in Staats-Vlaanderen, *c.*1590–1665', in *Jaarboek voor Ecologische Geschiedenis 2005/2006* (2006), pp. 133–4; H. van Zwet, *Lofwaerdighe dijckagies en miserabele polders: een financiële analyse van landaanwinningsprojecten in Hollands Noorderkwartier, 1597–1643* (2009), p. 401.

[3] R. Morera, *L'assèchement des marais en France au XVIIe siècle* (2011), pp. 73, 114–22; O. S. Knottnerus, 'Culture and society in the Frisian and German North Sea coastal marshes', in S. Ciriacono (ed.), *Eau et développement dans l'Europe moderne* (2004), pp. 148–9.

Another opportunity was offered by the vast fenlands of Cambridgeshire, Lincolnshire and Yorkshire, and the levels in Somerset. Plans to drain these potentially fertile areas had already been mooted in the sixteenth century, but due to lack of capital, resistance from the local population and often unrealistic expectations, little had come of them.[4] By the 1620s, however, the time had come to launch a serious attack on these 'wastes'. On the one hand the English Crown, the most important landlord in these areas, was desperate for money and saw improvement of its fenland possessions as a means to raise income, and on the other hand the Dutch were looking for investment opportunities.[5] The young Dutch engineer Cornelius Vermuyden had already migrated to England in 1621, hoping to get the opportunity to reclaim parts of these wetlands.[6] In 1626 he got his first chance, when Charles I granted him the right to reclaim some 70,000 acres of wetlands in Hatfield Chase on the border of Yorkshire and Lincolnshire.[7] Dutch engineering and Dutch capital were supposed to change the fens of Hatfield Chase into fertile fields and generate handsome profits to Vermuyden and the investors. The outcome was less than satisfactory.

The problems encountered by the Hatfield Chase project were partly caused by conflicts with the commoners of the surrounding manors who lost large parts of their grazing rights and saw their pastoral economy endangered.[8] Previous writing on the drainage projects in Hatfield Chase and the Great Level of the fens has strongly concentrated on the conflicts between drainers and the commoners who tried to defend their rights through litigation and riots.[9] Much less attention has been paid to the financial aspects of these projects.[10] This is no doubt partly caused by the fact that there are few sources that provide insight into the way these enterprises were financed and even fewer that permit profits and losses to be gauged. In this respect Hatfield Chase is an exception. In the 1920s Vermuyden's first biographer Korthals Altes had already discovered a collection of documents on the draining of Hatfield Chase in Leiden University Library, which he transcribed and published in the Dutch edition of his biography.[11] These are mostly letters from participants in the drainage of the level, but they also contain some financial information. Much more on the financial aspects of the project is

[4] H. C. Darby, *The draining of the Fens* (sec. edn, 1956), pp. 18–22, 28–38; R. W. Hoyle, 'Introduction: custom, improvement and anti-improvement', in R. W. Hoyle (ed.), *Custom, improvement and the landscape in early modern Britain* (2011), p. 18.

[5] R. W. Hoyle, 'Disafforestation and drainage: the Crown as entrepreneur?', in R. W. Hoyle (ed.), *The estates of the English Crown, 1558–1640* (1992), p. 367.

[6] L. E. Harris, *Vermuyden and the Fens: a study of Sir Cornelius Vermuyden and the Great Level* (1953), p. 33.

[7] J. Korthals Altes, *Sir Cornelius Vermuyden. The lifework of a great Anglo-Dutchman in land-reclamation and drainage* (1925), App. II.

[8] J. Thirsk, 'The Isle of Axholme before Vermuyden', *AgHR* 1 (1953), pp. 16–28.

[9] K. Lindley, *Fenland riots and the English revolution* (1982); C. Holmes, 'Drainers and fenmen; the problem of popular consciousness in the seventeenth century', in A. Fletcher and J. Stevenson (eds), *Order and disorder in early modern England* (1985), pp. 166–95; H. Falvey, 'Custom, resistance and politics: local experiences of improvement in early modern England' (unpub. Ph.D thesis, University of Warwick, 2007); J. Bowring, 'Between the Corporation and Captain Flood: the fens and drainage after 1663', in Hoyle (ed.), *Custom, improvement and the landscape*, pp. 235–61.

[10] An exception is M. Albright, 'The entrepreneurs of fen draining in England under James I and Charles I: an illustration of the uses of influence', *Explorations in Entrepreneurial History* 8 (1955), pp. 51–65.

[11] J. Korthals Altes, *Polderland in Engeland. De geschiedenis van een Zeeuwsch bedijker uit de Gouden Eeuw en zijn grootsche Hollandsch-Engelsche onderneming* (1924), pp. 96–116.

to be found in the archives of the Van Valkenburg family, now in the Noord-Holland Archives at Haarlem.[12] These documents have never been used to study the drainage of Hatfield Chase. Most of them were written or collected by Marcus van Valkenburg, one of the investors in the drainage of Hatfield Chase, in the course of several lawsuits in which he was involved during the 1630s and 1640s. There are dozens of letters to and from his lawyers, but more interesting are the documents he collected to substantiate his claims against Vermuyden and others. Apart from two letters by Vermuyden himself, these are mostly contracts between Vermuyden and the investors, contracts between the investors themselves, estimations of costs and excerpts of account books of some of the investors. The documents in Leiden and Haarlem cover the years 1626–56, so this paper will mainly focus on that period.

'Everything to do with Vermuyden's business affairs is obscure' Hoyle wrote more than two decades ago.[13] This paper aims to bring some enlightenment by analyzing the Leiden and Haarlem documents. It will especially focus on the relationship between Vermuyden and his Dutch backers, the way in which the project was financed and the outcome for Vermuyden and the investors. The conflicts with the commoners will only be treated in as far as they are relevant in this context.[14] The Dutch documents contain very little information about them. Complete clarity will not be achieved, because Vermuyden's business affairs were confused and because there is also considerable uncertainty about this controversial man, who was either uncritically admired or intensely hated and gave rise to 'far-fetched imaginative stories', as his biographer Harris said.[15] So it is useful to first provide some background information on 'that monster of a man'.[16]

I

Cornelius Vermuyden (1590–1677) – from 1629, Sir Cornelius – was born in the small town of Sint-Maartensdijk on the island of Tholen (Map 1). The south-western part of the Netherlands, where this island is situated, is the estuary of the rivers Rhine, Meuse and Scheldt. The islands in the estuary profited from sedimentation, which offered opportunities to embank fertile marshes, but also suffered from erosion and catastrophic floods, especially in the sixteenth century. From the late Middle Ages a group of 'professionals' emerged, individuals who possessed the technical knowledge to embank marshes and to deal with dike erosion and the consequences of floods. These 'engineers' did not receive much formal schooling; they were mostly trained on the job. An impressive amount of knowledge about hydraulic engineering was handed down from generation to generation. Men like Cornelius Werckendet (*c*.1520–75) from Zierikzee and Andries Vierlingh (*c*.1507–79) from Steenbergen became famous authorities and their advice on drainage issues was sought throughout the Low Countries. The Werckendet and Indervelde families even developed into dynasties of drainage experts. These men were more than just engineers. The basis of their expertise was surveying and several of them were

