

**From Rights to Land: Chapter Two of
*Knowledge Production or Construction?: A Comparative Analysis of Census Taking in the
West.***

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Chapter 2: From Rights to Land

To: Members of CCOP

Re: From Rights to Land: Chapter Two of Knowledge Production or Construction?: A Comparative Analysis of Census Taking in the West.

From: Dylan Riley

This chapter is part of book under contract with Russell Sage presenting a broad historical comparative analysis of official information gathering. The main argument of the book is that most "social constructionist" accounts of official information collection are overly state-centric and fail to pay adequate attention to the social dynamics of information collection. This is true both of those who emphasize that categories, such as race and ethnicity, are constructed and reinforced by state led efforts at information collection, and of those who emphasize the connection between state formation and the collection of knowledge about resources, particularly land. The chapter that you are reading makes this argument in relation to cadastral or land surveys. It emphasizes the importance of agrarian political economies and agrarian elites in understanding for explaining when such surveys succeeded. The main argument of the piece is summarized in the introduction and conclusion, and in figure 1. If you do not have time to read the entire chapter, I would recommend focusing on the introduction, the conclusion, and the "Italian" section.

Thanks very much.

Best,

Dylan

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[note: We moved the US colonial census from a later chapter to this one; now the idea about a colonial census initiated for the reasons of “populaceness” is in this chapter, which seems a little off. But, it may be better to take this out of this chapter.... I’m not even sure the early colonial US censuses were for this purpose....]

§ 1 - Introduction

In this chapter, we examine the emergence of land surveys in England, its outgrowth in the colonial United States, and on the Italian peninsula. The chapter traces a broad transition from medieval methods of surveying in which surveyors, who were not constituted as a well defined profession, collected information on land and rights together, to surveys focused exclusively on land conceived as abstract fungible space (McRae 1993: 334-335)¹. We argue that the constitution of land as space had occurred by the eighteenth century in England, its North American colonies, and Italy. In all three areas we suggest that agrarian land markets, rather than central states, were the driving force behind the initial emergence of this new technology of land surveillance that formed technical basis of land surveys. However, the degree to which political units subsequently adopted these technologies of surveillance to create large centralized land surveys varied across the three "cases". In England no centralized land survey emerged despite its early political centralization, the early development of agrarian capitalism, and a countryside swarming with surveyors by the seventeenth century. In the United States, in contrast, Congress in the late eighteenth century established a national land survey that drew explicitly on

¹ McRae (1993: 334-335) summarizes the contrast. “The medieval estate survey”, he writes, “was typically performed by a manorial official and involved a review of the customary ‘bundle of rights that made up a manor, based on the testimony of “true and sworn men” of the district.’ The ‘modern surveyor,’ however, was increasingly seen as an independent specialist who brought to an estate a newly legalistic appreciation of tenurial relationships and newly rationalistic standards of land measurement and estate planning.” As we will show below this model of the survey, as a survey of rights was also common to centralized monarchical efforts at gathering information.

techniques of land surveillance established in the colonial period. In "Italy" (not during this period a political unit) the Austrian administration in Lombardy successfully carried out a land survey between 1719 and 1733 in part by drawing on knowledge embedded in local land markets. Our analysis then attempts to account for the general shift from surveillance as an accounting of rights to surveillance as an accounting of objects, and the different reactions of centralized political units to this common shift.

By the eighteenth century, in England, the North American colonies, and Italy professional land surveyors had emerged to undertake the surveys. The consolidation of this profession was an important dividing line between surveys carried out by declarations of landholders (such as the *Domesday Book* or the Florentine *Catasto*) and the geometrical surveys of the eighteenth century (such as the Milanese *Censimento* and the English estate surveys) that required specialized instruments and techniques (Kain and Baignet 1992: 4; McRae 1993: 335). The change from declaration to "geometrical" survey was also a conceptual shift in the object of surveillance itself. While medieval and Renaissance surveillance aimed at persons and their rights, and counted land only as a manifestation of these relationships, early modern surveys, especially in the eighteenth century, aimed at land as an object, and deliberately attempted to abstract from persons (Cortese 1958: 493; Finn 1963: 31; Mannori 2001: 30; McRae 1993: 346; Sutherland 1963: 6).² We argue in this chapter that this shift was linked to economic changes,

² Mannori (2001: 30) and Cortese (1958: 493) discuss this shift in terms of taxation. The emergence of geometrical surveillance for them is linked to a shift from a taxation regime aimed at the person, to one aimed the land. Mannori (2001: 30) develops this idea through a discussion of the distinction in Roman law between *colecta*, a tax on persons, and *tributum* a tax on land. For McRae the shift is more directly related to property rights. He suggests (McRae 1993: 346) that the modern estate surveys that emerged during the sixteenth century replaced a "preexistent language of representation" which focused on the quality of different types of land, with a more quantitatively oriented approach. More generally all three authors suggest a shift toward land as an abstract, fungible space. In contrast to modern surveys, both *Domesday Book* (Finn 1963: 31)

very broadly speaking the emergence of agrarian capitalism, and had relatively little to do with state formation. As evidence for this argument we emphasize that land surveillance techniques emerged in a wide variety of political contexts, and indeed often in places that were rather backward from the perspective of the development of national states.

Our contrast between Italy, England and England's North American colonies underscores this point. Land surveillance emerged in England, Colonial America, and Italy – three areas that differed radically in terms of their political and legal histories, but which shared developed agrarian capitalism. We argue this contrast strongly suggests that the need for good information and clear property rights, rather than state formation, was the central force behind the emergence of the technology of land surveillance.

However, whether that technology, which was widely available in all three cases, was actually taken up to create a centralized land survey depended on two further factors: the structure of the agrarian elite, and the purpose of the land survey. Agrarian elites in England, the American colonies, and Italy differed. In England they tended to be manorial lords whose social and political power was partially based on the exclusion of public officials from their domains. Property was conceived as something outside and opposed to political authorities. In the United States agrarian elites emerged as land speculators who needed political authorities to register and enforce their claims over undivided lands. In Italy, the agrarian elite was an urban dwelling landlord citizenry. For reasons that are somewhat similar American and Italian landed elites turned out to be much less resistant to centralized land surveys than their English counterparts. In both the colonial and national periods in America political authorities were very active in

and the *Quo Warranto Survey* (Sutherland 1963: 6) (the two major efforts at medieval information gathering) were aimed at rights or franchises. As such, these surveys, while

constituting property rights. In Italy landholders were relatively tolerant of large public surveys because of their long tradition of exercising their power through public institutions, rather than privately through the manor. Private property in land, in both cases, was constituted through centralized political authority rather than against it. This would have an important impact on the success or failure of large centralized cadastral surveys.

The structure of the agrarian elite was not however the only factor explaining when land surveillance was successfully taken up by central states. The declared purpose of land surveys also played a crucial role. In both England and on the Italian peninsula land surveillance was closely linked to taxation. Landowners resisted these attempts. Political authorities eventually overcame this resistance on the Italian peninsula, but they proved unable to do so in England. In the United States, land surveillance was not linked to taxation, but rather to colonization. Here, despite many cultural similarities with England, a massive federal survey was established. The central argument of this chapter then is that the success or failure of large scale land surveys has to be explained in terms of the intersection of the interests of the agrarian elite and the purpose of the land survey. Figure One lays out the basic structure of our argument.

[Figure One About Here]

As the figure suggests in all three cases land surveillance technology was widely available (although these techniques appear to have been more advanced in England and Italy than in the United States) despite the many differences in political and cultural conditions in each country. We would argue that this commonality strongly suggests that the emergence of techniques of land surveillance is closely linked to agrarian capitalism since this condition was common to all

providing information about land and persons, were *primarily* accountings of social relationships between the monarch and his subjects not things.

three cases. Yet the success or failure of land surveys in three cases was the product of the interaction of the structure of agrarian elite and the purpose of the land survey.

§ 2 - Land Surveillance in Pre-Industrial England

The history of official information gathering in England poses a paradox. Although England had one of the most centralized and effective states in feudal and early modern Europe (Brewer 1990: 4), the country never successfully established a modern cadastral survey. Kain and Baignet (1992: 262) put the point this way:

Whereas all the land of metropolitan France has been recorded in periodically revised cadastral surveys since the Revolution, that position...has even today not been fully achieved in England and Wales.

Why did England, given its early history of political centralization, fail to establish a comprehensive land survey? To resolve this puzzle it is necessary to focus on how early English state formation entrenched the power of landed elites at the level of the manor. Because of the entrenched power of manorial lords, the flood of official information gathering efforts that began especially in the late seventeenth century bypassed landed wealth and focused instead on commerce.

Most early land surveys in England were linked to taxation for war. Authorities used the information gathered from these surveys to assess taxes as needs dictated. However, local factors constrained data collection. In the following section, we examine these issues and how they shaped how information was gathered in pre-modern England.

Information Gathering in the Medieval Period (1066-1307)

By the eleventh century, England formed one of the most cohesive political units in Feudal Europe (Ormrod 1999: 19). After the invasion of William the Conqueror in 1066 the Normans superimposed "...the military, political and fiscal powers associated with Continental feudalism"

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onto the old system of local government established by the kings of Wessex (Ormrod 1999: 19). In the twelfth century during the reigns of Henry I (1100-1135) and Henry II (1154-1189) the monarchy established a set of administrative controls over local government: the Exchequer which audited the accounts of local officials, and the eyres, a system of local itinerant courts (Ormrod 1999: 19).

This strong state was premised on a politically powerful, and remarkable cohesive, landed aristocracy. Landed aristocrats had two organizational bases of authority: the manor at the local level and parliament at the national level. As Brenner writes (1995: 256), "...feudal lords, led by the magnates, operated all levels of the English royal administration, from the immediate entourage of the king (the Curia), on down through the perambulating courts, to the county sheriff". They also, he (Brenner 1995: 256) points out, provided the military might and the financial basis of the monarchy. Political centralization after the Norman Conquest proceeded together with tightening controls over the peasantry. The Norman royal administration assisted lords in tracking down and returning fugitive villains or serfs to their owners (Brenner 1995: 257). Further as part of the same process by which lords won access to royal courts, unfree direct producers were denied it (Brenner 1995: 258).

The manor was the main institution of lordly class power at the local level. In theory the Crown was the owner of all land in England, and the nobility a group of infeudated tenants (Allen 1993: 60). In practice, all land outside the royal domain (which we discuss in greater detail below) was divided among lords. Lords had two sorts of powers over their manors: powers over land and powers over people. There were three categories of land on a manor: the lords own lands (domain), villein lands, and free lands (Allen 1993: 60). Lords directly farmed domain lands with villein labor, villeins farmed villein land, which they could not sell or transfer without

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permission of the lord, and free land on the manor was a form of co-ownership between free tenants and the lord, which by the fourteenth century had become absolute private property (Allen 1993: 60-61). Lords also had controls over persons: particularly villeins. These people could be beaten or sold, their property was the lord's property, and they had access only to the lord of the manor's courts, not to the royal courts (Allen 1993: 60-61). In sum, the manor was a little monarchy within the broader English monarchy. Social relations within it were extremely hierarchical.

Parliament was the second main institution of agrarian class power in England. This institution aided the monarchy in striking bargains with local potentates especially over taxes (Brewer 1990: 4). Further, since there was only one representative assembly, and not a number of regional estates as in France, political struggle in England tended to be highly centralized (Anderson 19xx: 113-115; Brewer 1990: 5; Mann 1986: 460).

The English Monarchy, until the late thirteenth century was a "domain state" (Ormrod 1999: 21): a political unit that exists from the income generated by the royal household, including its lands and privileges, but which does not have established rights of taxation. Dowell (1884: 15) describes the domain state this way:

The king continued in effect to live of his own – that is, from the revenue derived from the demesne³.

There were three types of income supporting the domain state. First, the English monarchy after the Norman invasion of 1066 was a large landowner. Although the lands directly owned by the monarchy declined as the crown provided "...largesse for royal followers" (Ormrod 1999: 22), revenues from crown estates still made up from about a fifth to about a third of all revenues in the thirteenth century (Ormrod 1999: 24). In the broader sense the domain included the exercise

of "...feudal, regalian, and jurisdictional rights" (Ormrod 1999: 21). Among these were Tallages, and Scutage, taxes collected for specific reasons usually in order to pay a king's ransom or for specific military expeditions (Dowell 1884: 39, 42, 60). The monarchy also collected money from the exercise of justice, and by imposing collections on Jews (Dowell 1884: 89; Ormrod 1999: 27).

None of these fees derived from an established right to collect revenue on a continuous basis to maintain public services. Rather they were feudal aids: money payments for specific purposes (such as a particular military payment) linked to specific obligations established with particular groups (Ormrod 1999: 27-31). This is a crucial point for the analysis that follows, because information gathering in medieval England tended to be aimed at establishing the rights and obligations of these particular groups through legal proceedings. Having briefly sketched the political structure and fiscal structure of medieval England, we discuss the two key examples of information gathering in the period prior to the general crisis of feudalism in the fourteenth century.

The earliest English cadastre is the Domesday survey of 1086. According to Clanchy (1993: 7) "Nothing on this scale survives from any other European state". However the reasons it was undertaken are unclear. The information collected in the Domesday survey was not widely used in the two centuries following its composition (Clanchy 1993: 33). As Clanchy (1993: 33) writes, "There are only ten references extant specifically to the use of information connected with Domesday Book between the time it was made and the death of Henry I in 1135." Clanchy suggests that this was because memory and oral tradition continued to be a more important to establishing claims than references to documents until the reign of Edward I (Clanchy 1993:

³ The word "demesne" is an archaic spelling of "domain" (Ormrod 1999: 21).

34).⁴ In fact, English information gathering activities did not increase until 1170, when Henry II undertook an Inquest of Sheriffs (Clanchy 1993: 60). The recovery of the Domesday Book as a tool for establishing claims may have been linked to increasing literacy. In support of this claim, Clanchy (1993: 60) presents evidence showing an explosion in the number of letters between the reigns of William I in the eleventh century and Henry II in the twelfth century. Clanchy (1993: 32) suggests that that survey may have been symbolic. The name of the document referred to the last judgment. A man named Fitz Neal, writing a hundred years after the survey's completion, suggests that the book "...had been called *Domesdei* 'by the natives' because it seemed to them like the Last Judgment described in Revelation" (Clanchy 1993: 32). However resource collection also may have played a role. William the Conqueror redacted it in the aftermath of his attempt to collect the Danegeld, a military tax, in 1084 (Dowell 1884: 29). This tax according to Dowell (1884: 29) "...was felt to be particularly severe, coming as it did in the year after the year of the great famine or 'mycel hunger.'" Thus the tax prompted by the threat of Danish invasion may have demonstrated the inadequacy of the current official stock of knowledge (Finn 1963: 4). The data, once gathered, might have been used to assess of the Danegeld, ascribe military service obligations, and establish the domain's extent (Roffe 2000: 230-240). The data may also have been used to establish property rights, which had been redistributed following the Norman invasion and subsequent Saxon revolt (Finn 1963:20-37). The Norman conception of administration was based on knowing, through the medium of writing who was legally liable for

⁴ As Clanchy (1993: 34) writes:

"Proving ancient demesne became a routine use of the Domesday Book in Edward I's reign. For example, in a case in 1306 on counsel asks: 'Are we ancient demesne or not?' and another replies: 'We will send to the Exchequer to search in Domesday.' Two centuries earlier counsel's question would have been answered not by searching Domesday Book, but by asking a jury of twelve knights to give oral testimony; there are numerous instances of the latter procedure in the pleas rolls of Henry III's reign."

which properties (Finn 1963:37). The Domesday Book, thus, somewhat like the Florentine *Catasto* discussed later in this chapter, may have served as a property register.

