

ARE PUBLIC GOODS REALLY COMMON POOLS? CONSIDERATIONS OF THE EVOLUTION OF POLICING AND HIGHWAYS IN ENGLAND

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A series of property rights alterations made by the English government undermined individuals' incentives to cooperate in the production of both policing and road maintenance, ultimately leading to government production. The result is more accurately characterized as a free-access common pool than as a public good. Common pool analysis suggests an array of possible policy prescriptions involving the internalization of costs and benefits through privatization of rights. In contrast, the public-goods concept appears to be simply an ex post justification for claiming that the only efficient policy is public provision of these services at zero money prices.

I. INTRODUCTION

Policing and highways are frequently cited as "important examples of production of public goods," and it is often contended that "private provision of these public goods will not occur," as in Samuelson and Nordhaus [1985, 48-49 and 713]. According to Tullock [1970, 83-84] and Samuelson and Nordhaus [1985, 49], for instance, private-sector production of policing and/or highways generates non-exclusionary external benefits for which private suppliers are unable to charge, thus creating free-rider incentives and non-cooperative behavior. I offer an alternative explanation for this lack of cooperation,

however, which fits the historical evolution of public policing and highways in England. The fact is that public policing and highways evolved because of changes in property rights which undermined private incentives to cooperate in the provision these services. Indeed, these services are like the television signals discussed by Minasian [1964], in that different institutional arrangements create different incentives for the allocation of resources.¹ However, my presentation goes beyond simply providing two supporting examples for Minasian's [1964, 77] contention that the "public goods" concept is misleading, by proposing a more appropriate analytical tool for at least some allocation issues labeled as public-good/free-rider problems.

* Distinguished Research Professor, Department of Economics, Florida State University. This paper is part of a larger project on legal evolution supported by an Earhart Research Grant Fellowship. My understanding of the historical developments and institutions discussed here has benefited greatly from comments made on this and earlier work by historians and legal scholars such as Leonard Liggio, Harold Berman, Randy Barnett, C. S. Cockburn, and Larry Wollan, as well as by Terry Anderson, Murray Rothbard, David Friedman, Greg Christainsen, P. J. Hill, Kevin Reffit, Dick Wagner, Randy Holcombe, and Gordon Tullock. Two anonymous referees and several members of the *Economic Inquiry* editorial board also provided helpful comments.

1. Minasian [1964] criticizes the theory of public goods by examining the allocation of resources in production of television services, another of Samuelson's examples of a pure public good. Similarly, Coase [1974] demonstrates the fallacy of the lighthouse as a public good, explaining that historically, private provision was the norm in England (interestingly, Coase quoted and refuted the 6th edition of Samuelson's *Economics*, but the quoted passage is unchanged in the 12th edition), and Klein [1990] explains that private associations produced highways in early America.

In the case of policing, for example, before English kings began to concentrate and centralize power, individuals had rights to a very important private benefit arising from successful pursuit and prosecution: victims received restitution. Effective collection of restitution required the cooperation of witnesses, and of neighbors to aid in pursuit; but anyone who did not cooperate with victims could not obtain similar support when victimized, and therefore could be excluded from this very important benefit of law enforcement. Policing was carried out by neighborhood associations and free riding did not appear to be a problem because anyone who did not cooperate was ostracized by the group. In other words, policing was not a public good in medieval England: the primary benefits were private and/or internal to small groups and non-contributors were excluded. One consequence of the development of monarchical government was the creation of criminal law as a source of royal revenues. Criminalization took away the private right to restitution and significantly reduced the incentives to voluntarily cooperate in law enforcement. A very different set of institutions evolved as a consequence. Today, rights to many attributes of public policing can be accessed by anyone, as in a common pool, although effective public policing still requires a substantial commitment of private resources, including victim and witness cooperation.² Incentives for individuals to underinvest in the commons are substantial relative to incentives to invest in the production of any private benefits that remain. In other words, policing is not

a public good today either: its publicly produced aspects are generally treated as free-access common pools and private individuals underinvest in their maintenance. As demonstrated below, the same is true of highways.