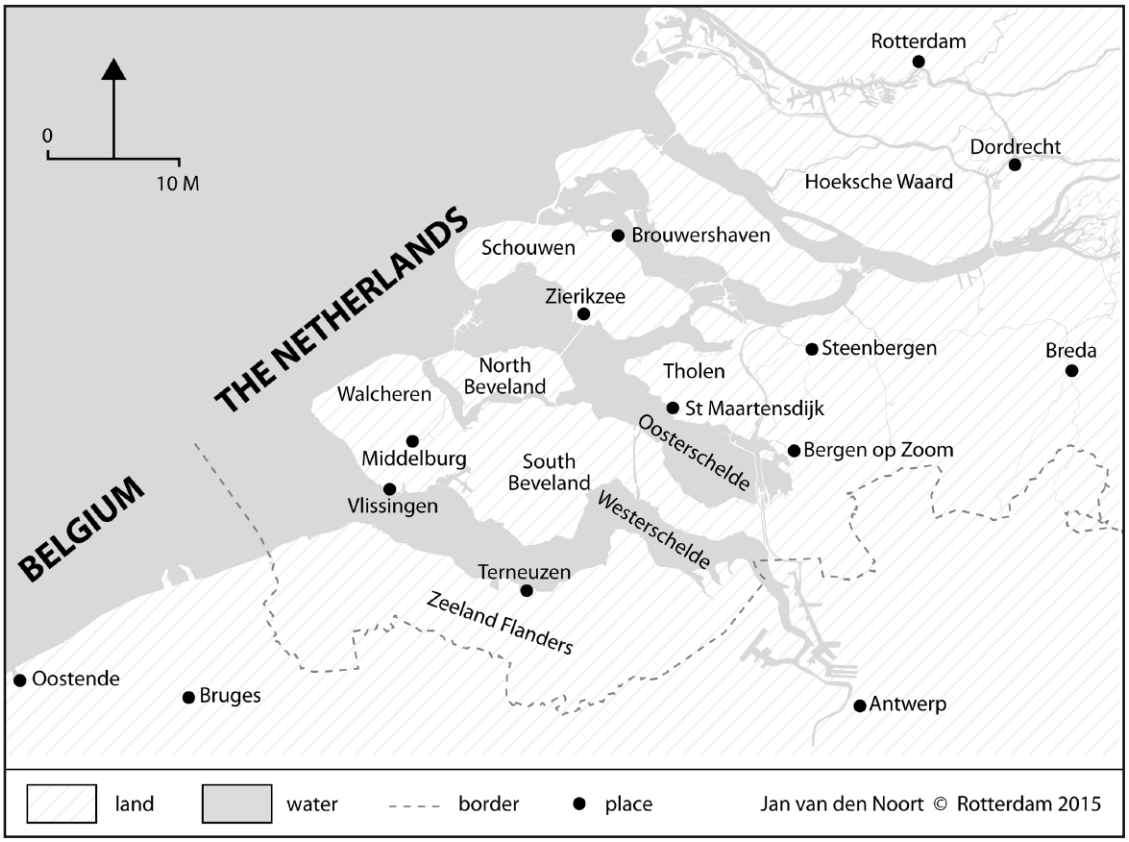
[12] Noord-Hollands Archief, Haarlem (NHA), Van Valkenburg Family (VVF), 943–977.

[13] Hoyle, 'Disafforestation and drainage', p. 382.

[14] For an extensive account see Lindley, *Fenland riots*, pp. 23–33, 71–83, 137, 140–42, 146–57, 188–222, 233–52.

[15] Harris, *Vermuyden and the Fens*, p. 147.

[16] Contemporary quoted in Holmes, 'Drainers and fenmen', p. 187.



MAP 1: The south west of the Netherlands indicating Vermuyden's birthplace and other places mentioned in the text

accomplished cartographers. They also had agricultural expertise and knew how to manage estates. Vierlingh, for example, was for many years the estate steward of the prince of Orange.[17]

Vermuyden's father, Gillis, who died when Cornelius was only eight years old, was a yeoman farmer and alderman of Sint-Maartensdijk. As far as we know, he was never involved in drainage affairs. Grandfather Bartel Vermuyden, however, was bookkeeper of the company that re-embanked the island of Noord-Beveland in 1598. The fact that he participated in this large-scale project and was even member of the board of the company shows he was both wealthy and possessed expertise in drainage.[18] Bartel Vermuyden died in 1609, so Cornelius may have received some training from his grandfather. More interesting, however, are Vermuyden's maternal relatives. His mother was Sara Werckendet, a daughter of the famous expert Cornelius Werckendet. His uncle Lieven Werckendet was also a famous drainage expert

[17] J. Renes, 'Water management and cultural landscapes in the Netherlands', in H. S. Danner *et al.* (eds), *Polder pioneers. The influence of Dutch engineers on water management in Europe, 1600–2000* (2005), pp. 13–32; G. P. van de Ven (ed.), *Man-made lowlands. History of water management and land reclamation in the Netherlands* (2004), p. 132.

[18] J. B. V. Welten, *Droogleggers aan de Oosterschelde. Bewint der dijckagie, 1594–1610* (1993), pp. 23–4, 58; *Genealogie Vermue* (s.l., 1996), p. 5.

and his uncle Marinus was dike reeve of Noord-Beveland. Moreover, his cousin Johan Liens, son of Philippina Werckendet, was also an expert in this field. As a member of the famous Werckendet dynasty, it is not surprising young Cornelius Vermuyden became an engineer too.[19]

During the Twelve Years Truce between the Dutch Republic and Spain (1609–21), Vermuyden had ample opportunities to learn his trade because in those years more than 20,000 hectares of marshland were drained in the south-western Netherlands. In 1614, his cousin Johan Liens was in charge of the draining of a large polder in present-day Zeeland Flanders.[20] It is very well possible that young Cornelius assisted him since young engineers were often trained on the job by older relatives. In England Liens and Vermuyden cooperated too, although the hierarchical relation was changed: Liens became Vermuyden's faithful lieutenant. When war was resumed in 1621, drainage activities in the south west collapsed and Vermuyden had to look for other work. In that year he worked as tax collector on his native island of Tholen.[21] Later that year he moved to England and Harris supposes that his cousin Joachim Liens, who was then Dutch ambassador to the court of St James's, introduced him to James I.[22] That Vermuyden had access to court and received royal protection is evidenced by the fact that James I granted him the drainage of Windsor Park in 1623.[23] The Liens and Werckendet families were not only important for Vermuyden because they passed their knowledge of hydraulic engineering on to him. Since they belonged to the elite of *regenten* – office holders in the main cities and in the provincial and federal government – they could also support his career. His paternal family, although wealthy, did not belong to that elite.

Shortly after his arrival in England, Vermuyden was entrusted with the reconstruction of a breached embankment along the Thames near Dagenham. There were complaints about the quality of the work he performed there, but in 1625 the Crown granted him land at Dagenham as recompense for this work.[24] In 1622 he seems to have formed a partnership with Joos Croppenburg, a Dutch merchant living in London. Together they embanked some 500 acres of flooded marshes near Erith in Kent.[25] In the same year Croppenburg contracted with Sir Henry Appleton to provide Canvey Island in the Thames estuary in Essex with seawalls.[26] It has long been disputed whether Vermuyden was involved in this project, but there is now documentary evidence that Vermuyden and Croppenburg together embanked Canvey Island.[27] On Canvey Island Vermuyden was only the director of works; Croppenburg was the entrepreneur who contracted with Appleton. Late in 1623 the drainers received their reward in the form of one third of the land on the island, and around that time Vermuyden married Croppenburg's stepdaughter. He was to become (in)famous by his involvement in the draining of Hatfield Chase from 1626 and of the Great Level of the Fens from 1639, and attempts to drain King's Sedgemoor in Somerset, which earned him the reputation of being both a ruthless entrepreneur and an incompetent engineer.

[19] *Genealogie Vermue*, p. 5; Welten, *Droogleggers*, pp. 69–71, 75–6.

[20] P. van Cruyningen, 'Bedijkingen in het Deltagebied tussen 1540 en 1700', *Historisch-Geografisch Tijdschrift* 32 (2014), pp. 29–38; M. de Vleesschauwer, *Het Vrije van Sluis. Polders en waterschappen in West-Zeeuws-Vlaanderen, 1600–1999* (2013), p. 77.

[21] *Genealogie Vermue*, p. 9.

[22] Harris, *Vermuyden and the Fens*, pp. 26, 32.

[23] Ibid., p. 38.

[24] Ibid., pp. 37–8.

[25] Ibid., p. 39.

[26] B. Cracknell, *Canvey Island: the history of a marshland community* (1959), pp. 20–1.