How was this information collected? The shire and hundred courts were responsible for collecting the information in the Domesday survey. As Clanchy (1993: 35) puts the point:

The organization which had made the Domesday survey possible was Anglo-Saxon – the grouping of local communities into shires, hundred and vills; the practice of juries giving solemn oral testimony which was binding on their communities.

Oral and written declarations, upon review by the Hundred Court and the Shire Court, were entered in the Domesday Book. Each hundred listed local estates, their past and present owners, the number of plows, hides, slaves and men on the estates, the number of villages, meadows, fishponds, mills and woods contained therein and their net value (Finn 1963: 9-11; Roffe 2000: 114).

Later efforts to gather information in medieval England were more obviously linked to attempts by the English Crown to establish an adequate domain. One of the most important such efforts was the *Quo Warranto* proceedings, which began in 1274 with a fact finding operation (Sutherland 1963: 18), and continued through a series of suits brought by the English crown against local franchise holders which ended in 1294 (Sutherland 1963: 2). The purpose of this effort of information collection was to establish franchises (rights to administration discussed below), collect fees from persons who exercised an unwarranted franchise and “...get it down in black and white what rights his subjects might lawfully claim, and to assert in an unmistakable manner the principle that they held these rights from him” (Cam 1963: 181). The purpose of the campaign then was to strengthen the economic and political position of the English monarchy.

The proceedings were thus a struggle against the usurpation of royal rights. As Sutherland (1963: 167) writes, "Just as the *Quo Warrantos* would, it was hoped, recover for the king

usurpations of the past, so they should prevent them in the future, and the value of the king's estate would be maintained, the king's honor vindicated, and his royal control manifested". The proceedings, however, also served the interests of landholders since they created a written record that could be referred to later (Sutherland 193: 169)⁵.

To grasp the significance of the survey it is necessary, then, briefly to discuss franchise rights in thirteenth century England. Many lesser lords in England had rights to franchises or liberties (Sutherland 1963: 2). Some of these franchises gave their holders rights to animals in the woods (warren), others the right to hold markets or fairs and collect a fee from the participants (Sutherland 193: 2-3). Further, many franchise holders held the right to exercise justice for certain categories of offences such as "...removal of boundary markers, sale of bread or ale contrary to the regulations of price and quality, stealing from dovecotes, fighting which had resulted bloodshed but not death, and many others." (Sutherland 1963: 4) Franchises, legally, were rights that the crown had ceded to certain private persons (Sutherland 1963: 5).

The *Quo-Warranto* campaign was undertaken to establish the legal basis for the exercise of franchises. In this campaign the crown was a plaintiff demanding that local franchise holders demonstrate some proof of their rights. The legal basis of this operation was the claim that all franchises were royal rights being exercised by private, non-royal, persons on the basis of a specific grant (Sutherland 1963: 12). The following example, from a landholder named John Vavasseur suggests how the proceedings worked (quoted in Sutherland 1963: 163).

John Vavasseur was summoned to answer the lord King by what warrant he claims to have warren in Woodhall and elsewhere (*et alibi*) in his lands in this county, and to hold his lands quit of suit: without license, etc.

⁵ As Sutherland (193: 169-170) writes, "The rolls regularly bore out franchise-holders' claims, and so showed the value of Quo Warranto proceedings for them as recognizing and recording their titles."

And John comes and says that he claims to have free warren in all his lands in Elmsall from grant of King John by a charter which he produces and which witnesses the same.

The monarchy, in order to establish its rights, had to conduct an initial survey of franchises to figure out who claimed to hold the rights in question. This initial inquiry produced a series of documents called the “ragman rolls” (Sutherland 1963: 17-18)⁶. The information gathered was used to bring lawsuits against their holders (Clanchy 1993:6).

The survey associated with the *Quo-Warranto* proceedings was the most impressive round of information gathering since the Domesday Book. “No inquiry by a medieval government”, argues Clanchy (1993: 6), “ever exceeded in scope in detail the survey inaugurated by Edward I in March 1279, which immediately preceded the *quo warranto* prosecutions.” The commissioners gathered information primarily on liberties, various kinds of royal rights that had been granted to lords as sources of revenue (Sutherland 1963: 18). The monarchy then issued writs of *Quo-Warranto* against franchise holders who were then required to produce documents or other forms of testimony proving their rights to the 'liberties' that they exercised (Sutherland 1963: 165-166).

Distinctively both phases of this information gathering effort occurred through courts or “eyres”. Royal commissioners in the initial round of information gathering met “...juries representing hundred, boroughs, and liberties, and put them a list of some forty questions, ‘articles of inquiry’” (Sutherland 1963: 18). The juries were elected by the hundreds and provided sworn answers to the questions (Poole 1955: 400; Sutherland 193: 18)⁷. The

⁶ There appears to be some disagreement about the exact date of this operation. Clanchy (1993: 6) states that the survey was “...inaugurated by Edward I in March 1279”. However Sutherland (1963: 17-18) states that the initial survey was completed between October 1274 and March 1275.

⁷ Poole (1955: 400) writes that “Each hundred represented by an elected jury came in turn before the court to answer the questions put to them by the justices, the ‘articles of the eyre’.”

commissioners asked the jurors two types of questions. The first concerned rights of the king in the county: the number of domain lands, a list of alienated domain lands, the number of franchises, and any lords who abused these franchises. The second set of questions referred to any administrative abuse in the county by royal officials or franchise holders (Sutherland 1963: 18).

The above suggests two general points. First some level of lay literacy seems to have facilitated the collection of information, especially in the *Quo Warranto* survey. For example, the surviving returns for the survey come from a geographical region lying on a line between Oxford and Cambridge. Literacy may have been particularly high in this area, facilitating the collection of information (Clanchy 1993: 6). More generally, Clanchy (1993: 12) suggests that medieval England may have been a surprisingly literate society, although he presents no direct evidence for this⁸. Second both the Domesday Book and the *Quo Warranto* survey relied on the institution of the jury, and sworn testimony by local potentates. The royal commissioners who collected information did not themselves survey the relevant lands and rights. Whatever they learned, they learned from juries⁹ comprised of local notables who offered sworn testimony. Was this a “top-down” or “bottom-up” method of information gathering? The answer depends on whether one considers it from the perspective of the local or national level. At the local level information gathering was in the hands of local power holders. Like other activities of the early English state its information gathering systems were dependent on the aristocracy. Viewed from the perspective of the national level, this was a “bottom up” system of information gathering

⁸ Clanchy (1993: 12) critiques the view that “...levels of lay literacy in Italy ‘far exceeded those in other areas of the west’.” He suggests, in our view somewhat speculatively, that “Reading and writing in the early middle ages may have been as common in Merovingian Gaul and Visigothic Spain” (Clanchy 1993: 12).

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because crown officials were dependent on local potentates, and did not directly collect information.

The Post-Feudal Phase: 1307-1688

The early symbiosis that emerged between the English aristocracy and English political institutions cast a long shadow on the development of official information gathering for centuries afterward. In many respects the English state was remarkable strong as Brewer (1988) has shown. Further, as we discuss below, it produced a great deal of official information. However these efforts did not focus on land: the key source of wealth for the aristocracy (Brewer 1988: 100). The pattern of official information gathering was thus profoundly shaped by the distribution of class power in English society.

The sources of income strictly linked to the domain ceased to be adequate by the mid fourteenth century. As a result the monarchy attempted to establish a system of resource extraction closer to a public revenue system, and this shift generated new attempts to collect information. There were three pressures pushing in this direction. First, "...Norman, Angevin and Plantagenet kings had to draw extensively on the English Treasury to support their wars of conquest and reconquest in France" (Ormrod 1999: 27). This meant that English monarchs had to spend more money. Second price inflation in the thirteenth century, and the general economic downturn of the mid fourteenth century "...made it increasingly obvious that escalating royal expenditure could not be met out of a domain-based fiscal system" (Ormrod 1999: 27). Finally, the English parliament placed restraints on the Crown's fiscal rights (Ormrod 1999: 27).

The increasing frequency of warfare in the thirteenth and fourteenth centuries "...tended to disguise the distinction between ordinary and extraordinary revenue and seemed to signify that

⁹ As Pool (1955: 405) writes "In its widest aspect the jury was not limited to legal procedure, but

the crown had finally abandoned its earlier dependence on the domain" (Ormrod 1999: 33). To summarize: by the fourteenth century the English monarchy had established some powers of taxation.

The establishment of a series of direct taxes, that is taxes on goods and people rather than taxes on flows, was part of this attempt. Yet direct taxes, until well into the nineteenth century, were assessed and applied arbitrarily: that is to say they were not closely linked to systematic information gathering efforts. Most importantly the English crown proved incapable of establishing a cadastral survey as the basis of a direct tax on land. As Ormrod (1999: 45) puts the point referring to the fourteenth and fifteenth centuries "...it was possible for two villages of similar size and wealth to experienced radically different levels of taxation, not only because of the inconsistent way in which local assessors estimated liability for taxes on movable property but also, more importantly, because of the random methods and very localized activities employed by crown agents commissioned to raise men, arms and victuals for royal armies". The two main forms of direct taxation were poll taxes, a kind of flat tax on individuals, and taxes on movable goods such as livestock (Ormrod 199: 45-6). Both of these were obviously inequitable, especially the poll tax. Further, with the rise of large tenants, taxes on movable property also tended to shift the fiscal burden away from aristocratic owners and toward peasant operators who owned the movable property, such as livestock and crops, but were not themselves landowners (Ormrod 1999: 46).

In the place of a land survey, the monarchy adopted a quota system in 1334 that became the basis for direct taxation for years afterward. This was called the fifteenth and the tenth.

Assessment occurred through a process of bargaining among the royal commissioners and local

was simply a means of obtaining information on oath."

elites (Dowell 1884: 96)¹⁰. In the 1430s, during the Hundred Years war, the monarchy attempted to establish a more direct method of assessment. Royal commissioners were to survey land and property, report to exchequer and then establish a tax based on this information to be collected by the local sheriffs (Dowell 1884: 120-121). But there was severe resistance to this attempt and in 1432 "...the king in response to a petition of the commons on the subject, released the grants, and ordained that 'all the commissions, inquisitions, briefs, and returns relating to them should, one and all, be entirely cancelled, taken out of his courts, and held not to be of record, so that none of them should remain in any manner of record or be a precedent in future times.'" The fifteenth and tenth collected according to the assessment of 1334 remained in force.

The quota was highly inequitable. As Ormrod writes (1999: 38), "After 1332, the crown carried out no further assessments of movable property, and the long series of lay subsidies collected for the rest of the fourteenth and fifteenth centuries were all based on fixed quotas set in 1334." Yet since it gave control to local elites, it proved very difficult for the crown to break¹¹.

The crown made further efforts in the sixteenth century to assess landed wealth. Cardinal Wolsey established the Great Proscription in 1522, but it "...produced such strong resistance that

¹⁰ As Dowell (1884: 96) writes:

"In consequence of these [complaints about taxes in 1332], on the grant in the next year of another fifteenth and tenth, 'in order as far as possible to avoid oppression, extortion, and hardships that had occasioned the complaints, and to promote the advantage and quiet of the people,' a power was inserted in the writs issued for the assessment and collection of the tax, which amounted to a direction to the royal commissioners to treat with the communities of the cities and boroughs, the men of the townships and ancient desmene, and all others bound to pay the fifteenth and tenth, and settle with them a fine or sum to be paid as a composition of the fifteenth and tenth."

¹¹ Dowell (1884: 126) discusses the case of assessment in Oxford in 1389. The leaders of the university were owners of a large part of the city, and sought to exempt their rents from taxes. The "commons" of Oxford petitioned the crown to intervene in the assessment, but there was no reply. Dowell (1884: 126) suggests that, "The king appears to have been desirous to appoint the collectors selected by the representatives of the county or the town as the case might be, and did not interfere in questions relating to local assessment."

Henry VIII disowned the requisition in 1525." Henry VIII made a further attempt to increase direct taxation between 1540 and 1547, but "...even the most powerful of Tudor monarchs left no royal bureaucracy capable of assessing and collecting direct taxes upon income and wealth" (O'Brien and Hunt 1999: 84). During the seventeenth century Charles I attempted a thorough revaluation of the tax base for the purpose of collecting "Ship Money" a tax that Archbishop Laud conceived as a contribution to the protection of trade. To collect this money Charles I's Privy Council pressured local sheriffs to reform the bases of tax assessment, and sent commissioners into the countryside (O'Brien and Hunt 1999: 84-85). This situation only changed partly in 1857 when the Board of Inland Revenue was established (O'Brien and Hunt 1999: 82). The English Monarchy thus remained highly dependent on local notables to assess and collect direct taxes (Brewer 1988: 100; O'Brien and Hunt 1999: 79, 82).

Given England's haphazard system of direct taxation, how was it possible for it to finance its foreign wars? English monarchs solved this problem by pursuing a different form of resource collection: taxes on commodities (indirect taxation) and public debt. This strategy was however rather slow to emerge. After the 1340s, the amount of money that English monarchs were able to extract appears not to have kept pace with England's economic development. From the 1340s to the 1460s revenues declined. They then picked up again in the period from 1460 to 1500, and declined from 1500 to the mid seventeenth century (O'Brien and Hunt 1999: 58). As O'Brien and Hunt (1999: 60) suggest, "...since there is nothing among the limited statistical sources we possess for population growth, urbanization and exports to suggest secular decline....the presumption must be that – since the total revenue curve remained roughly flat decade after decade until the late seventeenth century – the state appropriated and spent a declining share of

the nation's income." The breakthrough to a new system of revenue collection based on trade and debt occurred after the restoration of 1688 (O'Brien and Hunt 1999: 66).

The basic strategy of resource collection after the seventeenth century was to follow the path of least resistance. As O'Brien and Hunt (1999: 66) put the point, "Only a modest proportion of the extra revenue raised to support the secular rise in British military expenditure between 1688 and 1815 emanated from direct taxes levied upon income and wealth." Until well into the nineteenth century the English state relied heavily on debt and taxes on trade, rather than direct taxation on income or land (Brewer 1988: 99). As a consequence of this fiscal strategy focused on indirect taxes and wealth, the English monarchy never produced a large-scale cadastral survey. However, as we show below, cadastral mapping as a technique was widespread among private landowners.

