

## The eighteenth-century invention of a measure in the Caribbean: the Danish acre of St Croix

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Plantations in the Danish West Indies, now the United States Virgin Islands, were for a century or more registered and taxed in Danish acres, a unit of measure not used in Denmark itself. This “acre” was derived from the round arithmetic subdivision of the uniform rectangular plantation lots into which the island of St Croix was laid out in the 1730s and '40s. The measure was a cultural compromise between Danish administrative practices and the customs of the predominantly English planter class on the island. Its derivation from the locally unprecedented grid survey system of St Croix is directly comparable to Thomas Jefferson's unrealized proposals in the 1790s for the incorporation of a geodetic decimal system of measures into the legislation for the survey of the public lands of the United States. Both of these New World cases exemplify the developing faith—naive, tentative, and demonstrably misplaced, given the technical and administrative limitations of the age—in rational ideals of measurement that at the end of the century produced the revolutionary French metric system.

In the earliest plat books extant on the island of St Croix, in the United States Virgin Islands, the area of properties is recorded in U.S. acres, in quadrate feet, and in Danish acres, or *agre*.<sup>[1]</sup> In Denmark itself, however, there is no such measure as a Danish acre. How, then, did this anomalous usage arise in this former tropical outlier of the Kingdom of Denmark, and what is its place in the historical geography of the plantation colony? Measures are crucial to cultures and economies. They delimit our every move and transaction and establish the scale and scope of our vision. Itinerary measures and measures of area are not merely matters of enumeration and accounting but of the organization of space both in the landscape and in the mind. One need only consult one's experience to recall that measures are not commonly or easily reformed; they are standards of great pervasiveness and inertia. Mensural deviation or reforms, therefore, when they appear in the record, can be taken as markers of economic, technical, intellectual, or cultural developments.<sup>[2]</sup>

The story of the Danish acre of St Croix ramifies to touch on a number of functionally related matters: the development or refinement of systems of fiscal assessment of land and agriculture production; systematic geometric surveys like that of the public lands of the United States; the cross-cultural contacts, accommodations, and borrowings characteristic of the New World; and the new scales, perspectives, and agricultural practices of the colonies, including the slave plantation. Most especially, the new measure is significant for its expression of some portion of the eighteenth century's new confidence, its new science, its interest in uniformity and universality, and its willingness to invent and

experiment with new regimes and ideals of order. This so-called Danish acre arose out of the unique circumstances of plantation agriculture on St Croix in the 1750s, but it was of a piece, in a most striking way, with Thomas Jefferson's original plan for the division of the public lands of the United States using new decimal measures, and with the remarkably bold metric and administrative reforms of Revolutionary France.<sup>[3]</sup> Explicit links between the new Danish colonial measure and the more ambitious rationalist schemes of Europe and North America cannot yet and will not easily be documented. Although the thought of an age may be most forcefully expressed and can most conveniently be studied in great academic and literary works, such a historical generalization as the Enlightenment, if it is to have social and cultural rather than purely intellectual application, has to be regarded as an uneven and ragged fabric of broadly prevailing ideas, local circumstances, and stray threads. An intellectual ambience such as this moves through back alleys, over remote passes, and between decks.<sup>[4]</sup> These channels remain obscure, and we have to rely on what markers come to hand. This local colonial unit of measure is one such trace. The social substance of the Enlightenment remains elusive,<sup>[5]</sup> and we are wisely warned against over-simple characterizations—"desiccated rationalists" and "naive prophets of progress".<sup>[6]</sup> The special "acre" of St Croix adds a nuance to the broad generalization and helps place this plantation society within it.

### St Croix and its acre

The two St Croix plat books, known locally as the "Folios", date to 1900, when the Virgin Islands, which also include St Thomas and St John, were Danish territory. The Folios are still in use in the Surveys Section of the Department of Public Works on St Croix. Each set of facing pages makes up a printed form, on which the cadastral record of each of the original plantation lots laid out by the Danes in the eighteenth century is inscribed by hand. There are columns for the cadastral number assigned each plot, the names of successive owners, the dates of transfers, and the dimensions of the plots in quadrature feet and in *Agre*. Under *Anmærkninger* ("remarks"), a very simple map of the property is provided, usually at the scale of 1:10,000.<sup>[7]</sup> Subdivisions over the years have been superimposed, in various hands and inks, on these original plats. Annotations made since 1917, when the islands were sold to the United States, convert the old St Croix acreages into U.S. (British) acres. On most pages, particularly in the case of heavily subdivided plantations, closing annotations refer to newer large-scale survey drawings, which are kept apart in map cases; the Folios thus serve as a cadastral index to the Department of Public Works's collection of survey drawings.

Denmark's foothold in the Lesser Antilles was secured, after a couple of false starts, in 1672, when a colony was planted on St Thomas. The Danes occupied St John, the island immediately to the east, in 1718. St Croix, the largest of the three islands and the best suited to sugar plantation agriculture, was purchased from France in 1733 for a sum of cash and certain diplomatic concessions. The colony was administered by a succession of royally chartered trading and plantation companies until 1754, when the islands reverted to direct royal administration.<sup>[8]</sup>

Upon taking possession of St Croix in 1734, the Danish West India and Guinea Company began to survey the best land on the island, which had for 40 years or so lain abandoned save for a squatter population of a few tens of

families,<sup>[9]</sup> into a regular grid of rectangular plots of a size regarded in the colony as ideal for the cultivation of sugar-cane (Figure 1).<sup>[10]</sup> It was decreed in the original orders for the founding of the Danish establishment on St Croix<sup>[11]</sup> that these plantation lots were to be uniformly 2,000 by 3,000 Danish feet.<sup>[12]</sup> The parcels were to be conveyed to Company stockholders in return for the compulsory reinvestment that financed the purchase of the island from France.<sup>[13]</sup> Nowhere in the original orders was any unit of areal measure other than the quadrate foot applied to these parcels of land. Deeds issued over the next twenty years described the properties, even irregularly shaped coastal lots, in terms of their length and breadth alone; this was taken as sufficient, given the regularity and rectangularity of the survey system, for the purposes of conveyance and taxation. The 2,000- by 3,000-foot plantation, referred to as *fuldkommen* (“full”, “complete”, or “perfect”) became in effect a unit of measure. Smaller lots might be described and conveyed as half or quarter plantations, but the only other areal unit at hand, a long way down the scale, was the square foot. Standard plantations came to be listed in the annual land registers as 6,000,000-square-foot lots.<sup>[14]</sup>

Few Danes crossed the Atlantic to take up plantations on St Croix. Most of the stockholders ordered the Company to place their lots on the market, unseen and unworked, as soon as the purchase from France was formalized.<sup>[15]</sup> In 1736, the Company offered plantation lots and free passage to the Islands as prizes in a public lottery promoted mainly in Denmark and Norway but also elsewhere in Europe and in the West Indies; this was so poorly subscribed that the drawing was canceled.<sup>[16]</sup> Official efforts to settle Danish laborers on the island also came to nothing. For the most part, the rich and open land of St Croix attracted planters of British or Dutch extraction from other islands in the Antilles; most of