It might be argued that "non-excludable public goods" and "free-access common pools" are simply two terms for the same concept. However, as Minasian [1964, 77] explains, the public goods terminology often is "asserted" to imply that non-excludability is an intrinsic problem that cannot be resolved without coercing free riders into paying for the good. The common pool terminology emphasizes that incentives arise because of the definition of property rights and, therefore, that another property rights assignment can alter such incentives. Beyond that, a property rights approach actually explains both the historical evolution and modern production of policing and highways better than public goods analysis.

The incentive structure underlying a hypothetical restitution-based legal system with private-sector policing is discussed in section II below. Section III then examines an actual example of such a system: Anglo-Saxon law in England prior to the development of strong kings. This is followed, in section IV, by an exploration of the incentives leading to the withdrawal of restitution and the development of public policing in England. Section V returns to the contention that public policing should be characterized as a common pool problem rather than as a public good by exploring some of the characteristics of modern law enforcement. It is contended, in section VI, that a similar, and indeed, closely linked evolutionary process shaped the transition from a system of voluntary maintenance of roads in England to a system of public common-pool highways, as the taking of private property rights undermined the incentives to privately produce and maintain a system of highways. For instance, royal law

2. Barzel [1989, 64] emphasizes that a good or service can have many attributes and the bundle of rights associated with it can assign some benefits to particular individuals while other attributes are held in common. "Police services" clearly can be so characterized, for example. In fact, as demonstrated in Benson [1990, 201-213] many of the private attributes of policing, such as protection and property recovery, can be and are privately produced.

would not allow private groups to charge tolls: this right was reserved for the king or those to whom he sold the privilege. Concluding comments appear in section VII.

II. RESTITUTION AND INCENTIVES TO COOPERATE IN LAW ENFORCEMENT

The current institutional arrangement for criminal law, wherein individuals have common access to police services and criminals are punished by the state, is not the only institutional arrangement that is possible for the production of law enforcement. To see this, assume that the rules of law now considered as crimes against persons or property are in the nature of torts. That is, if an accused offender is determined to be guilty of violations of some victim's rights, the "punishment" is restitution in the form of a fine or indemnity to be paid to the victim. Furthermore, as is generally the case with tort law, assume that the aggrieved party must pursue prosecution. Pursuit and prosecution are much more effective, however, if several people cooperate in their production. Cooperation of non-victim witnesses can be essential for prosecution, for example. Furthermore, pursuit by the victim alone is less likely to succeed than pursuit by a large group, or by trained specialists hired by a group. First, the offender is more likely to elude a single pursuer or a non-specialist, and second, the offender is more likely to violently resist an individual than a large group or a specialist.

Individuals never know if they will be the victim of an offense in the future, but they assign some positive probability to being victimized. Furthermore, an individual does not know whether an offender will be physically, politically or economically strong enough to resist the individual's efforts to apprehend and prosecute. Cooperation is desirable, but if each opportunity for pursuit of an offender is treated as a one-shot game by victims, witnesses, and others in a posi-

tion to aid in pursuit and prosecution, then cooperation is unlikely because only the victim gains from the cooperative exchange. As Buchanan and Tullock [1962, 37] point out, however, such a "collective choice is a continuous process, with each unique decision representing only one link in a long-time chain of social action." That is, most individuals in a group are involved in various long-term relationships, so they are in a repeated-game setting with finite but uncertain horizons, and when each individual has some probability of being a victim at some point, then cooperation becomes possible, *à la* Axelrod [1984]. Under these circumstances, individuals may have incentives to voluntarily "exchange" obligations to support one another in pursuit and prosecution. Of course, if individuals can express a willingness to cooperate and obtain benefits from the cooperative arrangements but then not actually reciprocate when called upon, such an arrangement will either fail to develop or break down if established. In a repeated game, however, a commitment can be made credible if there is a credible potential response by the other player; that is, if the tit-for-tat response is sufficient punishment for the cheater.