The English state, to summarize the discussion so far, depended heavily on indirect taxes and debt to finance its military commitments. The types of official information that it produced closely followed this strategy of resource collection. The development of the Excise department shows this most clearly. Excise taxes were "...duties on domestically produced commodities, especially alcoholic drinks" (Brewer 1988: 92). From the early eighteenth century they produced the largest share of crown revenue of any major category of tax (Brewer 1988: 98). The excise bureaucracy was also a major producer of information. As Brewer (1988: 112) writes:

The steady flow of information meant that the excise commissioners could deal quickly and effectively with inquiries from other branches of government. When the Treasury wanted statistics on candlemakers or the War Office figures on the number of innkeepers who might be pressed into billeting, the Excise could provide the requested data promptly.

In 1712 the department collected information on hops and tanners, in 1758 Excise employees responded to a survey about improving the malt tax. In 1759 they (Brewer 1988: 112) "...were

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asked to carry out a survey of the nation's shops." The Excise department was thus one of the key institutions for collecting official information in late seventeenth and early eighteenth century England. Who collected this data and how?

Unlike other governmental departments in seventeenth century England that relied on non-professionals, the Excise department in the late seventeenth century began to form a professional bureaucracy (Brewer 1988: 101-102). Excise officers were specially trained in methods of assessment at an office in London, and then sent into the field directly to collect information from "...shops, malt houses, cider makers, chandlers, soap manufacturers, distillers and calico printers" (Brewer 1988: 113). Excise officers examined the premises of the shops under their control, walking or riding tens of miles every day (Brewer 1988: 105). The officers kept three kinds of records. First they filled out ledgers kept in the local excise office. In addition to this they kept ledgers or diaries that recorded all of the measurements that they had made that day. Finally they left "...minutes and specimen papers with the traders they had gauged, describing the state of the premises at their departure and informing the traders of the duties that they owed." (Brewer 1988: 108-09) The Excise was thus an impressive organization of information collection. But this information had a specific social profile. The Excise office focused its information gathering efforts on workshops, not on land. It thus left undisturbed the English manor. The land tax continued to operate without a centrally organized bureaucracy in charge of assessment and collection (Brewer 1988: 127). To understand why, we briefly sketch the history of the development of the English landed classes from the fourteenth century.

Agrarian Capitalism

The development of agrarian capitalism was a crucial watershed in technologies of information gathering in England. The collapse of the manorial system, described above, in

response to the Plague of 1348 and 1349, was the first step in this process. During this period the population of England declined from 5 to 2 million, and as a result lords now became desperate to find tenants to work their lands. Landlords attempted to maintain control by imposing wage controls. But, as Allen (1993: 65) writes, "...it was impossible to preserve pre-plague arrangements." Competition for tenants undermined villeinage because villein status referred only to a specific lord. If the villein could escape to another manor, he became a free man (Allen 1993: 65). The peasant revolt of 1381 led by Wat Tyler accelerated the dissolution of the manorial system already set in place by powerful demographic forces (Brenner 1995: 293; Dowell 1884: 113-114).

The collapse of the manorial system in the fourteenth century had two principle consequences. First it produced capitalist farms through the process of enclosure. This process was linked to a shift away from arable to pasture land since pasture was less labor intensive, and could be exploited even in the context of the overall labor shortage of the late fourteenth century (Allen 1993: 66). In many cases, however, there was no direct transition from the feudal manor to the capitalist large estate. Instead the fifteenth, sixteenth and seventeenth saw the rise of class of relatively small proprietors, the English yeomanry, which was eliminated only in the eighteenth century (Allen 1993: 56).¹² However the English crown under Henry VII stepped in to stop this process by granting tenants rights and making them enforceable in royal courts (Allen 1993: 66). The most important change concerned the status of copyhold tenants.

¹² Here Allen (1993: 56) writes, "The demise of peasant agriculture in the open fields was not a simple decline from a medieval golden age – the peasantry waxed before it waned. In the seventeenth century, royal governments supported peasant proprietors in Denmark, western Germany, and France. These policies consolidated the peasants' ownership of land at the expense of the feudal nobilities. Comparable policies were followed in England with comparable results." This period has posed a basic problem for orthodox Marxian accounts of the transition

Copyhold was a tenurial contract that replaced the older manorial contracts in which a free person held "...land in villeinage." (Allen 1993: 67) Beginning in the late fifteenth century various royal courts (chancery and common law courts) began "...to hear petitions from copyholders." (Allen 1993: 6) These courts established protections for copyhold tenants that "...greatly increased the proprietary interests of many farmers" (Allen 1993: 69). By the mid sixteenth century a stratum of owner operators, the yeomen, had emerged.

The rise of small-scale farms did not however threaten the economic position of the large landholders. The most important point here is the English nobility was probably able to expand considerably the extent of domain lands in the late fourteenth and fifteenth centuries by assimilating "...customary (unfree) lands to the demesnes." (Brenner 1995: 294) Further, there is considerable controversy about how secure copyhold rights were (Brenner 1995: 295; Croot and Parker 1995: 82). The collapse of the medieval manorial economy, to summarize, led to the rise of a new type of large-scale agrarian enterprise. As we argue below it was landlords on these large estates that were the driving force for cadastral surveys in the eighteenth century.

There were two important forms of cadastral survey: one diffused form called the "estate map" produced from the late sixteenth century (Harvey 1996: 27), and the second, the enclosure map which was associated with the "parliamentary enclosures" of the late eighteenth and early nineteenth centuries.

Estate maps emerged suddenly in England in the sixteenth century (Harvey 1996: 27). A new professional class of surveyors, which emerged between 1520 and 1620, produced them (McRae 1993: 333). These men offered their services to landlords. A number of them produced professional manuals that were a combination of technical aids, and polemical justifications for

from the feudalism to capitalism because the English monarchy appears both as a defender of the

the work of surveillance. The surveyors presented themselves as bringing knowledge, through geometry, to the confused manorial arrangements of the sixteenth and seventeenth century England.

The link between accurate knowledge and property is particularly clear in John Norden's *Surveyors Dialogue*, first published in 1607. In the book Norden presents a discussion between the surveyor and the manorial tenants. Norden has the tenant say "you looke into the values of mens Lands, whereby Lords of Manors doe racke their Tennants to a higher rent and rate then ever before" (quoted in McRae 1993: 341). In response (quoted in McRae 1993: 341) Norden's surveyor says:

I perceive that the force of your strongest argument is...your feare and unwillignesse that the Lord of the Mannor, under whom, & in whose Land you dwell, should know his owne: and that you thinke it better for you that he should continue still ignorant of what he hath, and that your estates should bee always hidden.

The estate survey thus emerged in England as an instrument of class power in the hands of improving landlords.

Enclosures produced a second type of cadastral survey. Enclosure was an exchange of communal rights to a certain area of land for individual rights to a part of the land. Prior to enclosure land was generally held in strips on open fields, that is fields that were not physically fenced off and separated (Allen 1993: 26). In addition to these open fields there also existed commons, an area set off for grazing when the open fields were sown in strips, and waste lands of little value (Mingay 1997: 8). Villagers' livestock could graze on open fields when crops were not being grown (Allen 1993: 26; Mingay 1997: 34). In addition villagers might possess other common rights as well, such as the right to collect firewood, or turf for roofing (Mingay 1997: 34-35). Conceptually the key point about villages prior to enclosures is that villagers held a

peasantry and a state of large landholders (Dobb 1947: 50-51).

number of rights as members of the village community. Land as a fungible abstract commodity could not be separated out from these communal rights. Enclosure between the fourteenth and the nineteenth centuries created land as commodity (Allen 1993: 28). This process also produced an explosion of information about land.

Open fields could be enclosed in three ways: by agreement among the proprietors, by the assertion of sole proprietorship, or by a parliamentary act of enclosure (Allen 1993: 27; Mingay 1997: 11-12). According to Allen (1993: 32) who has closely studied the south midlands there were three main waves of enclosures: 1450-1524, 1575-1674 and 1750-1849. Parliamentary enclosures were much more common in the last period (Allen 1993: 33). An enclosure act was generally accompanied by a survey of the land, one prior to enclosure and the other after it (Kain and Baigent 1992: 242).

Relatively little is known about non-parliamentary enclosures since they did not occur by an act of parliament and therefore systematic records about them were not produced (Allen 1993: 29). Parliamentary enclosures however required an elaborate process in which gaining information about the land was central. Landowners in a village initiated enclosure by submitting a Bill of Enclosure to parliament (Mingay 1997: 59). In order for parliament to consider the Bill either three fourths or four fifths of the village by acreage had to be in favor of enclosure (Mingay 1997: 60). To initiate the Bill its proponents had to submit a document that listed all the proprietors in the village, the value of the land each held, and what their position on enclosure was: for, against, or neutral (Mingay 1997: 60).

Once the Bill of Enclosure passed, it became a "...private Act of Parliament" (Mingay 1997: 69). To execute the act local landowners hired a commissioner, usually made up of three persons: a representative of the lord of the manor, a representative of the tithe holder, and a

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representative of the all the other property holders. Commissioners were often surveyors, and had to have some knowledge of farming and land tenure (Mingay 1997: 70). Some of them became professional enclosure experts. The commissioners would meet several times during the course of an enclosure, draw up maps, and adjudicate disputes among property holders (Mingay 1997: 72-3).

All the surveys referred to above collected evidence on the land. Information on the land was gathered in two main ways. In some cases, Parliament dispatched professional surveyors to complete the work (Kain and Baigent 1992: 246). In others the information derived secondarily through the workings of the land market (Kain and Baigent 1992: 254-7).

However, the English state never redacted a comprehensive cadastral survey, attaching owners to pieces of land. This was not due to a lack of technique. Private estate mapping was carried on in England from the seventeenth century. Rather, the English state was constrained in its efforts in this respect by a local social institution: a strong landed aristocracy, who did not view cadastral mapping surveys to be in its best interest. Thus, the traditional landlords exploited their power to express their interests in parliament; they used their position to inhibit the development of cadastral surveys in England (Kain and Baigent 1992: 263).

Conclusion

The above argument distinguishes two waves of official information gathering in England. In the period from 1066 to 1307 the English Crown was at the cutting edge of official information gathering efforts. As Clanchy (1993: 6) emphasizes, *Domesday Book* and the *Quo Warranto* survey have no counterparts in medieval Europe. Yet both these surveys relied on the cooperation of local potentates and the structure of local government, especially the jury. Like other aspects of the early English monarchy, information gathering was premised on the

cooperation of the landed aristocracy. This form of information gathering through local elites, continued into the eighteenth century. It is a major reason why a nation wide land survey never emerged in Britain. Large landowners did not want to allow state officials to survey their estates (Chandaman 1975: 140-141).¹³ The absence of a modern cadastral survey does not indicate an absence of official information gathering. Surveys used household characteristics, including the number of chimneys or windows, as indicators of economic status, and thus, as measures of financial responsibility (Braddick 1996: 101-102). Later “cadasters”, produced without maps, were implemented to assess the poll (i.e., head) taxes, which were raised periodically from 1641-1699. To this end, local tax commissioners appointed assessors who produced lists of estates, degrees, titles and qualifications divided into four categories: born, died, married, and unmarried (Braddick 1996: 105). Several major state sponsored attempts at collecting information about the land stand out during this period. The Great Surveys were redacted in the early seventeenth century (beginning in 1603-4). These were surveys of resource extraction, aimed at overcoming the fiscal problems faced by James VI (Kain and Baigent 1992: 236). There were also two major nineteenth century surveys. The first was the Tithe Commutation Survey of 1836. The second was conducted in 1855 called the Ordnance Survey (Kain and Baigent 1992: 244, 260). Yet this never coalesced as a cadastral survey with maps aimed at collecting taxes. The reason, as Kain and Baigent (1992: 258-9) put it is that,

A mapped or surveyed cadaster would necessarily have been in the hands of professional surveyors under the control of central government and would have removed control of the tax form the local landowners and as such was unthinkable.

¹³ As Thomas Burton, an English parliamentarian, put the point in 1657: “As to this plan of surveying and searching into men’s estates it is that which your ancestors would never endure. That the chief magistrates should know men’s estates was always to be avoided.” Chandaman (1975: 140-141) quotes Burton.

In sum, the class structure of the English countryside, and the close relationship between the landed elite and the state precluded the implementation of a modern cadaster at the national level, despite the fact that England was a highly unified strong state by the eighteenth century. This does not mean that land surveys were not conducted in England. On the contrary, from the sixteenth century onward mapping and surveying became ubiquitous. However it was private landowners who pursued this activity, either to represent their land to themselves, or as part of the process of enclosure.

§ 3 - Land Surveys in Colonial America

The pattern of information gathering in colonial America initially followed quite closely what we described above for England. Colonial authorities gathered considerable information on the population and on commerce, but left land surveillance to local authorities. We leave the discussion of early population censuses in the American colonies for chapter three. In this section, we examine the development of land surveys in the American colonies. Although land surveillance in the American colonies resembled in some respects what occurred in the United Kingdom because of its local organization and connection with legal struggles, after independence the colonies successfully undertook a massive land survey which began in 1784 and assumed final form in 1796. In some ways this is quite a surprising outcome, since the federal government was much weaker than the British monarchy. As we argue in this section, this outcome was the result of the intersection of the specific organization of the colonial landed elite, and the purpose of the federal survey that was to distribute land rather than assess taxes.

Land Surveillance in the Colonial Period

Colonial land surveys, not unlike the English estate surveys and enclosure surveys of the seventeenth century discussed above, were closely linked to the establishment of private

property in land. To understand the connection between proprietorship and land surveys it is important briefly to sketch the structure of private property in the early American colonies. The colonies created private property through a series of grants in which land was first distributed to colonial companies, and then either directly to individuals, or to groups of individuals who further subdivided the land amongst themselves (Akagi 1924: 6-13). In legal theory the source of all land titles in New England was a grant from the English crown, which "...claimed it on the right of discovery and possession" (Akagi 1924: 5). Indeed most land in the colonies was legally part of the Manor of East Greenwich in England, a royal holding in which tenants held their land in free and common socage, a type of holding in which land was basically the absolute private property of the owner upon the payment of a quitrent (Price 1995: 15).

The colonial authorities holding the land subsequently distributed it either directly to individuals or to "...groups and communities of individuals" (Akagi 1924: 10). If the grants had been to communities of individuals, or townships, these individuals formed a group of "proprietors" or "commoners" who held the granted land in common (Akagi 1924: 2-3).¹⁴

Although the establishment of private property in land was a central activity for all the colonies, there were important regional differences in how this process unfolded. In the South Atlantic colonies, land tended to be granted to individuals under a warrant. The individual holder of a land grant would thus survey the land, and then register this survey with the colonial government. This system produced very little accurate information about the land (Price 1995:

¹⁴ As Akagi (1924: 2-3) puts the point, "We may define the proprietors of New England towns, in the first instance, as the original grantees or purchasers of a tract of land, usually a township, which they and their heirs, assigns, or successors, together with those whom they chose to admit to their number, held in common ownership."