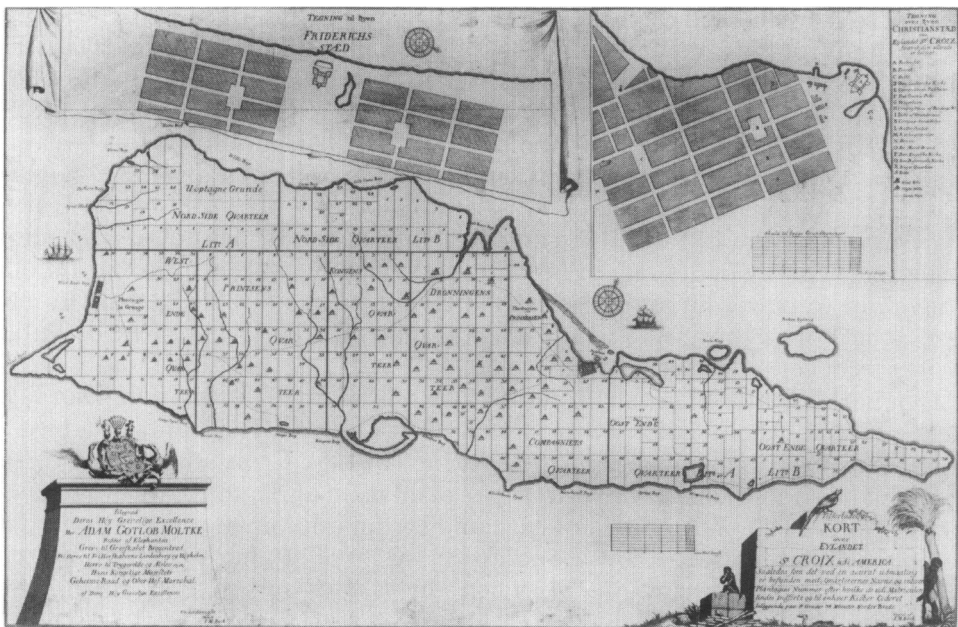


Figure 1. J. M. Beck, *Tilforladelig kort over Eylandet St. Croix udi America* (Copenhagen: O. H. de Lode, 1754), bound into *Frederik den Femtes Atlas*, Vol. 52. Reproduced with the permission of the Department of Maps, Royal Library, Copenhagen.

the Danes on the island were administrative officers or soldiers. (Within a very short time, of course, black slaves made up by far the greatest part of the population.)<sup>[17]</sup>

The social and cultural interactions and tensions within this mixed and polyglot little community were intricate. The official business of the island was recorded in Danish, but most of the planters spoke English.<sup>[18]</sup> Cultural, or at any rate linguistic, accommodations—in juridical contexts, for example—were made by the administration rather than by the planters and slaves and tradespeople that made up the society.<sup>[19]</sup> It is unlikely that many of the planters learned much Danish. Then, as now, Danes, a small nation, learned other peoples' languages, and few theirs. English remains the language of the Virgin Islands.

The British acre may have been in local use from the beginning, but the term does not appear in any surviving official records until ten years after the Danes took possession of St Croix. It was first mentioned in the colonial administrative correspondence in a report dated June 25, 1744, from Poul Lindemark, the chief administrative officer of St Croix. Reporting on the state of cultivation of a disputed piece of land, Lindemark wrote that "22 acres of land, each acre 70 yards square or 210 feet", had been cleared and planted. (He spelled it *aker*. His use of the word *yard* is also a borrowing; the word in this mensural sense has no Danish equivalent).<sup>[20]</sup> Lindemark here was probably simply defining the term for his superiors in Copenhagen, who might have found it unfamiliar, rather than proposing a new standard. His adjustment of the size of the acre—his would contain 44,100 square feet, 540 more than the English acre—should probably be construed as an off-hand approximation to smooth the communication.

The Danish word *ager* signifies "field" or "arable"; it is not used as a quantifiable measure of area.<sup>[21]</sup> In Denmark, land—or, more properly, the value of land and levies thereon—was measured in traditional terms of the amount of grain needed to sow a parcel—that is, in barrels, or *tønder*.<sup>[22]</sup> Late seventeenth-century edicts had declared the *tønde* to be equal to 14,000 quadrate *alen* of two Danish feet each, but the origins of the measure reach back into medieval obscurity.<sup>[23]</sup> Its area is a little over .55 hectare; there is evidently no connection between the *tønde* and the acre, which measures about .405 hectare. The *tønde* was never used in the official land records of St Croix. The application of such a measure to fields of sugar-cane and cotton may have been considered completely out of place, or it may be that the measure, as applied in the modern sense to area, had little real currency even in Denmark itself in the seventeenth and eighteenth centuries. It was the basic but largely nominal unit of a system of equivalences for the measurement of various kinds and qualities of agricultural property and yield, at a time when taxes were likely to be paid in kind.<sup>[24]</sup>

Lindemark's use of the acre in 1744 was doubtless grounded in local practice, although there is only scanty evidence for this. The acre next appears two years later, in 1746, on a map of the cultivated areas in the royal plantations on St Croix.<sup>[25]</sup> This map records the area of the cane pieces in acres (*Ager*, also *Agger*) of English feet, although the bar scale is rendered in Danish feet. The Danish crown was sensitive to local West Indian custom and law, but the original charter of the Danish West India and Guinea Company included provisions on weights and measures,<sup>[26]</sup> and it is odd that neither of these uses of a foreign measure elicited any comment from either the Company's offices in Copenhagen or the royal court; far more trivial colonial matters attracted the notice of the

directors and bookkeepers in Copenhagen. It may simply have been overlooked. There is apparently no other mention of the acre in the official records of the first decade and a half of the history of the Danish settlement of St Croix.

In the late 1740s and early 1750s, land on St Croix was being rapidly taken up, the population was growing quickly, and the island's sugar-based economy was entering an expansive phase.<sup>[27]</sup> There is no evidence that the coexistence of the only Danish measure of land in local use—the square foot—and the English acre had become an actual nuisance, but in a letter dated May 5, 1751, the St Croix Burgher Council, an advisory body, proposed to the administration the adoption of a new standard. The letter opens:

As our island for the most part is settled by English from neighboring islands, various customs are also introduced unnoticed, which in the English places are useful, and which do not accord with the constitution of St Croix, which in time, if it is not prevented, will cause confusion. Among these are, that it is already customary to sell lands in acres, which among the English is a piece of land containing 43560 English quadrate feet; and as this has absolutely no proportion to the sum of a plantation 2000 feet wide and 3000 feet long, according to which the land tax should actually be calculated, beside which is to be feared that these 43560 feet might be English or Danish feet; therefore, we in the Burgher Council have seen fit to submit . . . our humble thoughts on a means to prevent in the future all confusion in [the Company's] books and disputes among the citizens. A plantation comprises, according to [the Company's] orders, 2000 feet in width and 3000 feet in length which makes 6000.000 quadrate feet. When one now reckons the difference between the Danish and English foot, such a plantation would be about 147 acres, which is an unproportional number with respect to the 12 [*rigsdaler*, abbreviated "Rd."] land tax which should be paid annually for a plantation. And if it is already customary here to assess estates acre-wise, without there being a written law or placard how much an acre shall be, we would therefore humbly think that such an acre could be established to be 200 feet in a square, which makes 40 000 feet Danish quadrate feet, and thus one of our plantations would contain exactly 150 acres, which about corresponds with an English acre. . . .