Vermuyden deserved his reputation for ruthlessness; even his biographer and admirer Harris was aware of this dark aspect of his hero and described him as 'a man who knew what he wanted, and was prepared to sacrifice anything, except his own interests, to get it'.[28] The interests of commoners, local landlords, business partners, friends, all were sacrificed on the altar of Vermuyden's self-interest. His reputation for bad engineering was not deserved and can be mostly attributed to the pernicious influence of Samuel Wells, the nineteenth-century historiographer of the Bedford Level, a man with a lively imagination and a deep dislike of all foreigners, including the Scots.[29] It is not surprising that the foreigner Vermuyden became the bad guy in Wells's story: the 'fatal origin' of all the engineering errors made during the drainage of the Bedford Level.[30] Beginning with Darby in 1940 English scholars have refuted most of Wells's claims and it is now generally accepted that Vermuyden's plans, although far from flawless, were basically sound.[31] The most damning evidence against Wells's fantasies was provided by Margaret Albright Knittl, who showed that the initial design for the drainage of the Bedford Level was not Vermuyden's. In the early 1630s, when this design was made, Vermuyden was not even involved in the Bedford Level project.[32] He was not only competent, but also innovative, as is evidenced by the creation of 'washes' in both Hatfield Chase and the Fenlands. These were areas with lowered embankments where excess water could be stored when the water level of the rivers became too high. By flooding the washes inundation of more valuable land could be prevented.[33] In the lead mines of Wirksworth in Derbyshire, in which he had a share, Vermuyden constructed the first efficient drainage system which led to a considerable increase in productivity.[34] In spite of all this debunking, several of the products of Wells's imagination are still quoted as the truth about Vermuyden, as in a recent book about the fenlands of Yorkshire.[35] The myths that have formed around this controversial personality die hard.

According to Wells, Vermuyden was financially ruined when he died.[36] Harris proved Wells was wrong; in 1693 Cornelius Vermuyden jun. still owned King's Sedgemoor and the share in the lead mines of Wirksworth, which he had inherited from his father. The share in the lead mines alone was worth £5000, so Sir Cornelius certainly did not die a poor man.[37] Part of this prosperity was due to the Hatfield Chase project. In this project, Vermuyden introduced a

[27] In the Verney Archives at Claydon House in Buckinghamshire. I would like to thank the anonymous referee who provided this information.

[28] Harris, *Vermuyden and the Fens*, p. 57.

[29] S. Wells, *History of the drainage of the Great Level of the Fens called the Bedford Level* (2 vols, 1830): for examples, see I, pp. 87, 105–6.

[30] Ibid., I, p. 289.

[31] Darby, *Draining of the Fens*, pp. 257–8; Harris, *Vermuyden and the Fens*, pp. 123–8; M. Chisholm, 'Navigation and the seventeenth-century draining of the Fens', *J. Historical Geography* 32 (2006), pp. 731–51.

[32] M. Albright Knittl, 'The design for the initial drainage of the Great Level of the Fens: an historical whodunit in three parts', *AgHR* 55 (2007), pp. 23–50.

[33] Harris, *Vermuyden and the Fens*, pp. 45, 129–30.

[34] R. Slack, 'Case history: aspects of the late seventeenth century lead industry in Wirksworth, Derbyshire, revealed in the courts', *Mining History. The Bulletin of the Peak District Mines Historical Society* 13 (6) (1998), p. 7.

[35] I. D. Rotherham, *Yorkshire's forgotten fenlands* (2011), pp. 27, 102–10. This author even accepts the entirely fictitious story, invented by Wells, about Vermuyden being present at a hunt in Hatfield Chase with Prince Henry in 1609, which had already been debunked by Harris, cf. *Vermuyden and the Fens*, pp. 35–6.

[36] Wells, *Great Level*, p. 97.

[37] Harris, *Vermuyden and the Fens*, pp. 147, 150–1.

financial innovation. In the Netherlands large drainage schemes were financed by a company of investors. Sometimes the engineers in charge of such a company's project were granted a share of the land that was to be drained to recompense them, but normally they received a salary.[38] The engineer was always an employee of the drainage company. In Hatfield Chase, Vermuyden undertook to pay for drainage himself, financing this by selling land from his share in the Level to investors. The only other case in which something comparable happened, was the draining of the Groote and Kleine Moere on the Franco-Belgian border by Wenceslas Cobergher in the early 1620s. Cobergher, however, did this for only a small share (about one-seventh), not for the whole project as Vermuyden did.[39] This innovation turned out to be one of the main causes of the problems surrounding the draining of Hatfield Chase.

II

Hatfield Chase is a wetland area, mostly consisting of silt fens, near the confluence of the rivers Don, Torne, Idle, Aire, Went, Trent and Ouse (Map 2). Most settlements are situated on riverbanks or on 'isles' of pre-Holocene deposits, the most important of which is the north-south oriented ridge of the Isle of Axholme. In the Middle Ages part of the lower lying area was drained by Selby Abbey, but most of it was used as commons by the inhabitants of the adjacent villages.[40] The Crown owned the manor of Hatfield and most of the manors of the Isle of Axholme, so it could easily grant the drainage of the area to Vermuyden. He only had to drain the land; enclosure was left to the owners, after adjudication. He was to receive one third of the drained land as reward for his investment and the king was to receive another third, so the commoners stood to lose two thirds of their commons.[41] The General Drainage Act of 1600 required permission of the majority of those commoners and the contract of 1626 stipulated that the king was responsible for gaining their consent. Although royal commissioners appointed to this task did not manage to reach an agreement with the majority of the commoners, Vermuyden was permitted to start draining the Level in 1627.[42]

The failure to reach an agreement with the commoners resulted in costly litigation, obstruction and destruction of embankments. It should be stressed, however, that the western part of the Level was quite different from the eastern part. In the west, Hatfield Chase proper, commons were limited to rights of turbary (peat digging) and wood cutting. Moreover, this part of the Level was situated in Yorkshire, where the Council of the North had jurisdiction. This Council's president, Viscount Wentworth, did not follow the Crown's policy of blindly supporting drainage schemes. In 1630 he negotiated a compromise between the commoners and Vermuyden and his associates which was generous towards the commoners. Vermuyden was not pleased with this outcome, but the result was that the Hatfield part of the Level was pacified and would remain peaceful for the rest of the century. In the Isle of Axholme, the eastern part of the Level, the commons included extensive grazing rights, which were crucial

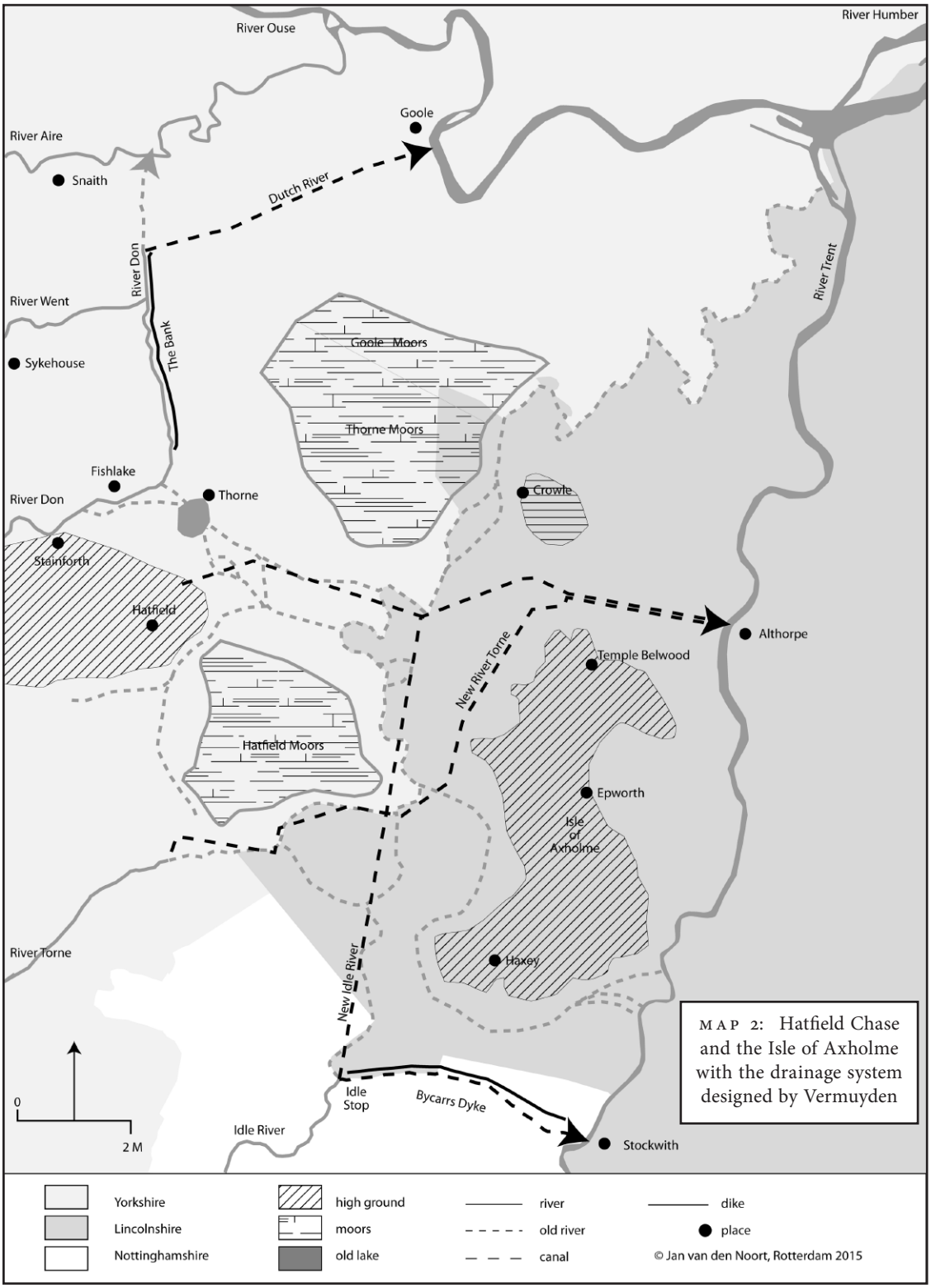
[38] Van Cruyningen, 'Profits and risks', pp. 130–2; Morera, *L'assèchement des marais en France*, pp. 99–100.