89, 94).¹⁵ This was in part because the surveyor was paid by the warrant holder, and thus was likely to survey a greater quantity of land than was actually in the warrant (Price 1995: 13-14, 351).

The New England colonies differed sharply from this system. Here land was distributed not to individuals, but to townships. Land surveys were crucial to this system of redistributing land. They generally occurred at two main points in the process of redistribution: the initial grant from the colonial company to the township, and then within the township for the distribution of common lands. Land was granted by an organization called the "general court" responding to a petition brought by the proprietors who had often previously purchased the land from indigenous peoples (Akagi 1924: 10-11; Price 1995: 29). Before granting the land the general court established a committee made up of members of the court and members of the township bringing the petition. This committee was entrusted with surveying the land (Akagi 1924: 31).¹⁶

The example of the founding of the township of Suffield Massachusetts from 1669 to 1674 gives an idea of how this initial distribution of land worked. The people of Springfield Massachusetts in 1669 decided to establish a new township, and brought a petition to the Massachusetts general court in 1670. The court granted the petitioners a tract of six square miles of land. It then appointed a committee of six men from the petitioners who were entrusted with surveying the land and allotting the land to the grantees (Akagi 1924: 34-35). The people who received this initial grant of land became the "proprietors" of the township (Akagi 1924: 37).

¹⁵ As Price (1995: 89) writes "Except for short periods, none of the Southern colonies surveyed lands in advance of settlement or held up the march of settlement for such surveys."

¹⁶ As Akagi (1924: 31) writes, "This committee, after surveying and laying out the same, reported its proceedings to the court and the formal grant was made after the confirmation of the report."

The proprietors had two different sorts of property. First, they possessed lots as their individual property. But they also had rights to the remaining undivided common lands (Akagi 1924: 35). In some ways this system resembles the English village discussed above since the residents of the township possessed rights to both individual pieces of land and rights to the common land. However, unlike the situation in England, the village commons in the Americas was rarely worked in common as an open field. The commons rather was a temporary status for land that was later distributed in private plots (Price 1995: 33).¹⁷ Therefore rights to the commons were simply claims to future private land. After the incorporation of the townships one of the central activities of the proprietors was therefore to survey and divide the remaining common lands (Akagi 1924: 104; Price 1995: 29-30).

The process of dividing township lands often lasted decades (Price 1995: 32).¹⁸ From the seventeenth to the eighteenth century the organization of the townships and the position of the proprietors within them, changed. Initially people living in the townships overlapped with the proprietors (Akagi 1924: 46). Town officials who were themselves elected by the assembled proprietors were charged with overseeing land surveillance (Akagi 1924: 46).

Surveyors, chainmen, and assistants who were employees of the proprietors undertook the actual work of measuring and dividing the land (Akagi 1924: 85). The techniques they used were rudimentary. Instead of using plane tables to survey the land from a single point the surveyors

¹⁷ Price (1995: 33) writes that "Most important in the changes occurring in New England after the first settlement were the early disappearance of open-field farming and the abandonment of the village as the farmers' residence in favor of dispersed dwellings on consolidated or enclosed farms."

¹⁸ Price emphasizes diversity in how common lands were divided. As he (Price 1995: 32) writes, "The successive divisions of land in a township often spread over a period of a generation, or sometimes even a century. Some proprietors granted out the land as fast as settlers arrived and

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generally traversed the boundaries with chains (Price 1995: 350). To avoid boundary disputes between contiguous properties owners would traverse the boundaries with their neighbors under the supervision of a local official (Price 1995: 352). The surveyors in describing the lots used the system of metes and bounds in which surveyors described pieces of land according to naturally occurring features (Pattison 1957: 79).

Land surveillance in the colonial period, to summarize, was relatively rudimentary, involved no central bureaucracy, and does not appear to have been deeply contentious. We now turn to a brief discussion of how this colonial heritage was transformed after the colonies gained independence.

The Federal Land Survey 1785-1787, 1796

The management of the frontier was one of the major concerns of the United States government both under the Articles of Confederation, and after the passage of the Federal Constitution. In 1785, after the revolutionary war and under the articles of Confederation the central government established a land survey called the Land Ordinance (Carstensen 1988: 31; Price 1995: 343). This established the first public domain in a stretch of land in eastern Ohio called the seven ranges (Pattison 1957: 116-118). Eight years after this first attempt at surveying the frontier a new land survey began in 1796 under the legal authority of the Land Act of 1796. This survey would continue under the guidance of the General Land Office within the Department of the Treasury until 1946 (Pattison 1957: 206-207). The American land survey was among the most ambitious in history both in its extent, and in the strict rectangular grid that it

surveyors could mark off the parcels. Others granted only what they thought was immediately needed."

imposed on the land (Carstensen 1988: 32).¹⁹ Why was this cadastral survey so successful? In some ways this is quite puzzling. First, the United States was hardly a strongly centralized bureaucratic entity, especially compared to the United Kingdom. Second the scale of the survey was vast. To understand the success of the American land survey it is necessary first to focus on the purpose of the survey, and second on the nature of the agrarian elite.

With the end of the colonial period, the federal government assumed responsibility for managing uncolonized western lands. Prior to the revolution several states had various claims to pieces of land. But, "Those with no claims, under the leadership of Maryland, argued that the western lands would be won from England by the common expenditure of blood and treasure and, hence, should be owned by the new Confederation." (Carstensen 1988: 33) This created the first public domain, the Northwest Territory. It included the area south of the Great Lakes, east of the Mississippi and north of the Ohio River. Legally the United States government was now in much the same situation as the English monarchy had been during the colonial period. It had the task of creating private property in land, and land surveillance was a key means of achieving this.

How was this task to be accomplished? There were two ways this could occur. First, individual settlers might lay a claim to a piece of land under the warrant system (Pattison 1957: 71). In this system, as we discussed above, the land survey would simply be a means of producing the documentation necessary to secure an individual claim. Such a system of distributing land required no extensive centralized land survey. Competing with this individualistic model was a model of distribution in which pre-surveyed land was to be sold at

¹⁹ As Carstensen (188: 32) writes, "In their long history of occupying and using fragments of the earth's surface, men had only rarely, before 1785, devised systems under which land was marked

public auction (Pattison 1957: 86-88). Key political figures, particularly Hugh Williamson and Thomas Jefferson, pushed for a version of this latter method of land redistribution, one which was eventually adopted.

The proponents of surveying and then subsequently selling the land were concerned about individual settlers seizing all of the best land and driving down the value for the rest. They were also concerned about the conflict of interest inherent in a land surveyor employed directly by a warrant holder (Pattison 1957: 40-41, 71). To address these problems proponents of prior survey suggests two sorts of policies for distributing land. The first was a set of techniques, which can broadly be called rectangular survey. This meant that land was to be divided up into a grid and distributed in numbered lots. Equally important were a set of administrative measures designed to separate the surveyors from warrant holders.

The origins of the US federal survey lie in a committee report of 1784 drafted under the guidance of Thomas Jefferson. The most important element of this proposal is that it suggested a fundamental break with the surveys by metes and bounds. Instead of describing land in irregular lots according to naturally occurring features, the 1784 proposal demanded that land be surveyed in a "...regular grid" (Pattison 1957: 72, 88). This grid was established by surveying a North to South and East to West line, and then marking off lots in relationship to these lines (Throner 1966: 4-5). The proposal also established a standard length of chain to be used in the survey, and required that surveyors both describe the land in writing, and draw up maps called plats (Pattison 1957: 74-75). In the actual work of the surveillance there was considerable continuity with the colonial period. The surveyors, like their colonial predecessors, traversed lands with chains, by counting their steps, or using modified wagon wheels. They also collected information about soil

out in a rectangular pattern."

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quality, the location of mineral resources and evidence of occupation by either indigenous peoples or settlers (Carstensen 1988: 34-35).

Accompanying these technical innovations that broke for the previous system of metes and bounds, were a series of administrative changes that aimed to separate the surveyor from the warrant holder. As we discussed above in the southern states individuals with a warrant would often lay claim to land and then hire a surveyor to bound it off. In the new system, teams of government-employed surveyors marked and described these new territories. In the first federal survey, carried out in the period from 1785 to 1788, the land survey was carried out under the direction of a Geographer, Thomas Hutchins, who was assisted by thirteen surveyors, one from each of the original colonies (Pattison 1957: 100). These men were then responsible for hiring locals to help them in carrying out the work. These teams of surveyors, importantly, were employees of the federal government, and "...were to be paid not in fees, by the purchasers of land, but by the federal government, proportionate to the number of miles surveyed." (Pattison 1957: 101) This separation was reinforced in the period after the passage of the federal constitution. The Land Act of 1796 established the position of "Surveyor General" under the Secretary of the Treasury (Pattison 1957: 206).

What interests were pushing for these surveys? Distinctively, especially in comparison with the surveys on the Italian peninsula discussed below, land surveys in the United States did not directly concern taxation. The U.S. federal government, like the English monarchy, had very few powers of direct taxation. Under the Articles of Confederation the "...central government had no power to regulate commerce or tax directly" (Beard 1960: 52). Since this damaged the interests of creditors who had financed the American Revolution, it was a major reason for the constitutional reforms of 1787-1789. Yet even the Federal Government under the Constitution

had limited powers of taxation. The Federal Government was only empowered to levy direct taxes on persons, not on land. As stated in an infamous passage, "...direct Taxes shall be apportioned among the several States which may be included within this Union, according to their respective Numbers, which shall be determined by adding to the whole Number of free Persons, including those bound to Service for a Term of Years, and excluding Indians not taxed, three fifths of all other Persons."(U.S. Constitution, art. 1, sect. 2.) Taxes were thus linked to persons not land or wealth. Charles Beard argues that this method of apportioning taxes suggests that direct taxes were conceived as a temporary and exceptional measure (Beard 1960: 170-171).

There were, however, important fiscal reasons for carrying out the land survey. After the revolutionary war, the independent colonies had considerable debt. A number of important political figures saw the sale of the western lands as key to re-establishing the government's solvency (Pattison 1957: 83-84). Indeed, it is suggestive that responsibility of the land survey passed to the Secretary of the Treasury after 1796. However, completely unlike either the United Kingdom or Italy, the U.S. survey was really an alternative to the taxation of land, rather than a pre-requisite for it.

The analysis so far has established that the federal survey did not threaten any established interest. But we have so far neglected to specify the very important interests that were directly served by it. One key interest that was directly served by the Federal Land survey were holders of large quantities of land certificates. The accumulation of land certificates was made possible by the circulation of land scrip – claims to unsettled western lands. Land scrip seems to have been issued for two main reasons: first to pay soldiers, and second to pay of creditors to the US treasury. Speculators hoarded this scrip because they expected land values to rise (Beard 1960: 23, 38, 49; Mackin 2006: 85). These speculators' claims to land were, however, somewhat

fragile. The value of their holdings depended on orderly settlement of the frontier (Beard 1960: 49-50).²⁰ Indeed there was fierce conflict between the big land speculators and "squatters" who tried to lay claim to the land by directly settling it (Carstensen 1988: 33). The big land speculators stood to gain from a centrally administered land survey that would pre-empt the claims of squatters.

Creditors to the federal government also stood to gain from the federal land survey. As Charles Beard points out in his analysis of the emergence of the American Federal Government, among the most important groups pushing for a strong federal government were holders of government debt.

Land surveillance was common in both the colonial period and immediately after the revolution in the United States. The technology of land surveillance emerged "from below" as colonists attempted to establish property claims. The new central authority then took up this technology with very little resistance. There were a couple of reasons for the ease and rapidity of this transformation. First and most obviously, since this land survey's main purpose was to distribute land rather than taxes, it did not threaten the fiscal interests of landholders. This purpose was basically congruent with the interest of key landed elites: especially the holders of titles to western lands after the revolution. There was perhaps a second reason for the support of the agrarian elite as well. As we argued in the discussion of English information gathering techniques above firm private property rights in England developed out of gradual process of juridically establishing specific privileges in relation to the crown, and to other groups.

Enclosure, therefore, was in some ways conceptually a process of recovering, clarifying or

²⁰ Charles Beard summarizes this groups interests in the following way. "The situation was this: Congress under the Articles of Confederation adopted a policy of accepting certificates in part payment for lands; and it was hoped by

altering rights that were already in existence. In the American colonies private property in land emerged very differently: it had to be created through labor. Indeed the John Locke's labor theory of value formed the theoretical basis for seizing land from the indigenous population (Scott 1977: 16).²¹ Surveillance, the marking off pieces of land, was thus part of the way that private property was created in the American colonies. As we argued below this conception of property would lead to much greater support for a massive centralized survey than could emerge in the United Kingdom.

§ 4 - Early Information Gathering Activities in the Italian Peninsula

In this section, we examine early information gathering activities in the Italian Peninsula. Information gathering there, as in England, and the United States, developed in response to unique sets of political, economic and cultural factors. The Italians however seem to have developed much more detailed and extensive information gathering techniques earlier than in either of these two cases. The Tuscan *Catasto* of fifteenth century and the *Censimento* of eighteenth century Milan were far more extensive than anything produced in England prior to the nineteenth century, and far more technically sophisticated than the crude techniques used on the American frontier. This outcome in some ways is quite surprising, for Italy, although it was a cultural area, lacked political unity prior to 1870.

Following the end of the Roman Empire, Italy was divided politically. Three different centers of power competed: the Catholic Church, successive waves of imperial invaders (Carolingian, Norman, Angevin, Aragonese, Habsburg, Bourbon, French Revolutionary, and Napoleonic), and

some that the entire national debt

²¹ As William B. Scott (1977: 16) writes, "Land became private property only through cultivation, manuring, and enclosing. Therefore anyone had the right to appropriate any unimproved land by enclosing and cultivating. Since by English standards the Indians had not

the city-states of the north and center of the peninsula (Jones 1997: 342-6).²² Italy's post-classical history to the early nineteenth century (1815) (the chronological limits of this chapter) may be divided into six periods: from 476 to about 1000, the Carolingian monarchy dominated the upper half of the peninsula. In the south, in contrast, Arabic, Byzantine and Lombard principalities competed (Procacci 1968: 14). During the Italian high middle ages or communal period, from 1000-1380, the north developed self-governing towns, while the south came under the control of the Normans. From 1380 to 1530, the period of the Renaissance, the self-governing communes declined and seigniorial government emerged across the north. This was probably the period of the most intense state-formation on the Italian peninsula before the eighteenth century (Hay and Law 1989: 150-168). The period of Spanish dominance, 1530-1713, is generally understood as one of relative economic and political decline. By the end of these centuries the Italian towns no longer occupied the leading economic, cultural and political position that they had held since around 1000. It is in this period that "...Florence ceased to be a great financial and productive center and became a residential city of rentiers and civil servants" (Procacci 198: 126). The Spanish period opened with Charles V's invasion and defeat of the French in the 1520s (Procacci 1968: 106). After a period of struggle between the French and the Spanish, much of Italy fell into the Spanish sphere at the treat of Cateu-Cambresis (1559) (Procacci 1968: 111-112). Spain also dominated Italian cultural life in this period. After the Council of Trent (1545-1563) an increasingly repressive counter-reformation Catholicism emerged. The Index of Prohibited Books was established in 1558, and throughout the later half

noticeably improved the land or enclosed it, it was not theirs but lay in an unclaimed 'state of nature'."