The council recommended that the administration should decree

that an acre in all sales and assessments should and shall be reckoned according to the abovementioned measure, . . . which should be a perpetual and unchangeable law for St Croix, whereby we expect that all disputes over this that would otherwise arise between citizens in the future will be eliminated and prevented.<sup>[28]</sup>

It is quite an unusual proposition, especially when regarded in broad historical perspective, and it is indeed in part in local documents such as this, from all around the world, that the generation and movement of the intellectual trends of the period are to be sought. This measure was clearly not a metropolitan creation.

If the possibilities for the emergence of new local measures or the modification of ancient ones are practically as numerous as the social and economic relations on earth,<sup>[29]</sup> it nevertheless appears that there has been a fairly steady progression toward the establishment of uniform standards,<sup>[30]</sup> and although the establishment and maintenance of standards has sometimes been a lucrative public office,<sup>[31]</sup> it is safe to say that reforms have been legitimately intended to promote easy and equitable commerce and the general welfare.<sup>[32]</sup> Indeed, measures carry an extraordinary moral baggage; justice itself, in a common and ancient manner of speaking, is meted out.<sup>[33]</sup> Secretary of State John Quincy Adams reported to Congress in 1821 that France's revolutionary metric system provided that "the principal of decimal division, and a proportion to the linear standard, should be

annexed . . . to every thing in human existence susceptible of comparative estimation by weight or measure”, not excluding the ineffable passage of time, and came to this conclusion:

if man upon earth be an improveable being; if that universal peace, which was the object of a Saviour's mission, which is the desire of the philosopher, the longing of the philanthropist, the trembling hope of the Christian, is a blessing to which the futurity of mortal man has a claim of more than mortal promise; if the Spirit of Evil is, before the final consummation of things, to be cast down from his dominion over men, and bound in the chains of a thousand years, the foretaste here of man's eternal felicity; then this system of common instruments, to accomplish all the changes of social and friendly commerce, will furnish the links of sympathy between the inhabitants of the most distant regions; the metre will surround the globe in use as well as in multiplied extension; and one language of weights and measures will be spoken from the equator to the poles.<sup>[34]</sup>

The St Croix Burgher Council had come up with no such radically pervasive and high-minded standard for all that is quantifiable in the world. Their proposal partook of the same rationalist spirit, but it had its immediate origins in the peculiar circumstances of land-holding on the island and in the state of the local economy.

### **Immediate origins of the Danish “acre”**

The acre of St Croix, by the Burgher Council's calculation, differed from the English standard by about an acre in every fifty. The new measure would contain about 42,410 square English feet, 1,150 fewer than an English acre, and a standard plantation of a hundred and fifty of the new acres covered about 146.04 English acres (not 147, as the Council's letter states; like Lindemark's approximation of the area of the acre, the Council's use of the round figure 147 bespeaks a certain indifference to exactitude.). The difference would amount to a strip almost sixty feet wide running a thousand yards, the length of a plantation: a substantial amount of land. The Council's willingness to gloss over the difference between the two acres probably emerged, at least in part, from the scale of agricultural enterprise on St Croix at this stage in the development of the plantation economy. A hundred and fifty acres, Danish or English, was a great deal of land to clear and plant, and although most of the plantation lots had been sold by this time,<sup>[35]</sup> relatively little land had actually been brought into cultivation. The great topographical and cadastral map of St Croix drawn by Johan Cronenberg and Johan von Jægersberg in 1750 shows that on the island as a whole, and on almost any given plantation, great tracts remained in bush.<sup>[36]</sup> Amidst this abundance, three or four acres one way or the other may not have been considered very significant.<sup>[37]</sup>

The value of land on St Croix was rising steeply at this time, but the official price for standard plantations purchased from the West India Company, the sovereign entity from which the land had originally to be alienated into private hands, remained fixed at artificially low levels.<sup>[38]</sup> Speculation in unimproved land was apparently lucrative,<sup>[39]</sup> and turnover was often very rapid.<sup>[40]</sup> A planter selling to an ill-informed Englishman from off the island might conceivably have been in a position to charge the buyer for almost four more English acres of land than he was actually getting by representing a standard 2,000- by 3,000-foot plantation lot as a hundred and fifty acres, but if such fraud was ever perpetrated, it can scarcely have been rife.<sup>[41]</sup> What is more important, communi-

cation about the dimensions and value of estates, and thus sales, may have been speeded by the adoption of this approximation, which may have taken hold very easily and early among the English settlers.

The members of the Council included a number of St Croix's most substantial citizens, some of them former administrators who had made good in plantation agriculture. The eight names affixed to the letter, with the exception of Robert Hansen's, are clearly Danish, Dutch, or French, so it cannot be supposed that the Council was predisposed to adopt a British standard. Their letter expresses concern about the possibility of confusion and disputes among citizens, and the very existence of the document can probably be taken as evidence that such problems were already occurring,<sup>[42]</sup> but if any of the Council members was embroiled in a dispute over the area of a piece of land, no indication of it has yet emerged from court records.

When the council suggested that the new subdivision would ease the calculation of land taxes, they appear to have lapsed into rather frivolous argument. As it stood, each planter owed a *rigsdaler* for every twelfth part of his plantation, or every half-million square feet. With this change, the rate would be a *rigsdaler* for every twelve and a half acres. The improvement, in purely clerical terms, is not overwhelmingly evident. In other ways, the proposal was quite advantageous. A Company inventory for St Croix of 1740 lists a forty-foot surveyor's chain, and it has been suggested that a fifty-foot chain was commonly used.<sup>[43]</sup> If in fact either was a standard, it would be convenient for the measurement of the new acre: four or five chains on a side of a square would make a St Croix acre. This advantage may have been obvious to one of the Council members in particular, Johan Schopen, who had served for a time as the government surveyor. The measures were at hand, and the proposed new acre would not entail the reform of such a fundamental and royally sanctioned linear standard as the Rhineland foot; the entirely unfamiliar  $16\frac{1}{2}$ -foot perch or rod, which is the basis of the English acre, could be ignored.