Even a repeated-game situation involves weaker incentives to cooperate than those which exist in groups wherein each individual enters into several different repeated games with different players. In fact, these games need not have anything to do with policing. For instance, they may involve team production, trade, religion, or any number of other day-to-day types of interaction, including road maintenance, as explained below. To the extent that reputation travels from one game to another, so that refusal to cooperate within one game can limit the person's ability to enter into other games, the potential for a credible response is expanded. Various forms of social pressure or ostrac-

cism can be brought to bear to induce cooperation in law enforcement.³ Indeed, individuals who do not fulfill obligations to support others in pursuit and prosecution can be excluded from *all* forms of social interaction with other members of the group (e.g., trade, religious activities). In other words, because each individual has invested in establishing a position in the community and building a reputation within the group, that investment can be "held hostage" by the community, a la Williamson [1983], to insure that the commitment to cooperate is credible. Under these circumstances, Milgrom et al. [1990] and Schmidt [1991, 102] explain that the dominant strategy is to behave as expected in all games, repeated and one-shot alike. Indeed, there clearly is a simultaneous development of cooperation in law enforcement and other forms of interaction, since as Benson [1989] notes, most interactions require some degree of certainty about legal obligations.

This discussion of an alternative institutional arrangement for law enforcement is not just hypothetical. It describes a number of historical, anthropological, and modern legal systems. The makeup of such groups, including the institutional arrangement that produces the reputation effects and repeated-game interactions, may reflect family and/or religion as in Benson [1991], geographic proximity as described by Klein [1990], Ellickson [1991] and Benson [1992], functional similarity as detailed in Benson [1989] and Milgrom et al. [1990], or contractual arrangements as discussed by Friedman [1979] and Umbeck [1981a]. One example is Anglo-Saxon England.

3. See Benson [1993] for an extensive discussion of the theoretical potential for cooperation under these and other circumstances, and Benson [1989; 1990; 1991; 1992; 1993], Friedman [1979], Milgrom et al. [1990], and Klein [1990] for specific examples.

III. POLICING IN ANGLO-SAXON ENGLAND⁴

As Stephen [1883, 53] explains, there were no "crimes" against the state under early Anglo-Saxon law, but a large proportion of the offenses that appear in a modern criminal code were defined as illegal. Indeed, Anglo-Saxon laws were very concerned with protection of individuals and their property: offenses such as homicide, assaults, rape, indecent assaults, and theft were extensively treated, but these offenses were treated as torts.

Institutions of Cooperative Policing

The Germanic tribes from which the Anglo-Saxons descended, were divided into *pagi*, each of which was made up of *vici*. Lyon [1980, 59] suggests that a *pagus* apparently consisted of one hundred men or households, while the *vici* was a subdivision of the *pagus* responsible for policing.⁵ Conceivably, these *vici* were bound by kinship. Successful pursuit of an offender resulted in payment of restitution defined by a system of *wergeld* or man-price (*wer*). As Baker [1971, 10] emphasizes, anyone who did not cooperate could be "put outside the protection of the community." The invaders carried this system to England. By the tenth century, there was a clearly recognized legal institution

4. The following description of Anglo-Saxon legal institutions is certainly not universally accepted by legal historians, in part because the written records from the period are quite sketchy, and in part because of the theory of legal positivism underlying many of the alternative views, wherein law is assumed to require a system of top-down command. See Benson [1993] for a detailed examination and rejection of alternative views, citations to relevant literature, and extensive support of the view presented here based on theoretical predictions, empirical analogy provided by contemporaneous legal systems in Ireland and Iceland as well as more recent anthropological evidence, and the admittedly sketchy historical data from this period of Anglo-Saxon history.

5. These groups had other functions as well. For instance, Lyon [1980, 83] notes that membership involved a surety responsibility, and Baker [1971, 10] explains that the groups provided dispute resolution. For more details, see Benson [1990; 1992; 1993], from which some parts of sections III and IV are drawn.

called the "hundred." Stephen [1883, 66] explains that these voluntary groups provided "the police system of the country." Indeed, Blair [1956, 232] points out that the two primary purposes of these organizations were to facilitate cooperation in rounding up stray cattle and in pursuing justice.⁶ When a theft occurred, for example, the several "tithings" that made up the hundred were informed: they had a reciprocal duty to cooperate in pursuit and prosecution. A tithing was apparently a group of neighbors, many of whom probably were kin.

Private Benefits and Incentives to Cooperate

A primary reason for recognizing reciprocal duty in the tithings and hundreds was that these organizations produced a number of private benefits, such as the return of stray cattle, and significantly, as Stephen [1883, 62] explains, restitution to a victim. Pollock and Maitland [1959, vol. 2, 50] and Stephen [1883, 58] both note that economic payments could be made for *any* first time offender. Pollock and Maitland [1959, vol. 2, 451] point out that "A deed of homicide," for example, "can be paid for by money ... the offender could buy back the peace he had broken." The members of each tithing were clearly in a position to interact repeatedly on several dimensions, so that reputation effects were important. Thus, cooperation in pursuit and prosecution, as well as in other dimensions, such as rounding up stray cattle, and dispute settlement, evolved to capture various private benefits.