[39] Korthals Altes, 'Groote en Kleine Moeren', p. 163.

[40] R. Van de Noort, *The Humber wetlands: the archaeology of a dynamic landscape* (2004), pp. 135, 139–40.

[41] Albright, 'Entrepreneurs of fen draining', p. 55.

[42] Harris, *Vermuyden and the Fens*, p. 50.



MAP 2: Hatfield Chase and the Isle of Axholme with the drainage system designed by Vermuyden

to the pastoral economy of the Isle. The commoners of Epworth, the most important manor on the Isle, were to lose 7400 of their 13,400 acres of commons. Moreover, an indenture of 1359 had guaranteed the commoners of Epworth that the lords of that manor would refrain from improving common land.[43] So it is not surprising that in this part of the Level resistance to drainage was both fiercer and more enduring.

Vermuyden clearly preferred not to negotiate but to rely on royal support. Since the king was in favour of improvement and Vermuyden had a powerful ally in the person of the Attorney General, Sir Robert Heath, he knew he could rely on that backing.[44] His attitude was less reckless than it might at first seem. After some initial unrest, the Level remained relatively calm during the 1630s. Some riots occurred, but the damage remained limited. Tenant farmers and some of the investors settled in the Level and brought the land into cultivation.[45] It was the outbreak of civil war and the collapse of royal power in 1642 that plunged the Level into chaos. As in the Bedford Level and elsewhere, the commoners realized that the investors could no longer rely on support by the Crown and they took the opportunity to take their revenge and regain their commons.[46] The area was flooded, houses and farmsteads were demolished and the damage was estimated at £20,000.[47] Until that year, it seemed Vermuyden had been right. Between *c.*1628 and 1642 the main problem was not the conflict with the commoners, but the lack of efficient organization of the project.

Vermuyden's ruthless attitude is exemplified by the way he concentrated the waters of the river Don, which hitherto had flowed in three channels, into one channel with an outfall into the river Aire. Because this channel and the river Aire now had to carry much more water, the risk of flooding increased. Vermuyden had foreseen this and a strong embankment was constructed on the Hatfield Chase side of the river. Since there was no strong dike on the other side of the river, this would inevitably result in flooding of the villages on that side.[48] As an experienced and competent engineer Vermuyden must have realized these villages were going to flood, but he did nothing to prevent this. Even Vermuyden's participants sympathized with the villagers who breached the new dike of Hatfield Chase and appealed to the Council of the North.[49] Again he seems to have counted on royal support to protect him from the consequences, but this time he was mistaken. In the case of the villagers of Fishlake, Sykehouse and Snaith against Vermuyden and the participants the Council of the North ruled in 1630 that Vermuyden had to cut a new outfall of the river Don towards the river Ouse. Eventually, the cost of digging this 'Dutch River' would amount to £20,000.[50] These extra costs threw the drainage consortium into financial chaos.

[43] Lindley, *Fenland riots*, pp. 24, 26; Korthals Altes, *Vermuyden*, pp. 109–11.

[44] Harris, *Vermuyden and the Fens*, p. 58; Hoyle, 'Introduction: custom, improvement and anti-improvement', pp. 21–4.

[45] Lindley, *Fenland riots*, pp. 76–9; H. S. van Lennep, *Van Valkenburg: een Haarlems regentengeslacht* (2000), p. 58.

[46] J. Thirsk, *English peasant farming: the agrarian history of Lincolnshire from Tudor to recent times* (sec. edn, 1981), p. 125; Albright Knittle, 'Initial design', p. 49.

[47] W. Dugdale, *The history of imbanking and draining of divers fens and marshes in foreign parts and this kingdom and of the improvements thereby* (sec. edn, 1772), pp. 145–6.

[48] Harris, *Vermuyden and the Fens*, pp. 49–50.

[49] NHA, VVF 974, plea of Lucas van Valkenburg c.s., 1642.

III

From the beginning it was clear that the capital to finance the project would have to be found among Dutch investors. On the same day Vermuyden signed the contract with Charles I to drain the area, 24 May 1626 (old style), he also received a passport to travel to the Netherlands to look for investors in the drainage scheme: people willing to purchase part of Vermuyden's share in the drained area. They had to be found among the economic and political elite of the Republic, to which he had access through the relatives of his mother. In 1628 he also purchased the king's share, which increased the total number of acres he could sell to 24,505.[51] Vermuyden was to pay for the construction of the main drainage works. After completion of those and the 'adjudication' of the land in the Level, it was intended that the buyers themselves would be responsible for the digging of ditches and construction of roads.[52] After adjudication, a Corporation was to be created that could raise rates for maintenance. Only those who had purchased land from Vermuyden were to pay for maintenance, but they were also granted the right to elect the members of the board of the Corporation, so they would have a say on the level of taxation and the way in which the money was spent.[53]

The investors could pay in installments, the full sum only being paid after adjudication of the land. What made Vermuyden's proposal even more attractive, was that the participants were only liable for the purchase sum of the land. Normally, a participant in a drainage company was liable for a proportionate share in the costs of the project. If for some reason the costs turned out much higher than expected, he or she had to pay proportionately more.[54] In this case, Vermuyden alone would be liable for any increase in expenditure.[55] Despite those attractive conditions, Vermuyden's trip to the Netherlands in 1626 was not a success. Only his cousin Johan Liens and Johan de Knuyt, deputy of Zeeland in the federal Chamber of Accounts, both bought at least one thousand acres.[56] He had more success in London, where he had access to the Dutch merchant community through his brother-in-law Jacob Struys. Several merchants of Dutch and Flemish descent were prepared to purchase land in the Level. Success could also be reported from Dordrecht, where Abraham Struys, merchant and mayor of that city, started selling land as an agent for Vermuyden. He was probably a relative of Jacob Struys. Before 1627, he managed to sell about 2500 acres.[57] This provided Vermuyden with enough money to start the drainage works in the spring of 1627.[58]

[50] Korthals Altes, *Vermuyden*, pp. 35; Harris, *Vermuyden and the Fens*, p. 53.

[51] NHA, VVF, 955, 30 Mar. 1630; 966, plea of Lucas van Valkenburg c.s., undated [*c.* 1635].

[52] NHA, VVF, 974, plea of Lucas van Valkenburg c.s., 1642. 'Adjudication' happened after the main works were completed. The reclaimed land was measured by a surveyor, who divided it into plots of comparable size and quality. The land was then 'adjudicated' to the investors according to the size of their share in the project. In the Low Countries this was often done by lottery. We do not know how it was done in Hatfield Chase.

[53] Korthals Altes, *Sir Cornelius Vermuyden*, app. II; Dugdale, *History*, p. 144.

[54] Van Cruyningen, 'Profits and risks', p. 132.