On June 4, 1751, a month after the date of the Council's letter, the question of whether to keep the St Croix land registers in "*akres*" rather than in square feet was discussed in the St Croix administration's privy council, which forwarded the recommendation to the Company's local bookkeeper for his evaluation. If any argument was raised against the idea, there is no record of it, beyond a cautious reminder that the original orders constituting the colony had decreed that land ownership was to be recorded in square feet.<sup>[44]</sup> A copy of the original letter and the record of this latter transaction were sent to Copenhagen without further comment.<sup>[45]</sup>

An accommodation to the English was clearly central to the proposal, but the Danes were committed to and constrained by the rectangular survey system of St Croix, which was the basis of all tenure and transaction in land. The revision was conceived entirely in terms of this ineradicable if as yet incomplete framework: the proposal addressed nothing more than the subdivision of the basic unit provided by the standard plantation lot. However, the survey system, neat as it was in scheme, was rather seriously flawed in the execution. The original survey was done in fits and starts, under very difficult conditions, and took two decades, although the island is only twenty-three miles long and six wide at most.<sup>[46]</sup> Properties were conveyed purely in terms of their numbered positions within the grid, in many cases years in advance of the surveyors' parties.<sup>[47]</sup> The grid itself was never explicitly tied to any topographic or cultural landmarks whatever: in the only report that might be regarded as a *procès verbal* of the original

demarcation of the framework of the survey, its baselines are described simply as “a line N.N.W. and S.S.E. across the island” and a perpendicular run therefrom.<sup>[48]</sup> The locations of the original plantation boundaries have been disputed down through the centuries.<sup>[49]</sup>

It is unlikely, in fact, that very many of the standard plantation lots actually measured the prescribed two thousand by three thousand feet, even if they were recorded and taxed as such.<sup>[50]</sup> One of the few contemporary commentaries on the survey system took these failings quite for granted: its anonymous author wrote that the survey “is not so accurate that disputes cannot arise between men over their plots, for all the surveyors did not use equal labor and care, but made skewed lines and gave some more, others fewer feet of land than they should have, which cannot be redressed unless a whole quarter is resurveyed, which is altogether too expensive and difficult”.<sup>[51]</sup> In a report dated January 21, 1743, Schopen, in the capacity of surveyor, had written that he had discovered in the course of resurvey a 150-foot error in the width of Queen’s (Dronningens) Quarter, one of the nine so-called quarters on St Croix. He had proposed to distribute the error across all six columns of plantations in the quarter, making due note of the matter in the land registers (which, however, were never amended to reflect the discrepancy)<sup>[52]</sup> The error amounted to 75,000 square feet for every full plantation in Queen’s Quarter, which, encompassing more than forty standard plantation lots, occupied a substantial portion, perhaps as much as a fourth, of the best sugar-producing land on the island. Schopen, of all the Council members, must have realized that the proposed acre was a creation on paper only, because it was defined by the subdivision of a larger standard whose transfer from schematic plans into the landscape itself he knew to be problematic. The new acre, while neither arbitrary nor abstract, could never be quite true to its origins. It was a changeling of sorts.

Square measures, being inherently an arithmetical step removed from actual measurement of the bounds of a property, do not have much legal weight in themselves. Land can be described and taxed in terms of area, but property rights depend in virtually every case on boundaries. These may be defined by landmarks of various kinds, or by measured bearings, but they are at base linear, and the calculation of the area enclosed is normally irrelevant to the identification of the claim itself.<sup>[53]</sup> The substitution in the land tax registers of a notional measure of area for an almost equally abstract registration of properties by largely conventional lengths and breadths would not have threatened anyone’s rights. The Danish acre of St Croix thus appears to have been an innocuous cultural and intellectual exercise of a sort that may have been typical of the eighteenth century, especially in colonial or revolutionary circumstances.

This new acre is a local invention, a reasonable compromise derived from the peculiar cadastral situation on St Croix. There is no talk here of progressive metric systems of practically millennial import, or even of decimalization, but the measure’s mathematical neatness and its basis in a rectangular survey system seem so typical of eighteenth-century tendencies that it is in order to speculate about the reception in the islands of broader intellectual trends.<sup>[54]</sup> The administrators and planters of the Danish West Indies did not live in an intellectual vacuum: Antillean ports such as St Thomas and St Eustatius lay practically at the hub of Atlantic communication. This was a booming period of West Indian history, and St Croix was being settled not so much by peasant farmers as by people who, though rough hewn, perhaps, have to be regarded as agricultural capitalists, large operators with economic and cultural links not only to



Copenhagen but to London, Amsterdam, and the whole of colonial commerce.<sup>[55]</sup> There were doctors, experimenters in the physical sciences, writers on political economy, botanists, and students of the humanities among the colonial officers and planters.<sup>[56]</sup> The colony could not be regarded as a “center of learning”,<sup>[57]</sup> but nevertheless, as Hans West, a school rector with a sharp eye and a polished style, wrote towards the end of the century, these bold people, seeking their fortunes in the colonies, had “seen and learned something of the world”. Even the “unlearned” on St Croix were well informed, being avid readers of the English monthlies.<sup>[58]</sup> Connections to the Eastern seaboard of North America were well established. A figure of such prominence as Alexander Hamilton was born in the Antilles and spent many of his formative years in commerce on St Croix.

Many fine threads tied colonial thought to that of the rest of the European sphere. The “system of rational ideas about nature and humanity constituting the enlightenment”, in the historian of science Charles Gillispie’s reserved phrase,<sup>[59]</sup> was not a monolith of philosophy, doctrine, or works springing full-blown from the academies of the great European capitals in an age of ferment and penetrating to every corner; it is perhaps better regarded as nebulous and mutable emanation.<sup>[60]</sup> Its movement will not often show up in official records—in shipping manifests, customs ledgers, or probate inventories. A book here, an encyclopedia there, are rare and precious clues;<sup>[61]</sup> here in the Danish West Indies we have a system of measurement of land, a piece of evidence at the heart of the culture and carved into the landscape, that is clearly representative of Enlightenment rationalism transported to the colonies.

### The “acre” in the later-eighteenth century

The official documentary trail of the St Croix Burgher Council’s proposal runs cold for half a century after their letter was forwarded to Copenhagen. There is no record that the St Croix bookkeeper ever expressed his opinion on the matter. Nor apparently, did any order regarding the proposed new acre—or any comment at all—issue from Company headquarters in Copenhagen. Certainly the new measure was in use on St Croix in the last half of the eighteenth century, but the record yields an ambiguous picture of how widespread this use was.