As Umbeck [1981a; 1981b] stresses, the threat of violence underlies any private property rights system. Thus, in the case of Anglo-Saxon tithings and hundreds, as

Stephen [1883, 62] observes, refusal to pay restitution to a member of the community in good standing put the offender outside the protection of the law. Physical retribution against an outlaw became the responsibility of the entire hundred, and there were also similar cooperative arrangements between different hundreds.⁷ Likewise, Pollock and Maitland [1959, vol. 1, 47-48] emphasize that refusing to accept restitution and seeking physical revenge meant that the initial victim became an outlaw. Outlawry implied that physical attacks on the outlaw were legal and the potential for a "blood-feud" arose.⁸ The community wide threat of outlawry and physical revenge generally induced the reluctant offender to pay and the victim to accept the payment. Furthermore, and importantly, someone who did not cooperate in a tithing would not have access to such a threat. An individual might be able to successfully pursue an offender alone, and even extract restitution if he was stronger than the offender, but without the backing of the community, this was relatively unlikely. Of course, there were also common benefits to policing, such as localized deterrence, so individuals living in the area might benefit even if they refused to cooperate in policing or other kinds of team production. Indeed, these associations also produced other benefits common to the group as a whole, such as road maintenance as explained below, but cooperation in the production of such common

6. They also produced the functions suggested in footnote 5, and road maintenance, as explained below. They have been incorrectly characterized as an innovation of Anglo-Saxon kings by Lyon [1980, 84] and others, but see Blair [1956, 235] and Benson [1990; 1992; 1993] for counter-arguments.

7. Institutions were developed to avoid violence even when a person was unable to pay restitution. Pollock and Maitland [1959, vol. 2, 441 and 449] explain that an offender was apparently given up to a year to pay a large debt, for example, and debts could be worked off through indentured servitude.

8. Some historians, such as Lyon [1980, 84] view outlawry and the blood-feud as the primary legal sanction prior to efforts by kings to force acceptance of economic restitution. Given the incentives and institutions arising in this legal system and others like it, as described by Friedman [1979] and Benson [1990; 1991; 1993], however, blood-feud was clearly acceptable only after an attempt to go to trial, long before kings became active in law.

benefits was an investment in reputation that allowed the individuals to consume the important team-produced private benefits as well. In fact, if someone was reputed to be uncooperative and therefore not a member of a tithing, he would be a relatively attractive target, and probably would have been victimized more often than members of effective tithings. Furthermore, the individual was ostracized by the community, and therefore would not have access to the community's dispute resolution arrangements or other benefits of community interaction, such as the gathering of his stray cattle, religious rights, trade, etc. The cost of non-cooperation was high, even though exclusion may not have been possible for some common access benefits such as road use, and perhaps deterrence.

Pollock and Maitland [1959, vol. 2, 48] explain that early codes make it clear that "the ealdorman, and the king at need, may be called in if the plaintiff is not strong enough himself." Thus, even the most respected members of the Anglo-Saxon community were involved in the cooperative arrangements used in posing the threat of outlawry. In fact, perhaps as a further threat to deter resistance to payment of restitution, or perhaps as an inducement to ealdormen to cooperate with the community, the restitution system was expanded: if a victim had to call upon an ealdorman or king for support, a guilty offender would not only have to pay *wer* to the victim or his kin, but he also would have to make a payment of *wite* to the ealdorman or king. Ealdormen and kings had no sovereign powers to coerce compliance, however, as Pollock and Maitland [1959, vol. 2, 40-41] explain. They simply supported someone who, due to insufficient strength of his own support group arrangements relative to the strength of the accused offender, could not get his cause heard in his own hundred. Nonetheless, this institutionalization of ealdormen's and king's role in the justice

process, and in particular a *wite* as a payment for performing this role, was one of the first steps in what would soon be a rapid extension of the king's role in law. Kingship did not develop for the purpose of establishing internal law and order, however. Rather, as explained in Blair [1956, 196-198] and Benson [1990, 26-30; 1993], monarchical government evolved due to external conflict, as groups attempted to take land from other groups or to protect existing holdings.⁹ But during the centuries of warfare kingship also acquired important legal ramifications.