[55] NHA, VVF, 956, 7 Mar. 1628; VVF, 977, 'Memorie op den handel met Sr. Cornelis Vermuyden', defence of the behaviour of Jacob Cats, undated [*c.* 1630].

[56] NHA, VVF, 955, 1 June 1631.

[57] Ibid.

[58] Lindley, *Fenland riots*, p. 71. Because the area was flooded in autumn and winter, drainage could only take place in spring and summer. Since Vermuyden travelled to the Netherlands in June 1626, it is unlikely that much work was done in 1626.

TABLE 1: Residence and occupation of participants in the drainage of Hatfield Chase, 1626–1631

	Merchant	*Regent*	*Army officer*	*Professor*	*Unknown*	*Total*
London	9		2		2	13
Amsterdam	9				1	10
Dordrecht	2	5			3	10
Middelburg		2			1	3
The Hague		2				2
Haarlem	2					2
Leiden				1		1
Rotterdam	1					1
St Maartensdijk		1				1
Unknown					2	2
Total	23	10	2	1	9	45

Main sources: NHA, VVF, 955, 968; Korthals Altes, *Sir Cornelius Vermuyden*, pp. 65–6; Van Lennep, *Van Valkenburg*, pp. 157–9; W. J. C. Moens, *The marriage, baptismal and burial registers, 1571 to 1874, and monumental inscriptions of the Dutch Reformed Church, Austin Friars, London* (1884).

The amount of land sold until early 1627 was insufficient to pay for the cost of the whole scheme, which had been estimated at £30–40,000.[59] But in the summer and autumn of 1627 Vermuyden was lucky. Interest in his project was increasing, which caused the price of land he offered for sale to increase. The first plots had been sold for 20*s*. per acre, but in 1627 the price had increased to 80*s*. By the spring of 1628 it had slightly decreased to 70*s*. Even speculation occurred: in August 1627 Johan de Knuyt sold the land he had purchased the year before with a profit of 150 per cent.[60] Even more important was that the Dutch lawyer, statesman and poet Jacob Cats (1577–1660) was sent to London as an envoy of the Dutch Republic. Like Vermuyden, Cats was born in the northern part of Zeeland, in the town of Brouwershaven (Map 1), and it was widely known that he had become rich by investing in wetland reclamation in Zeeland Flanders. The two men met in the summer of 1627 and reached an agreement. This resulted in Cats purchasing no less than 9472 acres of land in Hatfield Chase.[61]

Jacob Cats bought this land with the intent of selling most of it to investors in the Netherlands. In fact, from the autumn of 1627 he acted as a kind of real estate agent for Vermuyden, like Abraham Struys had done earlier in Dordrecht. Cats was ideally placed to do this because of his marriage with Elisabeth van Valkenburg, member of a wealthy Amsterdam merchant family. He sold large tracts of land to his brothers-in-law Lucas, Marcus and Mattheüs van Valkenburg, Willem van Wely (married to Maria van Valkenburg) and Fabiaen de Vliet (married to Suzanna van Valkenburg). Except Fabiaen de Vliet, all were merchants and most of the others who bought from Cats were also prominent Amsterdam merchants. Cats did not

[59] Hoyle, 'Disafforestation and drainage', p. 382.

[60] NHA, VVF 956, contract of 7 Mar. 1628; Korthals Altes, *Polderland in Engeland*, p. 97.

[61] NHA, VVF 955, 1 June 1631; 968, plea of Vermuyden, 2 Apr. 1635.

offer his services for free; he charged three guilders per acre from the purchasers. Since he managed to sell 9,405 acres, this may have yielded some 28,000 guilders.[62]

All in all, 45 people bought land in Hatfield Chase before completion of the project in 1631. Table 1 demonstrates that most of them were merchants and *regenten* from London, Amsterdam and Dordrecht. There were only two Englishmen among them; the others were Dutch or had roots in the Netherlands, including Flanders and Brabant. In the Netherlands, drainage companies were often formed by tightly knit networks of family and friends and the members were selected either for their ability to provide capital or for their influence on government.[63] Among Vermuyden's associates three networks can be discerned: the Dutch merchants in London, dignitaries and merchants in Dordrecht, and the friends and family of Jacob Cats, mostly Amsterdam merchants. All of them were wealthy, but there were few with political influence in England. Apart from Vermuyden himself only Sir Philibert Vernatti, a Dutchman living in London since 1628, seems to have had some influence at court.[64]

IV

The enthusiasm of Dutch investors for the Hatfield Chase project in 1627 was understandable. In the autumn of that year Vermuyden claimed the drainage scheme was almost completed and petitioned the king for the appointment of commissioners to adjudicate the drained land, so it seemed the investors could start reclaiming and settling their lands in 1628.[65] They only had to pay the purchase price agreed with Vermuyden or Cats, at most 70–80*s*. per acre (or 93–107 guilders per hectare[66]), which was a modest price compared to similar projects in the Netherlands. They were soon to be disappointed.

Vermuyden had promised the investors they could start reclaiming their lands in 1628, so in the spring of that year they shipped tenant farmers and farm equipment to Hull only to discover that most of the Level was still flooded and nothing could be done. Later Vermuyden denied he had promised this, but it is highly unlikely that the participants would have sent their tenants without any guarantee from him that the land could be cultivated.[67] The same thing happened the next year, when the Van Valkenburg brothers sent farmer Cornelius de Munck to Hatfield Chase to build a farmhouse and sow their land for them.[68] It took until 1631 to complete the drainage scheme and only in the spring of that year could the investors start to reclaim and settle the land.[69] Obstruction and sabotage by the commoners certainly was a cause of the delay, but technical problems may have played a part too since Vermuyden had no experience with large-scale fenland drainage; actually, nobody had experience with such projects at that time.

Another factor that caused delay was that Vermuyden was almost continually short of cash. The installments the investors had to pay were not sufficient. As soon as he had sold

[62] NHA, VVF 955, 1 June 1631; Korthals Altes, *Polderland*, p. 97. Cats' profit may have been smaller, because it is not certain he charged this from all purchasers.

[63] Van Zwet, *Lofwaerdighe dijckagies*, p. 54.

[64] Korthals Altes, *Sir Cornelius Vermuyden*, pp. 53–4.

[65] Harris, *Vermuyden*, p. 49.

[66] Accounts in NHA, VVF 955, show that £1 sterling = *c*.£1.8 Flemish = *c*.10.8 guilders.

[67] NHA, VVF 968, plea of Vermuyden, 2 Apr. 1635; 974, plea of Lucas van Valkenburg c.s., 1642.

[68] Van Lennep, *Van Valkenburg,* p. 45.

[69] NHA, VVF 955, 1 June 1631.

land to Jacob Cats, he started to draw bills of exchange on the sums Cats owed him to get his hands on some cash. Within a month from the signing of the contract whereby Cats sold land in the Level to his friends and relatives – 7 March 1628 – Vermuyden and his clerk and business partner Marcellus van Deurne started to draw bills of exchange on them too.[70] This behaviour and the delays caused the investors to lose trust in Vermuyden. In a letter to his brother-in-law Mattheüs van Valkenburg dated 13 November 1628, Cats made clear he had lost all faith in Vermuyden, who continued to draw bills of exchange without conferring with Cats.[71]

In 1629 the Dutch investors reached the conclusion that Vermuyden could no longer be trusted with the financial management of the drainage project. They decided to establish a company that would from then on raise *omslagen* (rates) from all participants to guarantee a steady flow of cash to continue the project. From 18 April 1629 to 15 July 1634 a rate was raised 11 times, varying from 2*s*. to 6*s*. per acre. Apart from that, the participants continued to pay the installments on the purchase sum.[72] Like Dutch drainage companies, this company had a board (in Dutch: *College van Heemraden*) elected by the participants from their midst. For practical reasons, the members of the board were elected from amongst the participants living in England. The treasurer of the company was Mattheüs, the youngest of the Van Valkenburg brothers, sent to England to keep an eye on the family interests. Its clerk was Marcellus van Deurne, a Dutch merchant in London and Vermuyden's financial assistant.[73] Vermuyden himself transferred his responsibility as undertaker for the Hatfield Level to the drainage company in 1630.[74] He was a participant in the drainage company himself because he still owned land in the level and he continued to be the company's technical expert. For the next couple of years, the company and Vermuyden continued to cooperate. In May 1632, for example, Vermuyden and board members of the company Sir Philibert Vernatti, Samuel van Peenen, Mattheüs van Valkenburg and Johan Corselis together purchased the land required to cut the Dutch River and in 1634 Vermuyden was asked for advice about improvement of drainage in the southern part of the Level.[75]

The creation of the company meant an improvement of the financial organization of the drainage scheme, but it still had one weak spot: unlike Dutch companies it was not incorporated and could not impose sanctions on free riders. As long as only the payment of the ordinary rates was concerned, this did not pose many problems. All participants had joined the company of their own volition and accepted the obligation to pay rates. In the case of exceptional expenses, however, difficulties could arise. Charles I had granted the settlers the right to have their own church in the Level and in 1639 Sir Philibert Vernatti, Mattheüs van Valkenburg and other members of the company's board made a contract with Isaac Bedloe to build a church at Sandtoft. Bedloe built the church, but in 1660 the bill still had not been paid. The other participants claimed the board members had to pay for the church themselves and refused to pay rates for it.[76]

[70] NHA, VVF 974, plea of Lucas van Valkenburg c.s., 1642; Korthals Altes, *Polderland*, p. 104.