²²We acknowledge, thus, that Italy was not unified political unit in the period we are discussing. Still it makes sense to treat Italy as a unit because the common heritage of classical antiquity,

of the sixteenth century a harsh repression of heresy continued (Procacci 1968: 113). The sixteenth and seventeenth centuries are generally understood as a period of economic and political decline as the Spanish preserved but did not improve the older institutions of the Italian city-states. During the age of reform (1713-1796) many political institutions were shaken up with the arrival of the Viennese Habsburgs or their relatives as rulers in key areas of the peninsula (particularly Lombardy and Tuscany) in the wake of the War of the Spanish Succession 1710-1713 (Procacci 1968: 172). The French invasion of Italy, in 1796, broke the grip of the Austrians, and began a new period of French dominance which itself divides into an early Republican phase (1796-1799), and a later Napoleonic phase (1800-1815) (Procacci 1968: 208-215).

This situation did not preclude the formation of powerful states, especially in the later fourteenth and early fifteenth centuries. Indeed, by the peace of Lodi in 1454 “Italian political life was...dominated by a system of states of regional dimensions” (Procacci 1968: 48). After the election of the Doge Francesco Foscari (1423) Venice conquered a substantial territory on the Italian peninsula (Procacci 1968: 51). Tuscany, after the unrest of the fourteenth century, underwent a major expansion in the early fifteenth century (Procacci 1968: 58). Lombardy, under the domination of Milan and the Visconti family was “...one of the strongest and most solidly united Italian states” (Procacci 1968: 60). In southern Italy, the kingdoms of Naples and Sicily were united under Alfonso of Aragon (Procacci 1968: 66). The Papal State also emerged as effective political unit in this period (Procacci 1968: 70). Indeed in comparison with other parts of Europe, Italy probably had stronger and more cohesive states.

and the position of the peninsula in the East-West trade, generated similar political institutions across the peninsula.

Unlike other parts of Europe, however, where states were often the driving force behind literacy and numeracy, on the Italian peninsula these basic pre-requisites of systematic information gathering both preceded the emergence of strong political units, and were never fully captured or channeled by them. One of the reasons that specialized knowledge was more diffuse in Italy than elsewhere was that the city state system was relatively egalitarian. Political status ceased to be strictly linked to economic position as a broader division between *cittadini* (those who lived in the city) and *contadini* (those who lived in the country or *contado*) replaced to some degree categories such as serf and lord (Jones 1997: 314; Procacci 1968: 11-12).²³ This relative homogenization of social status within the city state, we would suggest, explains the wide and early extent of lay literacy in this zone. By 1300 tens of thousands of notarial documents were produced every year at Pisa and Genoa (Jones 1997: 157). Hundreds and in some cases thousands of people were registered as notaries in the important northern Italian towns (Jones 1997: 157). The basic techniques, literacy and numeracy, upon which land surveillance would come to be based were relatively widely diffused very early in Italy. No specific social class controlled them. In Italy the wide prior diffusion of numeracy and literacy allowed reforming ministers in the eighteenth century to outflank landed upper classes and institute centralized cadastral surveys in a way that was impossible in England, and on a much higher technical than in the American colonies (Zangheri 2002 [1973]: 4).

This is most obviously true of markets and literacy. Money and markets were important on the Italian peninsula from a very early period. Evidence from southern Italy indicates that coin

²³ Procacci (1968: 11) cites the example of Bologna where in 1257 six thousand serfs were granted freedom. He (Procacci 1968: 12) also argues that in the thirteenth century in the northern Italian city states "...in spite of the factions that went on troubling town life for a long time, the basic tendency was toward a gradual homogenization." Jones (1997: 314) argues that nobility in

was used even for small transactions in the eighth century ([verify the date] Jones 1997: 76). In northern Italy during “...the sixth and seventh centuries gold coin with possible some division money began to reissue from a growing number of urban mints under royal monetarii” (Jones 1997: 77). Second lay people outside the hierarchies of both church and state, used documents. In Italy, there was an unbroken history of ‘profane studies’. Schools existed for the study of law, letter-writing, and medicine (Jones 1997: 87). Further the “...practice of confidential registration (insinuatio) of important private deeds...” (Jones 1997: 87) was kept alive by curiales, or notaries, from Roman times. Common persons, sometimes employing a notary, relied on written documents for “...acts of every conceivable kind, public, private, and intimately domestic, from wills, dowries, and emancipations to confidential contracts, hiring a concubine, restraining a man from beating his wife or a merchant from exceeding a stated quota of love-affairs during absence abroad” (Jones 1997: 157). Most, saliently, this reliance on documents produced widespread lay literacy (Procacci 1968: 55)²⁴; in the mid-fourteenth century sixty percent of the male population living in Florence may have been literate (Jones 1997: 157).

Part of the reason for the relatively lack of a state-monopoly on numeracy and literacy was the historical legacy of two competing “universal” institutions: the Roman Empire and the Catholic Church. Key actors sought to mobilize these universal institutions in the service of a project of territorial unification. For example during Charlemagne’s coronation in 800 “...the image of Christian Rome, the city of Peter, fused with that of Imperial Rome, the city of Caesar,

this period also faded as a precise juridical concept, and was replaced with the vaguer conception of public reputation.

²⁴ The source is the banker Giovanni Villani (1280-1348). Procacci (1968: 55) writes “Villani tells us that all the eight to ten thousand children of Florence could read and write, that between a thousand and fifteen hundred of them had learned ‘algorithm’ and three hundred and fifty to six hundred attend the higher schools. The consequent basic level of literacy and culture was absolutely exceptional in the Christian West of the time.”

to give life to the myth of the Holy Roman Republic” (Procacci 1968: 1). The desire to win or force the papacy to crown a pretender as emperor was thereafter a major reason for the various invasions of Italy especially in the later twelfth century (Procacci 1968: 2).

Catholicism and the heritage of imperial Rome operated just as often in the opposite direction. Their effect is clearest on the group that was key for state formation everywhere: the intellectuals. The legacy of Rome was most obvious in the institution of the city. This historical legacy affected the history of Italian political institutions in a number of ways. First, the city-state always served as the basic unit of information collection. The citizen or city-state character of information gathering sometimes presented an obstacle for centralizing authorities.

As we will demonstrate below, widespread lay literacy and numeracy initially gave Italian information gathering activities a markedly “bottom-up” flavor, in contrast, to the top-down approach employed by the British. By the eighteenth century, however, the process became more top-down as the larger continental powers, particularly France and Austria, imposed their models of information gathering on the Italian states.

The absence of a unified of state on the Italian peninsula is surprising. For in the years around 1000 Italy would seem to have been a much stronger candidate for a centralized feudal state, than England. The Norman kingdom in southern Italy resembles its counterpart in England. Indeed some of its key leaders were related to the followers of William the Conqueror (Procacci 1968: 15). The invaders instituted a classic feudal pattern. The land was split up and assigned to Barons, who then paid regular tribute to the king “...as a sign of their vassalage” (Procacci 1968: 16). But the Normans who invaded Italy had key advantages in comparison with their English counterparts. They were able to draw on Arab and Byzantine political traditions, techniques of administration, and military knowledge (Procacci 1968: 16).

Frederick II (1194-1250) made a nearly successful attempt to unify the entire peninsula using the southern Norman state as a basis of operations. He consolidated and centralized his rule, razed baronial castles, and recruited a force of 10,000 Muslim mercenaries (Procacci 1968: 18-19).

In this section, we contrast two surveys that best illustrate the intricacies of Italian information gathering during this period: the Florentine Catasto of the early fifteenth century, and the Milanese Censimento of the early eighteenth century. We begin with an overview of the general development of information gathering in the Italian peninsula.

The Historical Development of Official Information Gathering in the Italian Peninsula

Official statistics in Italy grew out of techniques of both lay and official record keeping in classical antiquity (Graff 1987: 56). Land surveys and tax declarations were carried out in both the Roman Republic and the Empire. As Zangheri (2002 [1973]: 3) writes "...it is no accident that the technical and juridical structure of the catasto (codex gromaticus named after the land surveyor Hyginus Gromaticus) (Kain and Baignet 1992: 3)) was affirmed in the Roman period, along with other fundamental juridical forms and institutions". Thus, as we note above, there was longstanding culture of record keeping attached to specific social strata like land-surveyors, estimators and notaries in the Italian peninsula, which state officials built upon in subsequent surveys. As Zangheri ([1973] 2002: 51) suggests there was "...an Italian tradition of estimi carried out by citizen public powers". Thus, a set of local, city-based traditions of information long preceded the emergence of a peninsula wide political unit.

There were two waves of intense development in techniques of information gathering in the post-Roman period. The first, occurring in the late medieval and early Renaissance period, produced a flowering of censuses, cadastral surveying, and scientific cartography (Jones 1997:

452). The second period of development coincided with eighteenth-century reforms (Zangheri [1973] 2002). Information gathering techniques in both periods were more generally tied to the exigencies of state formation, yet the modes of data collection differed in the two phases. In the late medieval and early Renaissance case, the basic method of information gathering was the declaration; goods and land were assessed together in the same document. In the eighteenth century, in contrast, the method of information gathering was a land survey by experts. The Milanese *Censimento* was the most developed 'geometrical-particular' survey. [people survey with land in the Renaissance too – this is important that population counts and resource counts were collected together]

The Milanese *Censimento* was part of a European wide shift toward cadastral surveys in the period following the war of the Spanish succession that ended in 1713 (Alimento 2001: 5). Several areas in the geographical zone of Roman Law Europe turned to cadastres in this period (Alimento 2001: 5). Within Italy cadastres were attempted in several places including Piedmont, Bologna, Sicily and Naples. The Piedmontese *perequazione* generale was a land-tax survey begun in 1739. Zangheri ([1973] 2002: 28) suggests that this land tax was more complete even than the Milanese one. In Bologna, a land survey was established around 1780 under the influence of the Milanese model, and with the participation of a Milanese who had helped with the *Censimento*, Giovanni Cantoni (Zangheri [1973] 2002: 13). Attempts were also made to draw up land surveys in Naples and Sicily, but these failed (Zangheri [1973] 2002: 18, 33). Interestingly, no attempt was made in eighteenth century Tuscany to establish a land survey along the lines of the Milanese model. This is true despite the fact that Tuscany, under Leopold, was a leading reformist region in the period (Venturi 1972: 19).

This regional distribution of land surveys is interesting for two reasons. First in the eighteenth century cadastral surveys were generally successful in areas on the periphery of the consolidating European state system. Neither, England, nor France established a cadastre in the eighteenth century (Alimento 2001: 13). Rather the most successful surveys were in Milan in northern Italy, and Aragon and Catalonia in north-eastern Spain (Alimento 2001: 5). Second, northern Italy continued to lead the south in the development of information gathering techniques. Sicily and the kingdom of Naples were unable to redact land surveys in the period despite attempts to do so. Second, within the north, land surveys developed outside of Tuscany, which had the most developed declaration-based survey in the fifteenth century.

In sum, there are two major discernible trends in the development of land tax surveys in pre-unification Italy. The first gave rise to the late medieval and early Renaissance catasti, which were based on written descriptions; the second gave rise to the eighteenth-century catasti, which were based on maps and surveillance (Zangheri [1973] 2002: 43-44). Both methods emerged, as the English case, in response to political and/or economic crises generated a need for increased revenue collection. Both techniques also drew upon historical legacies: land taxes by declaration were used in Republican Rome, while land taxes by survey were used in Imperial Rome (Zangheri [1973] 2002: 3-4).

In the following sections, we contrast the two cases that best illustrate these divergent methods of information gathering: the Florentine Catasto and the Milanese *Censimento*. The former was the classic cadastral register of the late medieval and early Renaissance period; the latter, the classical cadastral register of the eighteenth century. We begin with an examination of the Florentine case.

Official Information Gathering Activities in Fifteenth-Century Florence

[note to authors: we probably should insert a few more sentences here about the nature of the Florentine political unit].

As we noted earlier, most states redacted land surveys primarily in response to political and/or economic crises, which created a need for increased resource extraction. The Tuscan case was no different: the main reason for collecting information in fifteenth century Tuscany was taxation for war. During the latter fourteenth and early fifteenth centuries Florence began to expand. The Florentines incorporated Arezzo, Pisa, Cortona and Livorno in this period through a series of wars and purchases (Molho 1995: 114). This was also a period of innovation in the collection of the information. From 1383 to 1384, Leonardo Beccanugi began a series of account books to track income and expenditure of the Florentine state (Molho 1995: 111). In 1427, under these convergent circumstances, the famous *Catasto* was implemented.

The Florentines established the *Catasto* as part of a broader fiscal reform. Previously, (from the second half of the thirteenth century) Florentines compiled *estimi* for the *contado*. The *Ufficiali dell'Estimo* (officials of the estimo) determined the amount each region would be assessed (Conti 1966: 4). Then, *impositori*, usually elected from all the men of the parish, determined the amount assessed to each family. If there were disagreements among the families, the officials would resolve them. This system was based on partitioning the tax burden accord to region rather than person.

In contrast, the *Catasto* was based on declarations filled out by tax-payers rather than collective obligations to the community. This kind of document thus differs from descriptive or analytic *catasti*, because it relied on the tax-payers to provide information (Conti 1966: 21). Obviously, the implementation of the *Catasto* required a relatively high degree of lay literacy.

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The catasto descriptions were often drawn up on the basis of notarial acts legalizing land transfers and titles of possession. Notarial documents gave legal effect to transactions and interactions, include sales of property, wills, deeds, dowry declarations and marriages (Emigh 1997: 502). As Conti writes, "...the catastal descriptions do not deviate too much from the notarial ones, even if the most reliable remain those that had little or no fiscal relevance: toponyms, boundaries, internal structure of the unit of cultivation, etc," (Conti 1966: 33). Molho (1995: 116) claims that Pisa in 1416 may actually have been the first *contado* to use *Catasto*-like declarations to distribute its burden under the *estimo*. Thus the *catasto* may have emerged in part out of pre-existing traditions of lay literacy, as well as ways of managing the problem of partitioning tax burdens under the *Estimi*.

Catasto declarations were collected in 1427, 1431, 1433, 1442, 1447, 1451, 1458, 1469, and 1480. Two further fiscal censuses were conducted called the *decime*. One of these was redacted in 1498 and the other 1532. After the last *decima*, there was no new attempt to conduct a census until 1834. The first three catasti required lists of all assets and debts. The last six were more variable sometimes requiring information only possessions, and sometimes requiring information on the household (Conti 1966: 23). Generally the declarations began with a formalistic opening, and then listed the members of the household, the land of the persons, possessions, and debts. The information included in these documents is not given by the formal requirements of what the Florentine government wanted [clarify – where? In the *decime*?]. Often details of the land are described that come from the notarial documents and have little to do with taxation as such. The *decime*, in contrast to the *catasti*, were not based solely on declarations. Rather squads of officials would go out into the countryside to assess land values (Conti 1966: 159-160).