An island-wide government audit of landholdings on St Croix carried out in 1759, after the colony had reverted to the crown, listed only the length and breadth of each plantation, just as in the annual land registers; the area of the lots was not recorded.<sup>[62]</sup> In the same year, a detailed inventory of one of the large royal estates on the island, La Grande (or La Grange), recorded the area under cultivation in no more exact terms than fractions of standard plantation lots: the amount of cultivated land at La Grande was estimated at about a plantation and a quarter.<sup>[63]</sup> The commissioners conducting the inventory based this estimate (though with some critical reservation) on a map of La Grande provided them by von Rohr, the government surveyor. An unsigned map of La Grande at the Rigsarkiv in Copenhagen, dated 1759, with German inscriptions such as von Rohr would use, shows the exact dimensions of the fields in “*Aecker*”, with fractions of acres in square feet (Figure 2).<sup>[64]</sup> These measures were presumably added after the inventory was made, or the commissioners would have incorporated them in their report, unless, indeed, they found the measure entirely unfamiliar—both men were from St Thomas, the older colonial

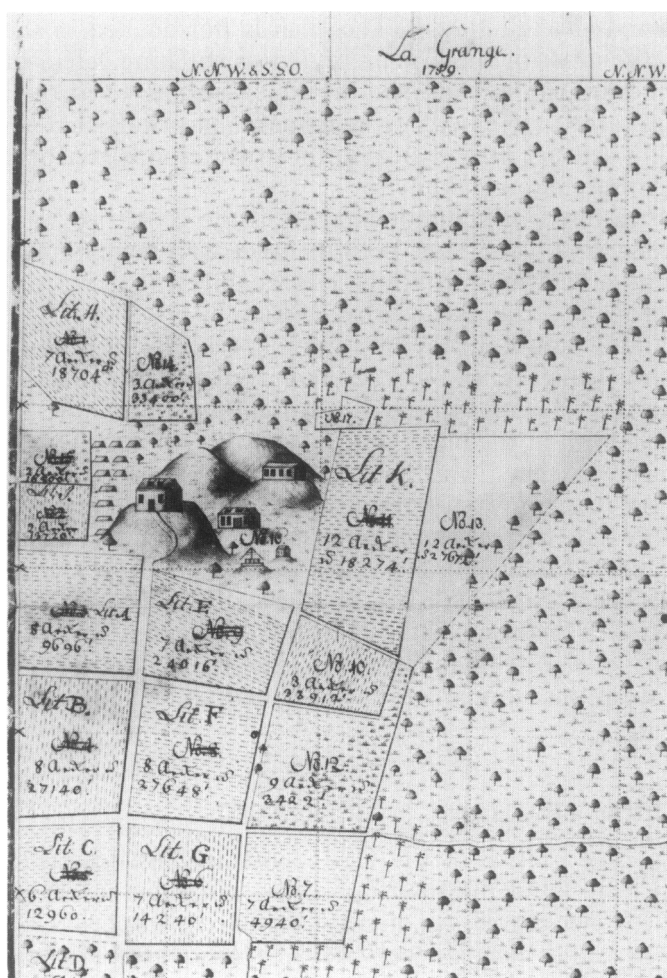


Figure 2. Detail of manuscript map of plantation La Grange, 1759. Schimmelmans privatarkiv, No. 6285, Pakke 68. Reproduced with the permission of the Rigsarkiv, Copenhagen.

seat. In 1760, von Rohr made a map of Buck Island, a rocky islet just off the north coast of St Croix. An accompanying working draft is divided into a series of parallelograms and triangles, from which the surveyor was able to calculate the area of the island, which he recorded only in quadrate feet, not acres.<sup>[65]</sup> Clearing, holing for cane, planting, and harvesting were sometimes done to contract.<sup>[66]</sup> In the records of the St Croix Municipal Inspector and Surveyor there appears this unusual entry in English, dated August 18, 1769: "Measur'd the Cane . . . upon the estate of . . . Robinson, which I found to be One hundred & fourteen Acres, three Roods & thirty perches. English measure."<sup>[67]</sup> Rigid mensural standards evidently took hold only slowly on St Croix.

The special acre of St Croix is mentioned or defined (though without remark) in various eighteenth-century writings,<sup>[68]</sup> but the acre had no official standing for the rest of the century. The land registers continued to be kept in quadrate feet until 1802, when a major tax reform for the whole of the Danish kingdom

was promulgated.<sup>[69]</sup> This decree taxed cultivated land on all three of the Danish West Indian islands by the “*acre*”. The term is not defined in the text of the ordinance, but the draft of the law presented to the king refers back to a tax commission’s finding that had adopted the 40,000-square-foot *Ager*.<sup>[70]</sup> Precisely how the measure came to re-emerge in metropolitan legislation after having been ignored for half a century by the local authorities responsible for the cadastral records of St Croix remains unknown.

The new law resulted in a minor change in the St Croix land registers: a column was added, and it will have been the work of a few minutes to calculate the acreage of the plantations, although the reliability of the recorded acreages of the various crops is certainly open to question.<sup>[71]</sup> The measure’s application on St Thomas and St John is historically more involved;<sup>[72]</sup> it is doubtful that the original designers of the acre of St Croix had given any thought to its extension onto these islands. An acre appears in probate and mortgage inventories of plantations on St John in the late eighteenth century, but it is unknown if this was the English or the new Danish acre;<sup>[73]</sup> both could easily have been in use. No contemporary map allows the resolution of this question.

The 40,000-foot acre thereafter remained standard in the Danish West Indies until the islands passed to the United States in 1917, when the convention began to break down. The Danish acre has been casually appropriated—sometimes anachronistically—in histories of the Danish West Indies,<sup>[74]</sup> and the St Croix Folios show that local surveyors have displayed a nice historical hability with the conversion from this standard to the U.S. acre, but the Danish acre has no modern function.

### **The North American parallel**

This case was not unique in the Caribbean. In Jamaica, the British acre apparently held fast,<sup>[75]</sup> but the French Antilles generated a local *carreau*.<sup>[76]</sup> A Rhymland acre, five per cent larger than the British acre, appears in Guyana and Suriname.<sup>[77]</sup> (Doursther lists neither the Rhymland acre nor the acre of St Croix.)<sup>[78]</sup> The settlement history of the Guianas involved, from the early seventeenth century, successive periods of British and Dutch control of large areas of productive sugar cane land, and the traditions of the two nations may have been merged in just such a compromise as is here documented for St Croix.<sup>[79]</sup>

The closest and most prominent historical parallel to the St Croix acre is provided by the United States federal survey of the nation’s public lands, enacted and commenced in 1785.<sup>[80]</sup> Thomas Jefferson’s original plan for the division of the public lands, expressed in a 1784 draft of legislation for the federal survey, would have created a new acre based on the decimal subdivision of a geodetically derived “geographical mile” the length of a minute of latitude. More important, Jefferson’s design called for “hundreds” of ten geographical miles on a side, each square mile containing a thousand acres. His acre would have come to about 37,044 square English feet.<sup>[81]</sup> Elsewhere he went so far as to propose a new foot a trifle shorter than the English foot and divided into ten new decimal inches.<sup>[82]</sup> The allocation and demarcation of land was overwhelmingly important to the new nation, and, in Jefferson’s plan, the federal survey would be the vehicle of the introduction of a pervasive decimal system of measures and coinage.<sup>[83]</sup> As Jefferson himself feared, however, such a radical reform was found intolerable by his contemporaries, and the rectangular survey of the

common lands of the new nation came to be based on the English acre and the statute mile.<sup>[84]</sup>