[71] Korthals Altes, *Polderland*, pp. 104–6.

[72] NHA, VVF 966, plea of Lucas van Valkenburg c.s., undated [*c.* 1635].

[73] Korthals Altes, *Vermuyden*, p. 89.

[74] Albright Knittl, 'Initial drainage', p. 25.

[75] Korthals Altes, *Vermuyden*, pp. 119–20 and App. VIII.

[76] Ibid., App. IX, p. 87; X, pp. 119–20.

The high rate of July 1634 (6*s*. per acre) seems to have been paid by the participants,[77] but afterwards they ran up arrears. This was caused by the construction of the Dutch River. Although the Council of the North had ruled in 1632 that the participants had to pay part of the costs of cutting this canal, all the participants refused to do this. They had good reasons to refuse because their contracts with Vermuyden stipulated that he alone was liable for extra expenditure. The Council of the North seems to have been aware of this condition because it permitted the participants to sue Vermuyden for 'any great sum of monies'. It still insisted, however, that the participants first had to pay their share 'according to every mans proportion of acres'.[78] Vermuyden also refused to pay because these extra costs would have wiped out most of the profit he was hoping to make (cf. section V). A stalemate ensued during which the work on the Dutch River was continually hampered by a lack of cash.

In 1629 a Commission of Sewers for the Level was created: a new one was established in 1635. Commissions of Sewers had existed since the later Middle Ages. Their task was to oversee the maintenance and repair of drains, embankments and sluices. They were composed of local landowners who could summon juries. On the basis of the presentment of these juries about the state of drains and embankments, what had to be done to repair them and which landowners were liable for maintenance, the Commission of Sewers could raise rates (scotts) from landowners and impound and sell their land if they refused to pay.[79] In Hatfield Chase, there was no doubt about which landowners were liable for maintenance of the new drainage system. They were the participants who had purchased the 24,505 acres sold by Vermuyden, the 'scotted lands'.[80] Among the 106 Commissioners of Sewers appointed in 1635, there were only 14 owners of scotted lands. So decisions about the scotts to be paid by the participants were to be taken by a group of landowners most of whom were not directly involved and would not have to pay those rates themselves. For the Dutch this was difficult to accept, because they were used to the rule that those who had an interest in the maintenance of drainage systems and embankments would have to pay for it, but also would themselves decide about how much was to be paid. It was unthinkable to them that people who had not contributed even one penny were to have a say in this. This resulted in a poor relationship between the Commission of Sewers and the participants. The participants even hired mercenaries to keep the tax collectors of the Commission of Sewers out of the Level. Moreover, the authority of the Commission of Sewers was undermined by Charles I. When the Commission impounded the land of Sir Philibert Vernatti and other participants, the king intervened in 1637 and forced the Commission to restore the land to the owners.[81]

The Commission of Sewers had authority – as long as the king did not intervene – but lacked legitimation in the perception of the ratepayers, while the company of drainers had legitimation but lacked authority. The solution to this stalemate would have been to implement the conditions of the 1626 contract between Vermuyden and the king and incorporate the company of the participants as a water board with authority to raise rates. In a last attempt to do this,

[77] NHA, VVF 966, plea of Lucas van Valkenburg c.s., undated [*c.* 1635].

[78] Korthals Altes, *Vermuyden*, App. VI, pp. 58–9.

[79] H. C. Darby, *The medieval Fenland* (1940), pp. 163–4.

[80] Korthals Altes, *Vermuyden*, pp. 43–4, App. II.

[81] Ibid., pp. 123–5.

the participants introduced a bill in parliament in 1660, but it was rejected.[82] For the next two centuries the participants and the Commission of Sewers were forced to cooperate as best they could. Only in 1862 was the Hatfield Chase Corporation created.

V

The usual verdict about the drainage of Hatfield Chase is that it was a financial failure. Technical mistakes, the conflicts between Vermuyden and the commoners and between the participants and Vermuyden caused an enormous increase in costs and made it impossible for the participants to settle the land and earn any income from it. Only William Dugdale painted a more positive picture of Hatfield Chase. As a propagandist for drainage, he is often supposed to have provided a far too rosy image of the results. However, he was also a conscientious antiquarian, who carefully researched the history of the seventeenth-century English drainage projects.[83] Documentary sources confirm several of Dugdale's remarks. For example, he was the only author who knew it had taken five years to complete the drainage of the level.[84]

When assessing the financial outcome of the project, it should be realized that Vermuyden and the participants had different interests. Vermuyden had to make a profit by selling land in the Level at high prices and restraining expenditure. The participants had to make a profit by selling the land they had purchased from Vermuyden at higher prices, or by leasing it to a tenant farmer at a good price, or by cultivating it themselves. Let us first take a look at the outcome for Vermuyden. In Table 2 an estimate is presented for his income from the project between 1627 and 1634. For the 20,000 acres of land and two manors, he received in those years almost £70,000. He still owned over 4500 acres and several manors (Hatfield, Thorne, Fishlake, Dowsthorpe and Stainforth), which he sold shortly afterwards to John Gibbon. The price Gibbon paid for these assets is not known, but an estimate can be made. Assuming Gibbon paid 40*s*. per acre for the land, that would have amounted to £9000. The remaining manors must have been worth more than those he had already sold, so on a conservative estimate, Gibbon must have paid at least about £20,000. Vermuyden's income from the project can be estimated at some £90,000.

According to Dugdale, the implementation of the basic drainage scheme cost £55,825.[85] To this we shall add the sum of £16,800 for which Vermuyden purchased several manors and the king's share in the drained land.[86] So his expenditure amounted to, at most, £72,625. In reality his expenditure must have been somewhat lower, because from 1630 the costs were no longer paid by Vermuyden, but by the company. Hence we can conclude that Vermuyden made an impressive profit of at least £20,000. The question is whether Vermuyden was able to make a calculation like this. As we saw, he was often in arrears and moreover he was working on several projects at the same time. It is questionable whether he had a good overview of his financial situation. Still, the fact that in the early 1630s Vermuyden spent large sums on the

[82] Ibid., App. X; W. B. Stonehouse, *History and topography of the Isle of Axholme: being that part of Lincolnshire west of Trent* (1839), p. 101.

[83] F. Willmoth, 'Dugdale's *History of Imbanking and Drayning*: a royalist antiquarian in the sixteen-fifties', *Historical Res.* 71 (1998), pp. 281–302.

[84] Dugdale, *History*, p. 145.

[85] Ibid.

[86] Korthals Altes, *Vermuyden*, App. III and IV.