The *Catasto* of 1427 was the census with the most information. After this first set of declarations, the descriptions became increasingly formulaic. The deterioration in the quality of information continued with the *decime*. As Conti (1966: 141) writes “Unlike the *campioni* of 1427, redacted on the framework of *portate*, in these inventories any personal note has disappeared, the prose is rigid and colorless, the data reduced to the essential.”

The documents from the *catasto* are complex because they were both a land register, and thus guaranteed property rights, and an instrument for determining the fiscal burden. As a land register, owners had an incentive to declare the true amount of their holdings. As a document determining the fiscal burden owners, had an incentive to underreport (Conti 1966: 59). After the Medici came to power in 1434 the *catasto* "...was for all intents and purposes set aside, replaced by older forms of distributing the tax burden" (Molho 1995: 118). This is true not only of the *Catasto* but also of the budget started by Beccanugi. With the rise of the Medici, although many of the information gathering techniques initiated in 1427 were maintained, the project of establishing an ‘objective’ measure of wealth was largely abandoned. The old system of taxation by *estimo* returned [not sure this is so]. As Molho writes the “...*Catasto* proved difficult to reconcile to the material interests of the city’s wealth families” (Molho 1995: 118). In particular, after 1427, the values of land were used to make tax assessments rather than the capitalized value of the income from the property (Emigh article from VIATOR – add citation).

After 1532, the date of the last *decima*, information became ‘semi-fossilized’. Tax burdens were linked to pieces of land described in the late fifteenth and early sixteenth centuries. As Conti (1966: 183) shows, on one estate a *catasto* registration (*voltura*) from the eighteenth century includes land descriptions mostly drawn from the early-sixteenth century. [needs more about the collection of information about persons/resources].

In sum, official data collection flourished in fifteenth-century Tuscany, as evidenced by the development of the famous *Catasto*. While its implementation was strongly linked to the exigencies of state building, its ultimate success was contingent upon social institutions such as widespread lay numeracy and literacy (Emigh 2002). However, while official record keeping in Tuscany began very early, the region had lost its advantage by the early sixteenth century. For over three centuries after 1532, no complete survey was undertaken. The reasons for this are varied having to do with general economic decline and the changing nature of political power. Yet one reason may have been that the very earliness of the *Catasto* made it more difficult to institute a reform in the eighteenth century, when ‘geometric’ surveys were becoming common throughout the peninsula. The Milanese *Censimento*, examined below, exemplifies these later technologies.

Official Information Gathering Activities in Eighteenth-Century Lombardy

Austrian rule in Lombardy began in 1706, but the province was formally incorporated into the Viennese branch of the Habsburg Empire, upon Charles VI’s accession in 1712 (Capra 1987: 19). Politically, the territory was organized into a complex overlapping web of imperial, noble and ecclesiastical authority. As in the case of England, the Habsburgs implemented land tax surveys as part of an attempt to improve the efficiency of revenue collection. In Austrian Lombardy there were two main phases of this process, a cadastral survey called the *Censimento* begun in 1719, and completed in 1733, and a series of administrative reforms that took place after 1748 as part of an attempt to use the reforms to actually extract revenue (Capra 1987 160). The survey's accuracy was famous. Both Adam Smith and Karl Marx commented on it and it became a model for other cadastral surveys (Klang 1977: 1; Zangheri 2002 [1973]: 34-35). Renato Zangheri (2002 [1973]: 13) emphasizes its importance writing, "In Milan a cadastral

system was designed that may have been anticipated elsewhere, but which remains a model of technical perfection for every country." Yet the success of the *Censimento* remains puzzling for three main reasons. First, those who carried it out did not initially have a clear idea of what they were doing. There was a vague sense among the council in charge of the census that new information should be collected, but there were no formalized procedures for how this should be done (Capra 1987: 64). Second, the *Censimento* was conducted in the absence of a centralized bureaucracy with local officials. In Tilly's (1992: 24-25) terminology, Austrian Lombardy was a model of indirect rule. Thus this is not a case of a strong centralized political authority gathering information. Third, and finally the *Censimento* was carried out against the determined opposition of the local landed elite, especially the Milanese. The twenty-seven year gap between the completion of the survey in 1733, and the initiation of the land-tax in 1760 powerfully testifies to the intransigence of this group. It is therefore well worth asking how could such a detailed and accurate survey be constructed in the face of local opposition and indirect rule? In this section of the chapter we suggest that the existence of a vast store of local knowledge about land, some of it initially mobilized against the Austrians, was what made *Censimento* possible.

The Political Unit of Austrian Lombardy

Three broad levels of political authority existed in eighteenth century Lombardy: a relation of imperial domination between the Viennese Habsburg court and the "State" of Lombardy, a relation of domination between the Milanese patriciate and non Milanese patriciate, and a relationship of domination between citizens, understood as residents of Milan and the provincial capitals, and rural people (Capra 1987: 38).

Although the Austrians formally ruled Lombardy they had little organized presence in the country. The "Governor" was usually a military figure who was sometimes unfamiliar with

Italian, and who had little knowledge of Lombardy's exceedingly complex political institutions (Capra 1987: 37). It was not just the case that Austrians had little control over Lombardy, the Milanese patricians also had few administrative links to the provincial cities that mostly acted as self-governing bodies. The relations between the different parts of Lombardy were mostly juridical not legislative or executive. This was particularly true with regard to taxes. The only mechanisms for centrally enforcing the division of taxes were the decisions of the Senate (*Senato*) and the Ordinary Magistracy (*Maigstrato Ordinario*). But since these bodies acted mainly as courts they applied existing law to cases brought before them rather than legislating new ones. Nor could they enforce their decisions through an apparatus of subordinate officials (Mozzarelli 1982: 30, 35-36).

Austrian domination in eighteenth century Lombardy was thus remarkably superficial. The Austrians lacked institutions through which to transmit centrally taken decisions to subordinate officials. Although this began to change in the mid eighteenth century, this was after much of the information for the *Censimento* had already been collected.

The Basic Characteristics of the Pre-Reform System

Despite the weakness of the Austrian bureaucracy a remarkable effort at collecting information about land was successful in the early eighteenth century. To understand the significance of this achievement it is useful to briefly sketch the situation in Lombardy prior to the reforms. Before the arrival of the Austrian Habsburgs, Lombardy had been under the control of the Spanish Habsburgs. The Spanish collected resources by assigning broad quotas to the various Milanese provinces, in a way similar to pre fifteenth century Tuscany, but leaving the division of the taxes among the communes within the provinces, and among the individuals

within the communes to the local authorities. Here is how one of the eighteenth century experts on Milanese taxation, Pompeo Neri (1985 [1750]: 72)²⁵, described the system.

The prince asks of the state what his current needs require. The state divides the requested sum among the provinces with the method of the quotas. The provinces subdivide the said quotas...and ask their share from the communes making those in the communes (*comunisti*) collectively liable. If the commune pays the requested sum, which they are forced to do out of fear of military execution of the taxes, the province does not concern itself with the methods according to which the sum has been divided and collected. If the province pays the state, the state similarly is concerned with nothing but collecting, and if the state pays the prince, the fisc is happy, and is not concerned about the good or bad means, with which this payment has been collected.

This system of resource extraction demanded very little detailed knowledge of the country on the part of the Austrians since all the details of collection were worked out at the state, provincial, and communal levels.

There were two basic problems with these arrangements. First, the quotas themselves were highly irrational. For example one of the main taxes was the "horse" tax. The Visconti established this tax in the fifteenth century on the basis of the number of horses that each province could maintain. This "...served as a perpetual rule for determining how light or heavy the provincial burdens would be without any attention being paid to their natural strength (Neri 1985 [1750]: 41)." The divisions of the tax burden were not therefore connected to the wealth of the province but to arbitrary customary rules.

²⁵ One of the most important primary sources on the *Censimento* is a report written by Pompeo Neri in 1750, seventeen years after the completion of the census called *Relazione dello stato in cui si trova l'opera del censimento universale del ducato di Milano nel mese di Maggio dell'anno 1750*. Neri wrote his report at a time when conservative interests in Lombardy were attacking the census project. He was attempting to gain support for the census from the court at Vienna to overcome this opposition. He thus attempts to formulate a general argument for the census. Because of its purpose this document probably tends to exaggerate the deliberateness of the actual collection of information, which seems to have been a much more haphazard process than Neri implies as we discuss below (Saba 1985: 21; Zangheri 2002 [1973]: 38-39). Nevertheless Neri usefully captures the change from the old the new method of collection.

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The way that the tax burden was divided at the provincial and communal levels exacerbated these problems. Since there were no rules establishing how the provincial quotas were to be collected, powerful groups at the local level were able to shift the tax burden onto less politically powerful groups. There were three main mechanisms for shifting the burden: status group claims, the classification of land, and the use of the personal tax, or head tax.

Status Group Claims

There were numerous groups in Lombardy who had claims to special rights including tax exemptions (Capra and Galli 2001: 56). Perhaps the most important was the Congregation of Milanese Interests (*Congregazione degli Interessati Milanesi*) that surveyed the land and collected the taxes that the Milanese owed in the provinces (Neri 1985 [1750]: 29). Other "...agencies, interests and privileges connected with the old land tax..." also existed (Klang 1977: 22). For example merchants were organized into *Corpi dei Mercanti* -- guild organizations that negotiated and repartitioned their taxes autonomously from other groups (Klang 1977: 33-34; Neri 1985 [1750]: 188-189). The clergy was in a conceptually similar situation to these groups, but it was mostly exempt from taxation (Klang 1977: 9-10).

The Classification of Land

Classification of land was also a crucial mechanism for shifting the burden. Although initially a form of status group distinction, it operated in a slightly different way from the exemptions discussed above. Land in Lombardy was classified as either "civil" or "rural". Theoretically the rural and civil designations depended on the owner's place of residence. For example, if someone from the city of Milan owned land in the *contado* (a rural region subordinated to the city), it was deemed civil, not rural. Rural land was subject to a tax called the 'monthly' (*mensuale*) collected by the communes, while civil land was exempt from this tax. As

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residents of the local city purchased land in the *contado*, and as local rural landholders became citizens (that is residents of cities) the quantity of rural land tended to decline (Capra and Galli 2001: 56; Neri 1985 [1750]: 31). But since the quota for the *mensuale* was fixed, the burden on the remaining rural land increased. In 1566, the Spanish prohibited changing land status in order to avoid further undermining the tax base of the communes. As the land market continued to operate, rural and civil land were mixed up in the holdings of individual owners. Thus, by the eighteenth century, there was a patchwork of different statuses for land that no longer had a clear relationship to the status of the owner. For example, a rural landowner might own much civil land, while an urban landowner might hold much rural land (Neri 1985 [1750]: 26-37; Klang 1977: 5-6).

The Head Tax (Personale)

The final mechanism for shifting the tax burden was to increase the head-tax or *personale*. Communes, the most local level of administration, were collectively liable for the tax burdens placed on them (Capra and Galli 2001: 57). Yet, as was true at all of the other levels of the Lombard political unit, the internal divisions of this burden were unregulated at the center. At the communal level there was considerable variation in how the load was divided especially between head taxes and land taxes. This led to inequities. The *personale* was in theory a head tax, but in practice landowners paid because agricultural workers could rarely afford to pay anything. Some scholars (Klang 1977: 20) suggest that paying the *personale* was also a way of maintaining control over agricultural labor through debt. Like the land tax, the *personale* varied from province to province.

Pompeo Neri divided the personal tax by the numbers of people listed in the communes in the "notification" of 1730, a very rudimentary population census discussed below. He found

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large differences. For example in the commune of *Genoze Campagna* the head tax was a little over 1 lira (Neri 1985 [1750]: 50-65). In *Campaganola* it was 36 lire a head. As Franco Saba (1985: 19) writes:

This absolute diversity of 'real' and 'personal' taxation shows precisely the total fiscal autonomy of the communities, and different relations of force and social antagonisms that lacerate the communities themselves.

The personal tax thus seems to have been an unevenly used mechanism for shifting the tax burden to people who owned no property (Capra and Galli 2001: 57). While the *personale* may not have allowed landowners directly to offset their tax burden, by forcing poor agrarian producers who could not pay taxes in money into debt with their landlords, the tax may have re-enforced relations of subordination in the countryside.

Usury

Taxation in this situation left a wide field open for usury primarily because very heavy burdens tended to fall on the poorest and least political powerful people. Where poor rural communes had high tax burdens because of the arbitrary quota system and exempted land, only a few people had sufficient money to pay their taxes. These people would then front the money and collect the taxes from the population at a high rate of interest (Neri 1985 [1750]: 74). Since they were often also leading figures in the local administration, and were in charge of distributing the tax burden, they could exempt themselves and their clients from taxes while at the same time profiting from usury on the less powerful (Neri 1985 [1750]: 74). One of the main concerns of the Austrians was naturally to eliminate this group of "political capitalists" so as to reduce collection costs (Klang 1977: 5).

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The Imperial bureaucracy did not know much, nor have many administrative tools to control exaction in Lombardy. A complex and expensive web of exemptions and usury had developed. This is what the *Censimento* was designed to overcome.

Toward the Reform

Although the specific reasons for the push toward tax reform are hard to determine, historians seem to suggest that the Austrians increased fiscal demands thereby exacerbating the problems of the old system and setting off a reform push. In 1707 a year after the arrival of the Austrians, Prince Eugene of Savoy, Joseph I's plenipotentiary, placed a new tax on Lombardy called the "daily" (Capra and Galli 2001: 57). It was large. As Zangheri (2002 [1973]: 36) writes:

There is no doubt that, at the beginning, Austrian domination provokes an aggravation of the situation. The "daily contribution" reduces "further the margin of supportability of the burden considered in itself" and accentuates the contradictions deriving from the old mode of partitioning.

The increased need for money therefore exacerbated the inherent problems of the previous system of tax collection. In 1709 a Piedmontese Count named Pras sent a project to Eugene of Savoy for establishing a flat tax of 12 soldi on each perch of land in the province (Capra and Galli 2001: 57). After the end of the War of Spanish Succession in 1714, the Austrians began to take concrete measures to reform the tax burden. The first step in this process was to gather information.