IV. JUSTICE FOR PROFIT: THE DEVELOPMENT OF ENGLISH CRIMINAL LAW

As Anglo-Saxon kings consolidated their power, they recognized that law and law enforcement could be used as a direct source of royal revenues. Well before the Norman conquest, for instance, Pollock and Maitland [1959, vol. 1, 49] observe that outlawry began to involve "forfeiture of goods to the king." More significantly, they note [1959, vol. 1, 49] violations of certain laws began to be referred to as violations of the "king's peace," and punishment involved fines to the king rather than restitution.

The concept of the "King's peace" traces directly to Anglo-Saxon law in the sense that every freeman's house had a "peace"; if it was broken, the violator had to pay. Initially, the king's peace simply referred to the peace of the king's house,

9. Blair [1956, 196] explains that Saxon and Jutish chieftains that led raiding parties into Britain were war leaders whom freeman *chose* to follow. Warfare apparently was virtually permanent, as efforts were continually being made to expand landholdings. Military ability won a small group of entrepreneurial war chiefs prestige and land, and their accumulated wealth allowed some to set themselves apart as kings. If a war-leader king's successor was endowed with military ability, his kingdom would last; and if the king could establish a blood descendant as his successor, precedent for a hereditary dynasty would be established. Most Anglo-Saxon kings apparently did not presume to be law-makers, however, and law enforcement remained in the hands of the hundreds and tithings.

but as royal power expanded, the king declared that his peace extended to other places. First it was applied to places where the king traveled, then to churches, monasteries, highways, and bridges. Eventually, as Lyon [1980, 42] notes, it would be "possible for royal officers such as sheriffs to proclaim the king's peace wherever suitable. Even included were festivals and special occasions." Violations of the king's peace required payment to the king, so the expansion in places and times protected by the king's peace meant greater potential for revenue. Pollock and Maitland [1959, vol. 1, 31-32] explain that the populace did not accept these changes gracefully, however: "there is a constant tendency to conflict between the old customs of the family and the newer laws of the State."

Royal profits from justice probably were only a small component of total income for Anglo-Saxon kings. However, they were an increasingly important component for at least two reasons. First, such income was relatively liquid. The potential for taxation was modest, for example. By far the largest component of royal income came from the king's land holdings, but this income was largely in the form of agricultural produce, which could not easily be transported or sold. Indeed, kings and their households traveled from estate to estate throughout the year, consuming each estate's output before moving to the next. This lack of liquidity contrasts sharply with fines collected through the king's evolving legal functions. Second, marginal changes in royal revenue could be made relatively easily by mandating changes in the law, in the form of extensions of the king's peace to other offenses, and increasing the *wite*, as compared to most other sources of revenue. Indeed, through confiscation of outlaws' property, kings expanded their land holdings, creating new sources of perpetual income.

Law enforcement and its profits also became something the king could exchange in the political arena. As Pollock and Maitland [1959, vol. 2, 453-454] stress, "pleas and forfeitures were among profitable rights which the king could grant to prelates and thegns. A double process was at work; on the one hand the king was becoming supreme judge in all causes; on the other hand he was granting out jurisdiction as though it were so much land." Ealdormen were granted special status as royal representatives within shires; Lyon [1980, 62-63] notes that they received "one-third of the fines from the profits of justice" and one-third of the revenues from tolls and other duties levied by the king. In exchange, the ealdormen mustered and led men into combat, represented the king in shire courts, and executed royal commands. By the tenth century, a few powerful families provided all the ealdormen in England, and they had a great deal of national political power. As single earls evolved to represent the king in groups of shires, the office of sheriff also evolved in each shire. A sheriff received grants of land from the king and the right to retain some of the profit from the royal estates he supervised. Furthermore, as explained in Lyon [1980, 65], "by the reign of Edward the Confessor judicial profits had come to be lumped in with the farm of the royal manors and all these had to be collected by the sheriff" in exchange for part of the profit.