TABLE 2: Estimated receipts of Cornelius Vermuyden for the drainage of Hatfield Chase, 1627–34

	Acres	*Price per acre (s.)*	*Estimated average per acre (s.)*	*Total (£)*
Sale of land from his own share	10,400	20–80	50	36,000
Sale of land from the king's share	9600	70–80	75	26,000
Sale of manors (Finningley, Althorp)				7850
Total				69,850

Sources: NHA, VVF 955, 956, 957.

purchase of Malvern Chase (£5000), King's Sedgemoor (£12,000) and a share in a lead mine in Derbyshire is an indication that he at least realized he was doing well at that time, although he may not have been able to calculate exactly how large his profits were.[87]

Whatever profit Vermuyden may have made, the obligation to pay for the cutting of the Dutch River would have diminished it, and what was worse: he had already spent it. It is unlikely that after the purchases of Malvern Chase and King's Sedgemoor, Vermuyden had much capital left. He had no choice but to avoid having to pay the bill. The participants began a suit in Chancery against him in 1633 and in that year even had him imprisoned for his refusal to pay. When he was released and somebody asked how the suit was proceeding 'he scoffingly answered that it would be time enough seven years hence to ask that question'.[88] Obviously, he intended to wear out his opponents in an endless lawsuit, and he succeeded: in 1642 the suit was still dragging on.[89] One of the reasons he could succeed in this was that he committed conspicuously little in writing. Letters from Vermuyden to the participants in the Netherlands hardly contained any information about the progress or the difficulties of the drainage scheme and most contracts with the participants were not signed by him, but by his cousin Johan Liens.[90] A contract of 30 March 1630, for example, was signed by Liens *weghen d'heer Vermuyden gereserveert seeckere open staende punten* (on behalf of Mr. Vermuyden apart from some outstanding issues).[91] These outstanding issues were not specified. Such vague clauses made it possible for him to deny having agreed to all conditions. He also denied that Abraham Struys and Jacob Cats ever sold land as his agents.[92] These were almost certainly all blatant lies, but the participants could not gather enough evidence to prove them to be so.

Because several participants had not bought directly from Vermuyden, but from Jacob Cats, they also began a suit in Holland against Cats. Cats had guaranteed them – albeit as agent for Vermuyden – that their liability would not exceed the purchase price of their land, so they tried to get their money back from him. In December 1633 Vermuyden warned Cats they were planning to do this and he advised him to negotiate a compromise with his brothers-in-law.[93]

[87] Harris, *Vermuyden*, p. 53.
[88] Ibid., p. 56.
[89] NHA, VVF 974, plea of Lucas van Valkenburg c.s., 1642.
[90] NHA, VVF 951, 13 Dec. 1633, 952, 9 Jan. 1629 (letters from Vermuyden) and 948, 12 Mar. 1641.
[91] NHA, VVF 955, 30 Mar. 1630.
[92] NHA, VVF 968, 2 Apr. 1635.
[93] NHA, VVF 951, 13 Dec. 1633.

In between the lines he warned Cats he was not to expect any support from him. Jacob Cats was caught between hammer and anvil: in Holland the participants were demanding recompense from him and in London Vermuyden was denying that he had ever had an arrangement with Cats. To some extent Cats could blame himself for this, because he had said to some of the purchasers that if problems arose, he would take care of them. Luckily for Cats this suit also came to nothing. It was still dragging on in 1641.[94] His reputation, however, was damaged and the relationship with his family-in-law ruined.

Estimating the profits or losses of the participants is less easy. Estimating their expenditure is not a problem. A claim of six participants in a Dutch lawsuit against Vermuyden provides an exact overview of everything they spent on purchase sums of land and rates for the drainage company until July 1634.[95] If we extrapolate their expenditure to all participants, who all had to pay the same rates, they contributed over £104,000 to the project. These costs included the draining of the level, repair of the damage done by the commoners and part of the expenditure of cutting the Dutch River. In all, this amounted to 139 guilders per hectare. Comparison with drainage projects in the Netherlands in which some of the participants also had shares shows this was a low sum. Draining Lake Beemster (1607–12), Lake Heerhugowaard (1625–30) and Lake Schermer (1633–35) cost 290, 373 and 514 guilders per hectare respectively.[96] Marshland drainage in Zeeland Flanders, in which Jacob Cats had participated, cost on average 180 guilders per hectare.[97] Admittedly, Schermer and Heerhugowaard were financial failures, but Beemster and marshland drainage generated large profits for the participants. For Hatfield Chase, the participants had to pay more than they had expected, but the cost of drainage still was still relatively low and it cannot have caused a failure of the project. Later it was claimed that the participants had spent a total sum of £200,000, £300,000 or even £400,000. The highest sum the participants themselves ever claimed to have spent was £200,000. This probably included the costs of reclamation and settlement. Since they made these claims *c.*1650 in a lawsuit against the commoners of Epworth, they probably overestimated their costs, so we can take this sum as the upper limit of their expenditure.[98] This means they spent at most 218 guilders per hectare. Of course, the lawsuits also cost considerable sums, as an ironic remark from the early eighteenth century proves: 'the gentlemen of the law reaped a long and plentiful harvest' from the litigation about the draining.[99]

It can be concluded that the costs of draining the Hatfield Level were not exceptionally high, but maybe the participants were not able to raise income from the reclaimed land because of defective drainage or destruction of their property by the commoners. Both commoners and participants claimed Vermuyden's drains were ineffective, but they did this in lawsuits in which both had an interest in painting the situation in the darkest colours. The participants wanted to show how little their investments had earned them and the commoners wanted to show Vermuyden not only robbed them of part of their commons, but had also diminished their quality. Dugdale painted a quite different picture: rape or coleseed was sown in the area, and

[94] Korthals Altes, *Polderland*, p. 98; NHA, VVF 948, 12 Mar. 1641.

[95] NHA, VVF 966, plea of Lucas van Valkenburg c.s., undated [*c.* 1635].

[96] Van Zwet, *Lofwaerdighe dijckagies*, p. 316.

[97] Van Cruyningen, 'Profits and risks', p. 139.

[98] Korthals Altes, *Vermuyden*, p. 39.

[99] Holmes, 'Drainers and fenmen', p. 187.

when he visited the Level in 1657 four windmills between Sandtoft and Thorne were bruising the seed to produce oil.[100] This number of mills means a considerable acreage was sown with rapeseed and since rape is a winter crop this implies that Vermuyden had drained a substantial part of the Level sufficiently that winter crops could be cultivated there.

Several other sources confirm Dugdale's opinion. Pieter Cruypenninck, an Amsterdam merchant who had bought 440 acres in the Level, which was in his direct exploitation, kept an account book of his income from this land. This shows that from 1632 quantities of rapeseed harvested in the level were regularly sold or exported to Rotterdam.[101] Letters from Marcus van Valkenburg to his lawyer from April 1636 mention large acreages of rapeseed and other winter crops that were promising good harvests.[102] It was widely known that rapeseed could yield enormous harvests on recently drained land. Dugdale demonstrated this was also the case in the Hatfield Level. In Haxey Carr a plot of rapeseed yielded seed worth 150*s*. per acre or 200 guilders per hectare.[103] One such harvest was almost enough to cover all the expenses of draining the land. It is known from other drainage schemes in England, the Netherlands and Germany that the first couple of harvests of rapeseed often were sufficient to cover the expenses of drainage.[104] It is also telling that although the commoners publicly vilified Vermuyden's scheme, in private their views were less negative. In a meeting in October 1651 they agreed that the drainage scheme should be maintained.[105] If Vermuyden's drainage scheme was entirely deficient, why would anyone want to maintain it? Of course, the participants might have been prevented from reaping their harvests because the commoners destroyed them. Part of the harvest was indeed destroyed in 1633,[106] but afterwards hardly any destruction occurred until 1642 and after that year the commoners limited their attacks to the 7400 acres of the manor of Epworth that were disputed. The remaining 17,100 acres were undisputed and remained in peaceful possession of the participants.[107] Hardly any mention of the conflicts with the commoners is made in the correspondence of the drainers in the 1630s; they were worried about the conflicts with Vermuyden and the Commissioners of Sewers, not about the commoners. Illustrative of the situation of the 1630s is the testament of Michael Corselis, a Dutch merchant from London, who had settled at Temple Belwood and died there peacefully in his bed in 1637, leaving money to the poor of Belton and Epworth, the two most rebellious parishes.[108] Until 1642, participants were able to reap rich harvests, but it should be kept in mind that not all of them were so lucky as to be able to sow much of their land with rapeseed. In 1631, one of the participants complained that of his 600 acres only 30 could be used as arable.[109]

Many of the original participants sold their land in the 1630s. That was not unusual. In the Netherlands too, a proportion of the investors in drainage companies considered their participation to be a short-term investment and sold their interest shortly after completion of drainage.[110] In the case of Hatfield Chase the number of owners selling quickly may have