Jefferson's land system seems entirely characteristic of his age, "a model example of Enlightenment abstraction, a perfect scheme for ordering a wilderness *tabla [sic] rasa*",<sup>[85]</sup> and there is nothing to say that some impetus toward the rational reordering of land and by extension toward the creation of broad new systems of measurement did not drift back to European strands from the New World, where land was regarded completely differently than in the Old.<sup>[86]</sup> The acre of St Croix and the survey system on which it was based exhibit the workings of this same "geometric imagination".<sup>[87]</sup> We have no figure of Jefferson's stature in the Danish West Indies, nor have we a body of intellectual history such as surrounds him. The Burghers of St Croix were no philosophes, no encyclopedists, but they left us this economically and culturally central clue to the prevalence of the modes of thought Jefferson embraced so eagerly. These two New World cases, at each its scale, together elicit something of the rational and calculating mensural spirit of the dawning regime, which found its purest expression in part in the universal metric schemes of revolutionary France. Both were Enlightenment fictions beyond the technical and administrative grasp of their creators. Daniel Boorstin has called the planning for the American federal survey "an exercise in metaphysics, *a priorism*, and prophecy".<sup>[88]</sup> In both cases, the historical record gives us the point at which eighteenth-century New World "acres" were to have been severed from their immemorial "natural" agricultural origins.<sup>[89]</sup> Allowing that the traditional acres of Europe were built up organically from smaller units—from furrows, from the labor and time and seed expended—the wider perspectives of the New World can only have weakened this ancient link between work or investment and measures of land. Jefferson, like the creators of the metre, rejected customary measures, with all their historical and juridical gravity, and tried instead to imbue his practical system of measures with some portion of the grandeur of the earth itself.<sup>[90]</sup> He was pragmatic about it, however, and saw to it that his new foot and inch did not depart too radically from existing standards. The Burghers of St Croix defended their new measure with the argument that it did not differ very much from the traditional English acre, which was already threatening to dominate the measurement and description of land on the island. It may be that such reforms have always been hedged in this way, with the spectacular French exception.<sup>[91]</sup>

## Conclusion

The St Croix Burgher Council's suggestion was a remarkable communication from the frontiers of the Danish world, embodying something of the experiment, invention, acculturation, and accommodation of the New World. The new measure was a creolization, a response to a new and unfamiliar situation in a rough place where all tenure, local tradition, and regulation were less than a generation old. The sheer size of the holdings and the general availability and wildness of the land permitted such a departure, just as all colonial experience was conditioned by and indeed predicated upon this vast expansion of traditional European scales and the new breadth of cultural interaction.<sup>[92]</sup>

With the intense subdivision of St Croix into small residential parcels and vacation resort developments in modern times, the old plantation survey system and the unique measure that arose out of it have faded into obscurity. The great grid laid out in the 1730s and 1740s is preserved in the road net and in many

property lines, but the original cadastral system is now out of the scale of the local economy, and the land has subsided into a welter of indiscriminately subdivided lots defined by marks on the ground and neighboring claims rather than by reference to the overall pattern.

The Danish acre is a historical quirk, a quiet relic in the records of the ownership and use of land in the Virgin Islands. Its broader significance is its part and derivation in the remarkable grid survey system that was established on St Croix and its expression of the rationalist spirit of the age. The rectangular survey allowed all sorts of conceptual and administrative shortcuts—in the allocation of land, the demarcation of boundaries, the levying of taxes, and the topographical mapping of the island.<sup>[93]</sup> The system embodied, in fact, a dereliction, perhaps quite ingenuous, perhaps not, of the tedious and troublesome responsibility for the cadastre, whose reliability it is one of the functions of government to attempt to secure. Both customary rights, established by monumented boundaries, and the accuracy of formally recorded surveys, and thus the legitimacy of tenure, were sidestepped for the sake of an abstract geometric regularity. The St Croix acre was one of the props of the illusion. It was thus tentatively, and of such imperfect blocks, molded in many milieus, that the historical edifice we celebrate as the Enlightenment was built.

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### Notes

- [1] United States Virgin Islands, St Croix Department of Public Works, Survey Section, Records and Deeds, two plat books, the "Folios", one each for the western and eastern ends of the island, opened, according to the title page of the book for the western end, on February 13, 1900; see Svend Balslev, *Vestindisk matrikelvæsen Landinspektøren* 28 (1976-77) 8-12
- [2] Witold Kula, *Measures and men* (R. Sztreter, trans.; Princeton 1986) 101, 111-113
- [3] Josef W. Konvitz, The nation-state, Paris and cartography in eighteenth- and nineteenth-century France *Journal of Historical Geography* 16 (1990) 3-9; David Harvey, Between space and time: reflections on the geographical imagination *Annals of the Association of American Geographers* 80 (1990) 424
- [4] See Robert Darnton, *The kiss of Lamourette* (New York 1990) 136-153
- [5] *Ibid.* 219-252
- [6] *Ibid.* 221
- [7] H. T. Heering and Poul Lanken, typescript draft opinion prepared in connection with a St Croix boundary dispute [Civil No. 147-1965, District Court of the Virgin Islands, Division of St Croix], November 9, 1967, p. 25; quoted by kind permission of Heering's son, Professor Harald Heering, of Lyngby, Denmark