Norman Rule: The End of Restitution

Pollock and Maitland [1959, vol. 1, 94] emphasize that following their successful invasion of 1066, the Normans quickly established "an exceedingly strong kingship," and as Lyon [1980, 163] notes, one focus of this power was the use of law and law enforcement to generate revenues. In this regard, Pollock and Maitland [1959, vol. 1, 53] observe that one of the earliest

and most significant changes the Normans made in English law was replacement of what remained of the Anglo-Saxon's restitution-based system's payments of clearly defined *wer* with a system of fines and confiscations for the king, along with corporal and capital punishment. Most offenses under the early Normans were still defined by Anglo-Saxon customary law, but elimination of the *wergeld* system meant that those offenses considered to be violations of the king's peace were significantly expanded, and the Normans continually added offenses of this kind. A significant factor in the growth of this list of offenses, as Lyon [1980, 189] stresses, was the king's "need of money; to increase his income the king only needed to use his prerogative and throw his jurisdiction over another offense." The Norman kings also brought the concept of felony to England, by making it a feudal crime for a vassal to betray or commit treachery against a feudal lord. Feudal felonies were punishable by death, and all the felon's property was forfeited to the lord. Soon, felony developed a broader meaning described by Lyon [1980, 190]: "Again royal greed seems to be the best explanation for the expansion of the concept of felony. Any crime called a felony meant that if the appellee was found guilty his possessions escheated to the king. The more crimes called felonies, the greater the income, and so the list of felonies continued to grow throughout the twelfth century." During Henry I's reign, an attempt was made to translate the codes of the Saxon king, Edward. Three other law books were added to the translations. Pollock and Maitland [1959, vol. 1, 106] conclude that "These law books have ... one main theme.... An offense, probably some violent offense, has been committed. Who then is to get money, and how much money, out of the offender." Revenues from law enforcement and their allocation were obviously the most important consideration in royal law at this time.

With the Norman's undermining of the Anglo-Saxon restitution-based legal system, one of the most powerful positive incentives to cooperate in law enforcement disappeared. Common-access benefits, such as deterrence, remained as did some private benefits, such as the potential for revenge. But the remaining private benefits apparently were not sufficient to induce voluntary cooperation, particularly given other disincentives discussed below. Many of the hundreds ceased functioning altogether under William, for example, although other local associations took over some of the non-policing functions of the hundreds, such as road maintenance, as noted below.¹⁰ Thus, Norman kings were forced to attempt to establish new incentives and institutions in order to collect their profits from justice. The Normans instituted a local arrangement called the frankpledge, with similar functions to an Anglo-Saxon tithing. Based on coercively mandated requirements rather than positive incentives, the frankpledge was

10. Other private benefits arising from local cooperation also began to disappear, due in part to Norman takings, so it should not be inferred that the end of restitution was only relevant factor in undermining the hundred. For instance, the Normans seized much of the land in England and granted large tracts to Barons and the Church in exchange for support, and as noted in Darby [1973, 85], enclosure of some land soon followed. The land held directly by the lords, called the *demesne*, could be enclosed. Other types of land were controlled by freeholders who paid rent to the lord, and by the *villians* who provided labor to the lords. Estimates from the Hundred Rolls of 1279 indicate that the *demesne* involved about 32 percent of the arable land at that time, as indicated in Darby [1973, 86]. The Statute of Merton (1236) also permitted the lords to enclose large portions of the "waste," the high woodlands and unimproved pastures that lay in clumps around the arable lands, and as noted in Darby [1973, 98-99], grazing was significantly restricted in the vast royal forests and parks "in the interest of the chase." With increasing enclosure, the potential for straying cattle was diminishing. Then, in the 1400s, as wool prices rose relative to grain prices, the lords evicted large numbers of tenants and enclosed large tracts of land, converting it to sheep pasture from crops and stubble fields upon which cattle grazed. Hundreds of local villages were abandoned, as explained in Darby [1973, 210-211].

ordered to pursue offenders and ensure the appearance of members in court where the victims were to prosecute so the king could collect his fines. If a frankpledge failed, the group could be fined. Thus, the incentives to cooperate under the restitution system were replaced with threats of punishment. These incentives were apparently much less effective, however: Lyon [1980, 196] notes that frequently, entire communities were fined.