[100] Dugdale, *History*, p. 145; Darby, *Draining*, p. 283.
[101] NHA, VVF 955, excerpt of Cruypenninck account book.
[102] NHA, VVF 948, 7 and 22 Apr. 1636.
[103] Dugdale, *History*, p. 145.
[104] Van Cruyningen, 'Profits and risks', p. 126; Thirsk, *English peasant farming*, p. 133.
[105] Lindley, *Fenland riots*, p. 206.
[106] Ibid., p. 78.
[107] Ibid., pp. 24, 211.
[108] TNA, PROB 11/175, 1 Nov. 1637.
[109] Korthals Altes, *Sir Cornelius Vermuyden*, p. 80.
[110] Van Cruyningen, 'Profits and risks', pp. 133–4.

been higher because many participants preferred not to be involved in long, drawn-out litigation. Another problem was that it was difficult to manage a large property in a foreign country.[111] Finding reliable stewards or tenants and communicating with them was not always easy, especially during wartime. In January 1629 Vermuyden wanted to send a letter to one of the participants in the Netherlands, but he had to wait until a convoy had arrived on the Thames. That such a convoy was not a luxury was shown in 1636, when one of Mattheüs van Valkenburg's reports to his brothers was never delivered because the ship carrying it was taken by privateers.[112] Those who sold their land very probably made a good bargain. A lively land market existed in the Level in the 1630s and land was sold at high prices. Again, this indicates that agriculture in the Level was doing well. Confirmation comes from by Daniel Noddel, the advocate of the commoners of Epworth, certainly not someone who had cause to paint a rosy picture of the situation in the Level.[113]

An argument in favour of the view that the drainage of Hatfield Chase was a failure, was that some of the original participants were said to have gone bankrupt. Statements about bankruptcies of drainers should not be taken at face value, however, because on both sides of the North Sea drainers were often claiming to have been ruined in order to get more state support. Moreover, when drainers went bankrupt, it was often caused by a combination of factors, one of which could be that they had financed their investment with borrowed money.[114] This can also be observed in the few cases of drainers of Hatfield Chase who went bankrupt. The Van Valkenburg brothers experienced financial difficulties and Marcus went bankrupt in 1642.[115] This bankruptcy was caused by several losses in enterprises and transactions. The main cause of trouble for the Van Valkenburg brothers seems to have been their brother-in-law Willem van Wely. This Amsterdam jeweler in 1629 and 1630 borrowed the enormous sum of 86,000 guilders from Marcus and Lucas van Valkenburg. The securities for these loans were jewels and 700 acres of land in Hatfield Chase purchased through Jacob Cats. This land was not yet drained nor paid for. To strengthen this fragile security Marcus and Lucas persuaded Cats to sign an IOU to them for 6,000 guilders.[116] When Willem van Wely was not able to pay the full purchase sum, Cats sold 350 acres of Van Wely's land to Philip Jacobsen, a Dutch merchant in London. This of course made Van Wely's security worthless.[117] Clearly, the financial problems of Van Wely cannot be blamed solely on the Hatfield Chase project. However, Cats's selling the land for a second time caused problems, and not just for Van Wely. The Van Valkenburg brothers, Van Wely, and Pieter Cruypenninck owned and exploited their land in the Level together, as one unit. When Jacobsen took possession of 'his land', he in fact confiscated land that belonged to Cruypenninck, including a farmstead Cruypenninck had built there.[118] In turn, this led to costly lawsuits.

Those who still owned land in the Hatfield Level in the 1640s, like the Van Valkenburg brothers and Vernatti, very probably incurred heavy losses, after the wave of destruction that swept over the Level in 1642 and especially after the commoners of Epworth regained

[111] Korthals Altes, *Polderland*, pp. 101, 115.

[112] NHA, VVF 948, 7 Apr. 1636, and 952, 6 Jan. 1629.

[113] Korthals Altes, *Vermuyden*, App. IX, p. 96. Noddel refers to a series of conveyances from the 1630s and 1640s and stresses the high prices paid for the land.

[114] Van Zwet, *Lofwaerdighe dijkcagies*, p. 355.

[115] Van Lennep, *Van Valkenburg*, pp. 41, 70.

[116] Ibid., p. 47; NHA, VVF 961, 20 Apr. 1630.

[117] NHA, VVF 970, 26 June 1635.

[118] NHA, VVF 970, 26 June 1635, and 971, 8 Dec. 1636.

their commons. For the Van Valkenburg brothers in particular, this must have been a bitter disappointment, because they had invested heavily in the improvement of the Level. In 1632, for example, they contracted with master carpenter and mill builder Hendrick Gijsbertsz from Vianen (near Utrecht), who was to construct sluices and windmills in the Level.[119] Between 1628 and 1635 Lucas van Valkenburg spent 55,400 guilders to drain 1000 acres, but at the time of his death in 1652, his land in the Hatfield Level was valued at only 49,000 guilders. During the intervening years, the commoners had caused much damage and had even regained possession of much of the land that had been awarded to Lucas.[120] But already by the early 1640s most Dutch investors had sold their land in Hatfield Chase. Only the Vernatti, Van Valkenburg and Van Peenen families owned land in the Level until the 1650s and after.

VI

Around 1660 Jacob Cats wrote an autobiography in verse, in which he described his successful political career – in 1636 he was appointed Grand Pensionary of Holland, one of the highest offices in the Republic – and how he had become a millionaire by reclaiming land. The tone of the poem is complacent, but now and then he had to admit to failures. One of those concerned '*vetten grond, die in het Brittenlandt alstoen te dijcken stont*' (fertile land in the land of the Britons that was then [in 1627] about to be drained). His decision to participate in the Hatfield Chase project had caused him a lot of trouble, because he did not know the people and did not have understanding of the issues.[121] He depicted himself as a naïve victim of untrustworthy people and unknown circumstances. This was only partially true. Cats was a shrewd lawyer. He knew England where he had lived for a while in his youth, and he could speak English. Moreover, the previous sections showed he himself added to the chaos by making promises he could not keep and selling the same land more than once. Nevertheless, Cats and the other Dutch investors in Vermuyden's project had to deal with people and circumstances they did not know and often failed to understand.

In the coastal provinces of the Low Countries commons had disappeared in the Middle Ages, so investors in drainage never had to deal with disgruntled commoners. Large-scale drainage projects were only allowed to start when agreements had been reached about compensation for landowners, villages or cities whose interests were harmed by the project. Conflicts were solved by arbitration without recourse to long-drawn-out lawsuits. In the Netherlands, a board elected by the investors themselves made decisions about rates, not a commission for the major part composed of people who had nothing to do with the project.[122] The conflicts, the violence and the lawsuits must have come as a surprise after Vermuyden's promises of easy profits. Although most investors probably did not incur great losses, it is understandable

[119] Van Lennep, *Van Valkenburg*, p. 64.

[120] NHA, VVF 11, probate inventory of Lucas van Valkenburg.

[121] J. Cats, 'Twee-en-tachtig-jaerig leven', in P. G. Witsen Geysbeek (ed.), *Dichterlijke werken van Jacob Cats* (1828), p. 13.

[122] P. van Cruyningen, 'State, property rights and sustainability of drained areas along the North Sea coast, sixteenth–eighteenth centuries', in B. van Bavel and E. Thoen (eds.), *Rural societies and environments at risk. Ecology, property rights and social organisation in fragile areas (Middle Ages-twentieth century)* (2013), pp. 181–207.

that they no longer wished to invest in drainage projects in England after the Hatfield Chase experience.

However, the problems of the Hatfield Chase project were not just the consequence of an unfavourable institutional environment. They were also caused by Vermuyden's ruthless behaviour. Many conflicts might have been prevented if Vermuyden had shown more respect for the interests of the commoners and local landlords. These were not Vermuyden's only victims, as this paper has demonstrated: the Dutch investors were just as much victims of their compatriot. He used them to keep the Hatfield Chase project going and when problems arose he let them fend for themselves. Margaret Albright Knittl was certainly right in supposing that in 1630 Vermuyden was not entrusted with the draining of the Great Level because potential Dutch investors had lost faith in him.[123] Sir Cornelius Vermuyden may have been a great engineer, but he was a disastrous entrepreneur.

[123] Albright Knittl, 'Initial design', pp. 29–30.