- [8] Waldemar Westergaard, *The Danish West Indies under Company rule (1671–1754)* (New York 1917) 37, 127–28, 199 ff., 239–41
- [9] J. O. Bro-Jørgensen, *Dansk Vestindien indtil 1755; kolonisation og kompagnistyre* (2nd ed.; Copenhagen 1966) 245–49
- [10] Danish State Archives [Rigsarkiv], Copenhagen: Vestindisk-og guineisk Kompagnie (hereafter *V-gK.*) 96, Breve og dokumenter fra Vestindien (hereafter *Br. og dok.*), Moth, St. Thomas, April 4, 1727; Leif Calundann Larsen, *Den danske kolonisation af St. Jan 1718–1733* (unpubl. thesis, University of Copenhagen 1980) 67. All archival material cited here is held by the Rigsarkiv unless otherwise noted. All translations from quoted Danish sources are by the author of this article
- [11] *V-gK.* 56, Amerikanske og afrikanske kopibøger, “Ordre og Anstalt”, Copenhagen, November 16, 1733, section 9
- [12] Metric (International System of Units) equivalences for the various measures discussed in this piece are provided here: the Danish foot, which is now rarely used, even colloquially, is equal to .3138 metre, 2.97 per cent longer than the English foot. This standard was adopted from the “Rhinlandske fod” by a decree of Christian V in 1683. The Danish *alen* was two Danish feet. The Danish *tønde* was 14,000 square *alen*, or about .5516 hectare; the Danish acre of St Croix was 40,000 square Danish feet, or about .3944 hectare; the English (U. S.) acre equals about .4051 hectare: Svend Balsev and Hans Ejner Jensen, *Landmåling og landmålere, Danmarks økonomisk opmåling* (Copenhagen 1975) 15; Lewis Van Hagen Judson, Measures and Weights, in *Encyclopædia Britannica* 15, 14th. ed; Roland Chardon, The linear league in North America *Annals of the Association of American Geographers* 70 (1980) 129–53
- [13] Westergaard, *op. cit.* 205–6
- [14] *V-gK.* 863–65, Mandtalslister og matrikler for St Croix
- [15] *V-gK.* 9, Proponenda o. a. dokumenter vedk. participant- og generalforsamlinger, Nov. 13, 1733
- [16] *V-gK.* 180, 1735–40, Et mislykket lotteri på plantagegrunde på St Croix
- [17] Bro-Jørgensen, *op. cit.* 249–255, 276; Westergaard, *op. cit.* 319
- [18] Adolph Frederik Bergsøe, *Den danske Stats Statistik* 4 (Copenhagen 1844–53) 624
- [19] Vestindiske lokalarkiver (hereafter *VILA*), Instruktioner 1723–84 (“699”), Governor von Pröck, St Croix, October 4, 1760, providing for the use of English in depositions if necessary
- [20] *V-gK.* 106, *Br. og dok.*, Poul Lindemark, St Croix, June 25, 1744
- [21] Ager, in *Ordborg over det danske sprog* 1 (Copenhagen 1918–19); see Marc Bloch, Le témoignage des mesures agraires *Annales d’Histoire Economique et Social* 6 (1934) (New York 1972) 282, and J. H. Andrews, *Plantation acres* (Ulster 1985) 12–13
- [22] See Kula, *op. cit.* 30–35
- [23] Gunnar Knudsen, De danske matrikler og deres benyttelse ved historiske undersøgelser *Fortid og nutid* 2 (1919) 20; Henrik Pedersen, *De danske Landbrug fremstillet paa grundlag af forarbejderne til Christian Vs Matrikel 1688* (Copenhagen 1928) 31; Salmonsens Konversationsleksikon 5 (Copenhagen 1916) 619; Svend Aakjær, Maal og Taxter i Danmark, in *Maal og Vægt [Nordisk Kultur* 30] (Copenhagen 1936) 225–26
- [24] Knudsen, *op. cit.* 20–21; Pedersen, *op. cit.* 24, 31
- [25] Rentekammeret (hereafter *Rtk.*) 2249.36, Diverse dokumenter og breve ang. de kgl. sukkerplantager på St Croix, an untitled and undated map of a portion of the King’s plantations, signed Kuhl, apparently drawn from a rougher sketch signed Cragh and dated October 5, 1746
- [26] *V-gK.* 5, De ved trykken bekendtgjorte sager, octroi of February 5, 1734, p. 39
- [27] See *V-gK.* 114, *Br. og dok.*, Vice-governor Hansen, St Croix, August 30, 1751
- [28] *V-gK.* 114, *Br. og dok.*, Borger Raad, St Croix, May 5, 1751 (with general administrative report of July 5, 1751)
- [29] [John Quincy Adams], United States Department of State, *Report of the Secretary of State upon weights and measures* 1821 (reprint; New York 1980) 12; Horace Doursther, *Dictionnaire universel des poids et mesures anciens et modernes* (Bruxelles 1840); see Chardon, *op. cit.* 131
- [30] William Hallock and Herbert T. Wade, *Outlines of the evolution of weights and measures and the metric system* (London 1906) 2, 30, 34, 37; Kula *op. cit.* 114–119
- [31] Kula, *op. cit.* 19; see Manuel Carrera Stampa, The evolution of weights and measures in New Spain *Hispanic American Historical Review* 29 (1949) 4, 7–8
- [32] Hallock and Wade, *op. cit.* 81
- [33] See Kula, *op. cit.* 9–10, 168–169
- [34] [Adams], *op. cit.* 48
- [35] *V-gK.* 114, *Br. og dok.*, Vice-governor Hansen, St Croix, August 30, 1751

- [36] Nautical Charts Department archive, Kort- og matrikelstyrelsen, Copenhagen, Cronenberg and Jægersberg, Chartre over Eilandet St Croix, manuscript map No. A/18–49; see Daniel Hopkins, An extraordinary eighteenth-century map of the Danish sugar-plantation island St Croix *Imago Mundi* 41 (1989) 44–58
- [37] See Daniel Boorstin, *The Americans: the national experience* (New York 1965) 243; Kula, *op. cit.* 5
- [38] V-gK. 115, Br. og dok., Clausen, St Croix, April 30, 1752
- [39] [R. Haagensen], *Beskrivelse over eylandet St. Croix i America i Vest-Indien* (Copenhagen 1758) 10–11; P. P. Sveistrup, *Bidrag til de tidligere dansk-vestindiske øers økonomiske historie* (Copenhagen 1942) 19
- [40] Rtk. 2249.66, Vestindiske kommissionsforretninger vedr. salg af plantager . . . på St Croix, property commission report completed June 22, 1759
- [41] See B. W. Higman, *Jamaica surveyed: plantation maps and plans of the eighteenth and nineteenth centuries* (Kingston 1988) 85
- [42] See Kula, *op. cit.* 170
- [43] V-gK. 105, Br. og dok., “Inventarium” of the Company’s “estat” on St Croix, 1740; Heering and Lanken, *op. cit.* 28
- [44] V-gK. 526, Sekretprotokoller ført på St Croix, 1744–1754, June 4, 1751
- [45] V-gK. 114, Br. og dok., with the general letter of July 5, 1751
- [46] James McGuire, *Geographic dictionary of the Virgin Islands of the United States* (Washington 1925) 164
- [47] V-gK. 862, Mandtalslister og matrikler for St Croix, Pro Memoria, ca. 1739
- [48] V-gK. 100, Br. og dok., Friderich Moth, St Thomas, August 31, 1735
- [49] VILA, Vestindisk regering, referatprotokol, 1797, No. 447; VILA, Christiansted, byfoged arkiv, tingsvidne protokoller, 1802–1805, case No. 32/1803; U. S. Virgin Islands District Court, Division of St Croix, Civil No. 147-1965
- [50] VILA, St Croix stadskonduktør og landmåler, landbreve og landmaalerprotokoll for St Croix 1759–1811
- [51] J. G. Moltkes personarkiv, No. 5979/14, Anonymous, Beretninger om De Danske Vestindiske Sukker Eylande St Croix, St Thomas, og St Jan [1763]; see Vernon Carstenson, Patterns on the American land *Surveying and Mapping* 36 (1976) 305–306
- [52] V-gK. 178, Breve og dokumenter vedk. klagerne over Guvernør Fr. Moth . . . , Schopen, St Croix, January 21 and June 25, 1743
- [53] Curtis M. Brown, Walter G. Robillard, and Donald A. Wilson, *Evidence and procedures for boundary location* (2nd. ed.; New York 1981) 367–368, 387; *American law of property* 3 (A. James Casner, editor-in chief; Boston 1952) 416
- [54] See Ward Barrett, Jugerum and *Caballeria* in New Spain *Agricultural History* 53 (1979) 436–37
- [55] Bro-Jørgensen, *op. cit.* 260–264
- [56] Jens Michelsen Beck’s personarkiv, No. 5097; [Julius v. Rohr], *Skrivter af Naturhistorieselskabet* 2 (1792) 205–21; Rtk. 2249.10, Amerikansk og afrikansk kopibog, April 19, 1757; Julius Philip Benjamin von Rohr, *Anmerkungen über den Cattun Bau* (Leipzig 1791–93); Peter Lotharius Oxholm, *De danske vestindiske øers tilstand i henseende til population, kultur og finance-forfatning . . .* (Copenhagen 1797)
- [57] C. G. A. Oldendorp, C. G. A. Oldendorp’s *history of the Evangelical Brethren on the Caribbean islands of St Thomas, St Croix, and St John* (Johan Jakob Bossard, ed. (1770), English ed. and transl. by Arnold R. Highfield and Vladimir Barac; Ann Arbor 1987) 154–55
- [58] Hans West, *Bidrag til beskrivelse over Ste Croix med en kort udsigt over St Thomas, St Jean, Tortola, Spanishtown og Crabeneiland* ([Copenhagen] 1793) 31–32, 34–35; Westergaard, *op. cit.* 276
- [59] Charles Coulson Gillispie, *Science and polity in France at the end of the old regime* (Princeton 1980) 74
- [60] *Ibid.*, 336
- [61] Roland Hussey, Traces of French enlightenment in colonial Hispanic America, in Arthur P. Whitaker (Ed.) *Latin America and the enlightenment* (New York 1942) 28–29
- [62] Rtk. 2249.66, 1759, Vestindiske kommissionsforretninger vedr. salg af plantager . . . på St Croix, property commission report completed June 22, 1759
- [63] Rtk. 2249.66, Suhm, Clausen, inventory of plantation La Grande, May 3, 1759
- [64] Schimmelmans privatarkiv, No. 6285, Pakke 68
- [65] Generaltoldkammer (hereafter *Gtk.*), Vestindiske og Guineiske sager, Indkomne vestindiske breve, 1761, Journal Litra A, No. 113. The two maps have now been incorporated in the Kort- og Tegningssamling, U-samlingen, GtK. U Nr. 49 and 50