The Miro council (1719-1733)

The information for the *Censimento* was collected over a 14 year period under the leadership of a *Giunta*²⁶ or proto-bureaucratic council led by the Neopolitan Vincenzo de Miro (Klang

²⁶ I translate *giunta* as Council following Capra and Galli (2001). These institutions were key to Austrian attempts to reform Lombardy. They allowed the imperial court to circumvent the local

1977: 10; Zangheri 2002 [1973]: 38). The Miro council, established in 1714, was comprised of five non-Milanese Italian officials (Capra 1987: 64-66; Zangheri 2002 [1973]: 38). The criteria of measurement and evaluation of the land, as we show in more detail below, were "...born from the in the process of the work, and did not emanate from a theoretical source." There were no obvious models on which draw, and Austrian policy was initially not clear. The council was initially asked to determine what type of government office should be entrusted with the work, how it was to be paid for, and whether a new statement of goods (*notificazione dei beni censibili*) was needed (Zangheri 2002 [1973]: 37). Nothing in this original mandate required a massive land survey accompanied by the production of maps. Sometime in the period between 1715 and 1718 these modest proposals were replaced by a new and more ambitious project for a new land survey (Zangheri 2002 [1973]: 37).

The Miro *Giunta* undertook three types of activity: it asked for declarations from all landowners, it measured the land and drew up maps, and finally it estimated the value of individual pieces of land (Capra 1987: 68-69). All of these activities were controversial, and involved struggles among three main institutions: the Miro council, an urban council (*Giunta Urbana*), established by the Milanese in 1719 to keep watch over the activities of the Miro *Giunta*, and finally the Congregation of State (*Congregazione di Stato*) which represented a mix of Milanese and provincial interests (Capra 1987: 71; Klang 1977: 13). Each of these institutions had its own links to the court in Vienna, and the Governor in Milan.

Declarations

power structure, and were usually staffed by "foreigners", that is non-Lombard Italians, often southerners and Tuscans. The position of the councils was always insecure. They had to play a complex political game, balancing the interests of the court at Vienna, the Governor of Lombardy, and the local elites (Capra and Galli 2001: 59). Their existence shows how fragile Austrian state institutions were.

The opening act of the Milanese *Censimento* was a decree published in Milan and the provinces on April 22 1719 requiring a declaration of goods. The decree obliged all persons, privileged, non-privileged, foreigners and citizens to declare the value of their non mobile goods (Zaninelli 1963: 33-34). One of the major innovations of the *Censimento* was that these declarations were made in the place in the provinces and communes in which the land was located. This was an important innovation, because it indicates that the Miro council intended to construct a register of land, not a register of tax paying proprietors (Zaninelli 1963: 34). The Miro council sent out forms to collect this information (see Appendix Two). Each requested the name, age, and place of residence of the proprietor. Following this information was a list of standardized descriptions of types of land, for example "dry fields (*prato*), with or without trees", or "simple pasture" (Zaninelli 1963: 121-122).

The edict requiring declarations of the value of land generated considerable resistance, especially from the church that forbade tenants of its land from providing the information (Capra 1987: 68). At Lodi in the low plain of the valley of the Po, the priest of the Cathedral removed the edicts requesting the information (Capra 1987: 68). Despite this resistance the declarations were completed. Daniel Klang (1977: 12) suggests that, "The commissioners themselves stated that at crucial moments natives came to their aid with good effect, and this testimony, too often ignored by historians, deserves close examination." This collaboration is reasonable since many landowners held land subject to disproportional burdens, and may have viewed the census as a way of securing their rights.

The Miro Giunta used a series of technique to encourage accurate declarations. First, by completing the declaration landowners were automatically absolved of any back taxes they may have owed from census of Charles V onward. If they failed to declare, they were subject to all

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back taxes in addition to further penalties. Further, the deputies of the Miro council who were entrusted with collecting the declarations published a list of them every week, opening the way to both open and secret denunciations of fraud. Where fraud was established, the informer received a cash reward (Zaninelli 196: 35). The process of collecting the declarations lasted from April of 1719 through December of 1720. Although slow and difficult it was relatively successful, and constituted one of the basic pieces of information on which the land tax would be based (Zaninelli 1963: 40).

Measurement

The second main project of information of collection was the measurement of the land. This too produced controversy. The traditional technique of land measurement involved the use of a square and compass, while the new method, developed by a member of the Miro *giunta*, the Udinese mathematician Giovanni Giacomo Marinoni, used a "*tavoletta pretoriana*." This was a method of measuring through surveillance and scale drawing, rather than physically measuring the land with rods (Zaninelli 1963: 42). Several local interests resisted this method in part because it undermined the process of "counter-measurement" which local authorities saw as their right. With the existing system of direct measurement, the counter-measurer reproduced exactly the operations of the measurer. But with the new system introduced by Marinoni "...only the measurer who works on it and directly reproduces the surface can proceed, while the counter measurer is left only to observe that his colleague undertakes the prescribed actions (Zaninelli 1963; 45)." The introduction of the *tavoletta pretoriana* thus undercut the ability of local interests to control the process of measurement (Capra 1987: 70; Neri 1985 [1750]: 107).

The task of measuring the land and producing maps was mostly completed in the early 1720s by a group of six teams each made up of a delegate commissioner, a chancellor, a scribe, and

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three geometers aided by three assistants. In addition there were local people who helped the teams to carry and to set up their equipment (Zaninelli 1963: 49). The work of the teams was supervised first by Marinoni and then by the German engineer Enghelard (Zaninelli 1963: 50).

The measurement of land through the new system of surveillance was the most state driven aspect of the Milanese *Censimento*. But even after the introduction of the *tavoletta pretoriana* local knowledge continued to be important. As Zaninelli suggests local assistants were of considerable importance in helping the geometers to understand the quality, extent, and crop type of particular pieces of land (Zaninelli 1963: 49).

Valuation

Finally the *Giunta* attempted to estimate the value of the land. This was the most important and most controversial type of information collected. Technical problems plagued this operation from the beginning. The *Giunta* initially failed to account for the cost of water on irrigated lands. Since irrigation was a major part of Lombard agriculture this was a serious problem (Zaninelli 1963: 62). To rectify it the *Giunta* relied on "...the declarations of the users of the water themselves (Capra 1987: 71)." A second problem arose when the *Giunta* initially failed to distinguish among different qualities of the same type of land. To address this issue the *Giunta* called on the local authorities to provide information (Capra 1987: 71). In March of 1725 the *Giunta* held an audience to listen to experts on the valuation of land. According to Pompeo Neri (1985 [1750]: 127) they then proceeded to make "...the estimation by means of the persons who were most practiced and experienced in this type of expertise in the country." Capra (1987: 71) suggests that the *giunta* drew on a wide variety of resources such as acts of sale, purchase and transfer kept in the communal offices, expense books from 1717 and 1718, and local *catasti* collected at the communal level as well as oral testimony (Capra 1987: 71).

These efforts were insufficient to quell controversy over evaluation, and in 1726 a huge number of *ricorsi* (legal actions against the evaluation stipulated by the Miro Giunta) were filed (Neri 1985 [1750]: 128). The Milanese successfully lobbied Vienna to establish a college of engineers (*Collegio dei periti*) made up of six members of the Miro *Giunta* and six outside members appointed with the consultation of the *Congregazione dello Stato*. This body reviewed masses of evidence in its efforts to resolve the disputes. As Klang (1977: 16) describes their work "...these men settled countless appeals and revaluated most of the country satisfactorily for notables and the crown, a major accomplishment of the first Giunta." One of the most important issues in this period was "...the problem of whether to base values on present productivity....or on the raw potential of a farm, assuming no fixed investment (Klang 1977: 15)." The latter course was finally pursued, and it was this that Pompeo Neri singled out as the most distinctive feature of the *Censimento*. However the initial proposal of the Miro Giunta was precisely the opposite. The "...assessors took property as it was, noted the harvest, deducted standard growing costs, and computed market returns, the net and taxable income, with three sets of prices to adjust for the quality of the terrain (Klang 1977: 15)." The impetus behind a census based on "natural rent" came from the *Giunta urbana* that represented Milanese landholders with highly improved farms. It was they who "...demanded exemption for all improvements made since the 16th century (Klang 1977: 15)." Indeed the whole period from 1729 to 1732 witnessed an intense interaction between the Congregation of State and the Miro Giunta. The territory of Lodi sent an imaginary farm budget to the *Giunta* to aid it in understanding how to calculate exemptions (Klang 1977: 17). Most of these efforts focused on how to deduct investments to arrive at the natural rent of the land. One of the most distinctive features of the *Censimento* came not from an Austrian proposal, but from Milanese and Provincial lay knowledge and resistance.

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What is somewhat striking about all of these methods of collection is that, perhaps with the exception of the surveillance techniques, they all involved collaboration on the part of landowners themselves. Both the declarations and the estimation of the land's value relied on local knowledge. The valuation of the land in particular seems to have made taking into account documents from the offices of the communal administrations.

The Neri Giunta (1749-1758)

The second burst of reform came in the 1750s following the war of the Austrian succession and the rise Maria Theresa in 1748. These reforms were mostly aimed at reforming political institutions in order effectively to apply the *Censimento* for the purposes of revenue collection. Yet the Neri council did engage in one further major effort at information collection. In late 1750 Neri called to Milan all of the "communal chancellors". These were officials of the local government charged with administering the reform at the communal level. Neri gave them new copies of the census maps, and asked for new information to supplement the original census documents. For example they were asked to check if property had changed hands (Capra and Galli 2001: 65). Neri also distributed a questionnaire at this meeting made up of 45 questions "...on the juridical positions of the respective lands..., the nature and composition of the tax loads and the capital revenues, the administrative structures, etc (Capra and Galli 2001: 65)." the Neri council also carried out a survey of buildings in the five main cities of Lombardy (Capra 1987: 168).

The Censimento

The new cadastral survey that emerged from the complex struggles described above differed profoundly from the system of quotas and local autonomies prevalent in the Spanish period. The Milanese *Censimento* was primarily a land survey. Although there was an attempt to conduct a

rudimentary population count in order to reform the head tax, this does not seem to have been particularly successful, and was mostly done to block the use of the *personale* as a way of subverting the land tax (Capra 1987: 75). Further the officials who conducted the *Censimento* deliberately declined to conduct a census of mercantile wealth (Neri 1985 [1750]: 188).

There were two important differences between the new land survey, and the forms of information collection that had come before. First, the *Censimento* attempted to assess the tax liability for each piece of land in Lombardy. This required a new method of collecting information that was particular (*particellare*) (Zangheri 2002 [1973]: 6). In the *Censimento*, following each alphabetically listed proprietor were standardized descriptions of each piece of land that that this person owned (Zangheri 2002 [1973]: 6, 44). These descriptions identified both the quality and type of land. For example land was identified as good grass land, bad rice land and so on (Zangheri 2002 [1973]: 44). This was obviously a break from the old system that assigned quotas to broad administrative areas like the *Contado* of Lodi, or the *Ducato* of Milan. But even more radically it did not take the unit of proprietorship as the unit of measurement. Rather the unit was "...the land-parcel, that is...a piece of land not broken up by ditches, paths, or lines of trees (Capra and Galli 2001: 60)." This constituted a frontal attack on the old system because it aimed at undermining control over the repartition of the tax load at every level. Since the burden was attached to the land, repartition would follow automatically from assessment.

The survey was also geometric because in the new *Censimento* the pieces of land were numbered, and appeared on a map (Capra 1987: 70-71; Zangheri 2002 [1973]: 6). The *Censimento* thus differed from the old *estimi* that included descriptive summaries of the land but not standardized descriptions according to the type of cultivation and did not produce

standardized maps (although there were maps and land registers kept in the communal administrations as we discussed above).

A more subtle shift occurred in the object of taxation with the *Censimento*. The aim of the survey was to establish the "natural" rent of each piece land, and to base tax policy on this. This required two abstractions. The value of the land had to be separated from the social status of the owner, and from its market determined price. The *Censimento* was thus much more than an accurate "register" of a pre-existing situation. Drawing on many pre-existing lay practices and forms of knowledge it codified land as an abstract fungible substance separated from the qualities of the person who owned it, and from the "accidents" of investment like the planting of vines. In this sense the *Censimento* abstracted "land" from its social and economic context. It was Pompeo Neri who first grasped this shift. Neri argued that the main point of the *Censimento* was to establish taxation on a "real" basis. As he ([1750] 1985: 3) stated, "...registration and description of goods is *real*, and is directed against the goods themselves, without consideration of the *person* who possesses them." The value of land in itself, not its value in relationship to who owned the land (such as urban, rural, Milanese or non Milanese owners) should constitute the basis for taxation (Neri 1985 [1750]: 26). This value was also to be determined in abstraction from the market. As he wrote (Neri [1750]: 21):

Further, in this estimation [the old pre-Austrian one] only the exterior quality of land was taken into consideration, as for example the field, the vines, the garden etc. and according to that fallacious rule was assigned to every quality its price, without penetrating to its internal disposition, and confusing in sum good lands with bad ones, which remained in this way casually priced.

For Neri the *Censimento* aimed at establishing "real" unimproved value of the land, abstracting from both its social context, and from its market price (Saba 1985: 13). The *Censimento* thus differed in two basic ways from the pre-existing system of information extraction and taxation in

the Lombard provinces. First it provided an assessment of the value, and therefore tax liability of each piece of land in the province. Second, it aimed at taxing the "natural" rent of land abstracting both from the status of the land's owner, and from its momentary market value.

Conclusion

Why did Austrian Lombardy produce a remarkably thorough and accurate land survey in the early eighteenth century? One answer, common in the historical literature, suggests that the arrival of new "push to reform" with the Austrians is the main factor. As Capra and Galli (2001: 55) put the argument, "This result was made possible by the will of a foreign dynasty and by the commitment of jurists and technical experts coming from the South and from Tuscany, who had to overcome very strong resistance on the part of the indigenous ruling class." Arguments for Lombard sources of *Censimento* the authors suggest "...seem totally misplaced (Capra and Galli 2001: 55)." In one sense this is obviously correct since without the Austrians it is unlikely that the Lombards themselves would have reformed the land survey. Yet this view has problems as we have argued above.

First, to speak of an Austrian "will" in relation to the land tax stretches credibility. As we have shown, the initial mandate for the Miro council was vague, and did not include the demand for a comprehensive land survey. The members of the council themselves hit upon this solution in the process of attempting to rethink the tax burden.

Second, even if the Austrians had consistently supported the land survey, they lacked the institutional capacity to carry out such a project. As Pompeo Neri put the point in a widely cited passage from the *Progress Report*:

The Government, the Senate, the Ordinary Magistracy exercise in relation to the interests of the Communities judicial and punitive authority in the case of crimes or suits (*rincorso contensioso*); but that part of authority that is directive, that tends to foresee the evil before it occurs, and that proceeds from the right of the protector, and the father, that the

Prince possesses over the patrimony of the communities that are his subjects, is not entrusted to any office (*dicasterio*) and would not be in any case appropriate establishments for exercising it, since this country is overly lacking in local subaltern ministries, that would be able to oversee the conduct of public economy, and give the reports and receive the orders that are necessary to the metropolitan minister charged with this protective direction.

One of Neri's most important reforms in the period of the second *Censimento* council was to redress this situation by choosing from among the among the local officials "delegate chancellors" attached directly to the council (Capra 1987: 170). But this reform, which in any case drew on the pre-existing body of local officials, came *after* most of the information gathering had been completed. The crucial work of the Miro council in the 1730s was carried out in the absence of a subordinate staff of local officials. Indeed as we showed above, much of the information about the evaluation of land was produced through law-suits.