- [66] See Higman, *op. cit.* 60–61
- [67] *VILA*, St Croix Stadskonduktør og Landmåler, Landbreve og Landmaaler Protokoll for St Croix, 1759–1811
- [68] J. G. Moltkes personarkiv, No. 5979/14, Beretninger om De Danske Vestindiske Sukker Eylande St Croix, St Thomas, og St Jan; Frederik Thaarup, *Veiledning til det Danske Monarkies Statistik* (2nd. ed.; Copenhagen 1794) 425; West, *op. cit.* 233
- [69] Fr. ang. en Afgift af faste Eiendomme og sammes Production m. v. paa de danske vestindiske Øer, October 1, 1802, in Jacob Henric Schou (comp), *Chronologisk Register over de Kongelige Forordninger og Aabne Breve samt andre trykte Anordninger* [Schous Forordninger] . . . Part 13, 1800–1803 (Copenhagen 1804) 498–99
- [70] *Gtk.*, Vestindiske og guineiske sager, Vestindisk forestillings- og resolutionsprotokol, 1801-2, September 28, 1802
- [71] *VILA*, Vestindiske reviderede regnskaber, Matrikel for St Croix, 1803
- [72] *VILA*, Vestindiske reviderede regnskaber, Matrikler for St Thomas og St Jan, 1803–1813; Bergsøe, *op. cit.* 630
- [73] George F. Tyson, St Thomas, personal communication, May 3, 1990
- [74] Jens Vibæk, *Dansk vestindien 1755–1848; Vestindiens storhedstid*, (2nd ed; Copenhagen 1966) 90, 97–100; Larsen, *op. cit.* 69; Sveistrup, *op. cit.* 18–19, appears to equate the measure and the English acre
- [75] Higman, *op. cit.* 49
- [76] Chardon, *op. cit.* 147
- [77] United Nations, Department of Economic and Statistical Affairs, *World weights and measures: handbook for statisticians* (Statistical Papers, Series M, No. 21, Rev. 1; New York 1966) 103; Archibald Graeme Bell, Guiana, in *Encyclopædia Britannica* 12 11th ed
- [78] Doursther, *op. cit.*
- [79] Robert H. Schomburgk, *A description of British Guiana, geographical and statistical* (reprint ed.; New York 1970 [1840]) 81–87; Raymond T. Smith, *British Guiana* (London 1962) 11–25
- [80] On the American and other grid surveys, see, among others, Norman J. W. Thrower, *Original survey and land subdivision* (Chicago 1966); Amelia Clewley Ford, *Colonial precedents of our national land system as it existed in 1800* (Madison 1910); O. A. W. Dilke, *The Roman land surveyors* (Newton Abbot 1971); George Kish, *Centuriatio: the Roman rectangular land survey Surveying and Mapping* 22 (1962); and Paul W. Gates, *History of public land law development* (Washington, D. C. 1968)
- [81] William D. Pattison, *Beginnings of the American rectangular land survey system, 1784–1800* (reprint ed.; New York 1979) 46–48
- [82] Thomas Jefferson, Plan for establishing uniformity in the coinage, weights and measures, of the United States, communicated to the House of Representatives, July 13, 1790, *New American State Papers, Science and Technology* 3 *Weights and Measures* (Wilmington 1972) 17, 19
- [83] Hildegard Binder Johnson, *Order upon the land; the U. S. rectangular land survey and the Upper Mississippi country* (New York 1976) 42
- [84] Pattison, *op. cit.* 50
- [85] John R. Stilgoe, *Common landscape of America, 1580 to 1845* (New Haven 1982) 103
- [86] See David Lowenthal, The place of the past in the American landscape, in David Lowenthal and Martyn J. Bowden (Eds), *Geographies of the mind* (New York 1976) 89–117, and Darnton, *op. cit.* 133
- [87] Boorstin, *The Americans* 243
- [88] *Loc. cit.*
- [89] Frederic Seebohm, *Customary acres and their historical importance* (London 1914) 11–12; Kula, *op. cit.* 5–8
- [90] See Daniel J. Boorstin, *The lost world of Thomas Jefferson* (Boston 1948) 169, and Kula, *op. cit.* 35
- [91] See Arthur P. Whitaker, The dual rôle of Latin America in the Enlightenment, in Whitaker (Ed.) *Latin America and the Enlightenment* 5–6
- [92] See J. B. Jackson, The order of a landscape; reason and religion in Newtonian America, in D. W. Meinig (Ed.), *The interpretation of ordinary landscapes* (New York 1979) 155
- [93] Hopkins, *op. cit.* 50–51; Boorstin, *The Americans* 245, 247