Finally the most distinctive, and "modern", feature of the *Censimento*, its attempt to tax "natural rent" was not at all an Austrian project. It developed as a strategy of resistance on the part of Milanese landowners who wanted to lower tax burdens by being able to deduct investments.

§ 5 - Conclusion

There are two main conclusions that follow from the analysis above. First the emergence of the techniques of land surveillance was largely a bottom up process, not one developed and imposed by bureaucrats located in centralized states. England was one of the most centralized political units in the late medieval and early modern periods, and had a well-established history of official information gathering by the twelfth century. Nevertheless the English state was not a major player in developing techniques of land surveillance. Instead private actors, particularly enclosing landlords in alliance with the emerging profession of surveyors were key. In the North American colonies, this tradition of private land surveillance, first developed in England,

continued as colonists tried to lay claims to land. The same was true of Italy where widespread literacy and numeracy as well as local traditions of land surveillance enabled centralized bureaucrats to collect the information they needed. Indeed, within the Italian peninsula there seems to have been a sharp disjuncture between the development of strong territorial states, and land surveys. Land surveys from the Renaissance in the fifteenth century to the age of reform in the eighteenth century, were all concentrated in the broadly north-central region of the country (Florence, Lombardy, Piedmont). These regions had two important characteristics: the most developed forms of agrarian capitalism, and the weakest and smallest political structures on the peninsula. In contrast, the south of the peninsula, which was relatively more unified, failed to establish a cadastral survey (Procacci 1968: 63; Zangheri 2002 [1973]: 32)²⁷. To summarize: the emergence of land surveillance techniques is much obviously connected to the needs of landowners, and land markets, than to the projects of centralized political authorities.

One of the central arguments of this chapter is that a shift in the way that land was conceptualized, largely produced by the development of agrarian capitalism, was a precondition of modern land surveys. We have traced this shift most fully in the English and Italian cases, where there is some record of pre-capitalist and capitalist ways of viewing and recording information about land. In England we traced the shift from the *Domesday* and *Quo-Warranto*

²⁷ Procacci emphasizes the relative unity of the Kingdom of Naples compared to other parts of the Italian peninsula. Even after the peace of Caltabellotta (1302) which separated Sicily from the mainland, Procacci (1968: 63) suggests that "...if southern Italy and the islands were no longer a politically united whole, they were still, particularly in comparison with the rest of Italy, fairly homogenous from the economic and social point of view." We discuss the Norman experience of state formation in the Italian south below. This has many parallels with the English case, and Clanchy suggests that Frederick II attempted a survey like the *Domesday Book* in the 1220s. According to Clanchy (1993: 6) the "...details are now lost." It is interesting to note that Frederick II inherited Norman political institutions (Procacci 1968: 18). The experience of southern Italy may indicate a process parallel to the English one, in which early information

surveys which were accountings of rights, to the estate surveys of the sixteenth, seventeenth and eighteenth centuries were supposed to be exclusively objective descriptions of land. In Italy we traced a similar transition from the *Catasto* of fifteenth century Tuscany, to the *Censimento* of eighteenth century Austrian Lombardy. In the earlier survey individuals and things were mixed up together in declarations, while the *Censimento* was exclusively an account of land. In both cases we emphasize a developing separation between people and things and two classes of objects about which information is to be gathered separately. Further, in both cases there is evidence of the rise of a stratum of experts actually responsible for carrying out the survey, and therefore a relative decline of the declaration as a form of information gathering about land. In the United States the technique of land surveillance remained more primitive. Experts and landowners were not as separated, and traversing rather than sighting remained a key method of describing land. Yet in all three cases by the eighteenth century land had come to be conceived as an abstract fungible object.

Whether the techniques of measuring land, and the view of land as an inert object, which developed in all three cases, was successfully adopted by central states to produce a land survey, depended on the structure of the agrarian elite, and precise purpose of the proposed survey. In England despite the presence of land surveillance techniques no national land survey was undertaken. This stands in contrast to both the United States and Italy where surveys were established. What explains these contrasting outcomes? We account for these differences in two ways. First by focusing on the structure of agrarian elites, and then by focusing on the purpose of centralized surveys.

gathering in a feudal framework, blocked of latter technologies of surveillance at the national level.

Agrarian elites in England were manorial lords. The manor formed an island of partial sovereignty with its own systems of courts and taxation (Allen 1993: 60). Indeed the impressive English medieval surveys depended upon this layer of local potentates. In the famous *Quo Warranto* campaign of the thirteenth century in England the key institution for collecting information about the royal domain lands was a jury, made up of local power holders, charged with making "...inquiry into the kings rights in the county" (Sutherland 1963: 18). Surveyors themselves originally emerged as manorial officials responsible for keeping track of land rights in manorial courts (McRae 1993: 335). Given the power and importance of the manor, it is perhaps not surprising that with the transition to agrarian capitalism manorial lords captured the new technology of surveillance that became available from the sixteenth century, and used it to pursue their interests. Thus, in England large landholders employed surveyors as part of their efforts to increase their holdings (Allen 1992: 28; McRae 1993: 342-343).²⁸ Powerful landholders also, however, resisted attempts by the central state to use land surveillance technology especially for collecting taxes (Kain and Baignet 1992: 258).²⁹ The strength of the manor therefore made the imposition of modern land surveillance of national or regional scope difficult.

In colonial North America the landed elite differed. Within the colonial townships a division quickly appeared between commoners or proprietors who had rights to common land, and non-

²⁸ "Enclosure acts", Allen (1992: 28) writes, "appointed commissioners to carry out the enclosure. They established who the landowners were and appointed a surveyor to value the property." This acts were usually initiated by a restricted group of large landholders. McRae (1993: 342-3) discusses the example of a large landowner named Henry Percy who spent between £50 and £200 a year on surveying over several years as apart of a project to improve his estates. We discuss the details of enclosure below.

²⁹ Kain and Baignet (1992: 258) argue that this resistance was due to the fact that local landowner controlled the distribution of land taxes. Parliamentary agreement to land taxes in

proprietors who had no such claim. The commoners or proprietors used land surveys to divide the land amongst themselves. These people owned the land collectively through the organization of the township. Manorial organizations never developed in colonial north America. Because of this landowners were quite willing to support public land surveys carried out by town officials who were often themselves commoners or proprietors (Price 1995: 13).³⁰ After the revolution one of the key tasks of the Federal Government was to create private property in the western lands. The federal land survey, which eventually covered seventy-eight percent of the public domain, was one of the key means of doing this (Carstensen 1988: 35). Since the federal government had very restricted powers of taxation, this survey never threatened the vital interests of agrarian elites in the U.S.

In Italy, the structure of the agrarian elite differed. Although there was considerable large landholding, outside of the Norman south, there were few manors (Jones 1997: 162). Of the mid eleventh century Procacci (1968: 9) writes, "...the feudal seigniority was in an advanced state of decline in the central and north parts of Italy that had been most affected by the wave of exuberant economic growth, and still flourishing fiefs could be found in the more remote regions, in certain parts of Piedmont, in Friuli, in the valleys of the Alps and Appenines." The social and political power of large landholders in Italy was thus associated with the city. Landowners, or landowner merchants, made up a key part of the leading stratum of the North-Central Italian towns (Jones 1997: 79; 280-281). Thus Italian landowners did not pursue their interests by attempting to protect the autonomy of their manors. Rather, they sought to control

1692 was based on the understanding that collection would remain in the hands of local agrarian elites.

³⁰ Price (1995: 13) argues that township proprietors in New England employed surveyors to assign land to settlers. Outside of New England settlers themselves employed surveyors on the basis of a writ that entitled them to a specified acreage.

the political institutions of the local city-states. Italian landholders, although they certainly did not like of land surveillance for the purpose of taxation, were less resistant to it than their English counterparts. The idea that public authorities had the right to gather information did not violate their basic conceptions of private property.

Finally the purpose of large-scale land surveys also partially determined whether they were successful. In England and on the Italian peninsula, land surveys were connected to taxation. In both cases the landed elite sharply resisted their implementation, in England successfully, in Austrian Lombardy unsuccessfully. In the American colonies the land survey served a fundamentally different purpose. It was an instrument of colonization, and therefore faced virtually no resistance.

This chapter, in sum, argues that the emergence of land surveillance techniques in England, the North American colonies, and Italy was connected to the emergence of agrarian capitalism, not state formation. Whether or not these techniques, which developed outside the context of centralized states, were successfully taken up by central states depended upon the structure of the agrarian elite and the concrete purposes of the land survey. In England where agrarian elites were manorial lords, and land surveys were connected to taxation, it proved impossible to institute a centralized cadastral survey despite the country's early unification, and highly developed techniques of land surveillance. In the American colonies, where landowners were organized into townships and the purpose of surveillance was land redistribution, a centralized land survey did emerge in 1796. In Austrian Lombardy where the landed elite was organized within city state institutions there was less resistance to land surveillance as well.

This chapter, in sum, has argued that large land surveys, one of the most important forms of official information collection, emerged at the intersection of agrarian capitalism and the

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development of national states. It revises standard accounts of official information gathering in two ways. First, we have suggested that land surveys depended on the existence of widespread lay literacy and numeracy, and diffused techniques of surveillance. In each case we have discussed this techniques were embedded in society, not imposed by bureaucratic elites. Yet the presence of this lay knowledge by no means guaranteed the emergence of a successful cadastral survey. In order for this to occur a push from centralized political authorities that was broadly congruent with the interests of the landed elite was also necessary. This happened in different ways in the United States and in Italy. In the U.S. land surveillance was separated from revenue collection and linked instead to distributing land on the frontier. Not only was the survey compatible with the interests of land speculators, it was in their vital interests to promote it. In Italy, especially in Austrian Lombardy, the situation differed. Here the survey was connected to taxation, and there was much elite resistance. But Italian landed elites did not hold their property on manors as hidden and protected from the state. Rather, they were urban dwelling citizens used to active public authorities. This allowed reforming political elites to overcome resistance to the land surveys. This chapter has focused on "counting things", primarily land. In the next chapter we trace the other side of this process: the emergence of populations as a distinct object of official gathering efforts.

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Appendix One (The Questions from The 1801 Act)

- 1) How many Inhabited Houses are there in your Parish, Township, or Place; by how many Families are they occupied; and, how many Houses therein are Uninhabited?
- 2) How many Persons (including Children of whatever Age) are there actually to be found within the Limits of your Parish, Township, or Place, at the Time of taking this Account, distinguishing Males and Females, and exclusive of Men actually serving in His Majesty's Regular Forces or Militia, and exclusive of Seamen either in His Majesty's Service, or belonging to Registered Vessels?
- 3) What Number of Persons, in your Parish, Township, or Place, are chiefly employed in Agriculture; how many in Trade, Manufactures, or Handicraft; and, ho many are not comprized in any of the preceding Classes?
- 4) What was the Number of Baptisms and Burials in your Parish, Township or Place, in the several Years 1700, 1710, 1720, 1730, 1740, 1750, 1760, 1770, 1780, and each subsequent Year to the 31st Day of December 1800, distinguishing Males from Females?
- 5) What has been the Number of Marriages in your Parish, Township, or Place, in each Year, from the Year 1754 inclusive to the End of the Year 1800?
- 6) Are there any Matters which you think it Necessary to remark in Explanation of your Answers to any of the preceding Questions?

Appendix Two (The Form from the Milanese Census of 1719)

AL NOME DI DIO. AMEN

Io d'anni della Citta di o Terra di o Pieve di
notifico cum juramento, & sub poena falsi tenere, e possedere come vero Signore
e Padrone

Come Tutore, Amministratore, o Curatore d

figl del qu pupil ,o fatu

Come Sindico, Console, Regente, Anziano &c. della Communita di

notifico tenersi, possedersi dal medesimo l'infrascritte terre, o altri beni

posti nei distretto, e territorio della Citta di o Terra di

o Pieve di in pezz confinanti con

Prati asciutti alberi, o senza	Pert.
Prati adacquatorj con alberi, o senza	P.
Aratorj asciutti con alberi, o senza	P.
Aratorj con acqua, con alberi, o senza	P.
Vigne	P.
Ronchi	P.
Vitate, & Aratorie con Moroni, & altri alberi, o senza	P.
Pascoli semplici	P.
Risate	P.
Boschi di Castagne	P.
Boschi con alberi di lavoro	P.
Selve, & Isole con pali, e salici, con prato, o senza	P.
Boschi da taglio per legna	P.
Brughiere	P.
Costiere, o Monti con pascoli, & alberi	P.
Acquisti d'alluvioni, e salici	P.
Ortagli, o Giardini, e siti di case	P.
Zerbi, o Arene	P.
Terre incolte	P.
Quali Pertiche unite fanno la somma di	P.

[Page Two]

Di più notifico a nome sudetto tenere in detta Città di

o Terra di o Pieve di

gl'infrascritti altri beni stabili, che s'affittano, o rendono l'infrascritte quantità in
denaro, o in frutti, cioè

denari formenti grani, &
altri frutti

Chapter 2: From Rights to Land

Molini
Ostarie
Dazj
Passi, ò Pedagi
Porti, ò Laghi
Giurisdizione d'acque, ò
pescarie
Censi
Livelli
Affitti di Case
Redditi
Torchj
Folli
Altri beni immobili
Rendite, & entrate
Emolumenti

In tutto le rendit delle detti
beni sono

Dichiaro, e notifico in oltre, che per li sudetti rispettivi beni notificati, come sopra

sonstato censit in sol	star di sale		
cav alli di tassa	lire d'estimo		
per li qula hò pagat di caricao all Citta di	ò Terra di		ò Pieve di
nell'anno 1717 lir.	nell'anno 1718 lir.		

E caso che fosse censito, a pagasse in altra maniera, che l'espressa di sopra, doverà il notificante dichiararlo qui sott, second la pratica del lougo.

E se no avesse pagato carico per esenzione, che abbia, ò pretenda, ò per altra causa.

Avendo pagato ad altro Principe similmente lo dichererà.

Come anche se sopra detti beni paga qualche censo, ò livello, & a chi.

Avvertendo che nel fare le notificazioni di ciascheduna specie debba scrivere in parola la quantità, che ne possibilie alla riga di essa, e tirala poi fuori in abaco

Figure One: Land Surveys in Comparative Perspective

	England	American Colonies	Italian Peninsula
Conditions			
Political Unit	Strong Medieval State	Colonial Townships	City-States
Structure of the Agrarian Elite	Manorial Lords	Land Speculators	Urban Dwelling Landlords
Purpose of the Centralized Surveys	Taxation	Colonization	Taxation
Agrarian Capitalism	Yes	Yes	Yes
Outcomes			
Modern Land Surveillance Technology	Present	Present to Some Extent	Present
Centralized Land Survey Undertaken	No	Yes (Federal Land Survey of 1785)	Yes (<i>Censimento</i> of 1733)