Many institutional foundations of the modern English system of law were laid during the reign of Henry II, a man who Berman [1983, 439] describes as "hungry for political power, both abroad and at home." Pollock and Maitland [1959, vol. 1, 153] explain that when Henry II came to power, he consolidated and expanded his revenue-collecting system. By 1168, for example, circuit tax collectors who were also the itinerant judges had become a "great subdivision" of the royal court.¹¹ The itinerant justices conducted royal inquests regarding financial issues and issues of justice, and they transmitted royal commands to counties and hundreds. The justices also amerced frankpledge groups that failed to or refused to fulfill their policing duties, fined communities that did not form all men into frankpledge groups, and amerced both communities and hundreds that failed to pursue offenders or to report all violations of the king's peace through inquest juries.¹² Such amercements were increasingly important.

11. The reduced incentives to participate in law enforcement meant that the king could not count on the hundred and county courts to collect his profits from justice. Thus, royal courts developed quite quickly. Pollock and Maitland [1959 vol. 1, 109-110] explain that the first permanent tribunal representing the king, beyond the king's own council, consisted of Henry I's financial administrators. The itinerant justices were another aspect of the king's effort to take on many of the functions of the county and hundred courts.

12. Henry II used inquisitorial juries extensively, requiring them to inform the king's justices on various matters and make accusations. Sheriffs arrested and jailed those accused by the juries.

Pollock and Maitland [1959, vol. 1, 141] observe that Henry and his judges defined an ever growing number of actions as violating the king's peace. These offenses came to be known as "crimes" at about this time, and as Laster [1970, 75] explains, the contrast between criminal and civil causes developed, with criminal causes referring to offenses that generated revenues for the king or the sheriffs rather than payment to the victim. Indeed, Lyon [1980, 295] notes that "the king got his judicial profit whether the accused was found guilty or innocent." If guilty, hanging or mutilation and exile, plus forfeitures of all goods to the crown were typical punishments; if the accused was found innocent, the plaintiff was heavily amerced for false accusation. This further reduced the incentives of crime victims and frankpledge groups to report crimes, of course.

Laster [1970, 76] stresses that the loss of restitution and its accompanying incentives, and the potential for amercement for false accusation, meant that English citizens had to be "forced" into carrying out their policing functions. In addition to efforts to mandate formation of frankpledge groups, Laster [1970, 76] details a long series of legal changes, such as declaring that the victim was a criminal if he obtained restitution prior to bringing the offender before a king's justice where the king could get his profits, and creation of the crime of "theftbote," making it a misdemeanor for a victim to accept the return of stolen property or to make other arrangements in exchange for an agreement not to prosecute. In delineating the earliest development of misdemeanors, Pollock and Maitland only discuss "crimes" of not cooperating in policing, suggesting [1959, vol. 2, 521-522]:

A very large part of the justices' work will indeed consist of putting in mercy men and communities guilty of neglect of police duties. This, if we have regard to actual results, is the main business of the eyre... the justices collect in all a very large sum from hundreds, bor-

oughs, townships and tithings which have misconducted themselves by not presenting, or not arresting criminals... probably no single "community" in the county will escape without amercement.

Laster [1970] explains that more laws were added. For instance, civil remedies to a criminal offense could not be achieved until after criminal prosecution was complete; the owner of stolen goods could not get his goods back until after he had given evidence in a criminal prosecution; and a fine was imposed for advertising a reward for the return of stolen property, no questions asked. Coercive efforts to induce victims and communities to cooperate in pursuit and prosecution were not sufficient, however, and crime was on the rise.¹³ Thus, a public component to policing and prosecution inevitably developed.

Public Institutions for Policing and Prosecution

An early development in the evolution of public policing and prosecution was the creation of the office of Justice of the Peace (JP) in 1326. Stephen [1883, 190] notes that at that time, JPs were simply "assigned to keep the peace," but in 1360 they were empowered "to take and arrest all those they may find by indictment or suspicion and put them in prison." JPs were appointed by royal commission for each

county; and Langbein [1974, 5] observes that as with much of the local apparatus of justice, these men were expected to perform their functions without monetary compensation. Langbein [1973, 334; 1974, 66] also explains that over thirty statutes were issued from the late fourteenth to the middle of the sixteenth centuries, establishing various functions for JPs in the criminal process. For instance, while victims or frankpledge groups continued to be responsible for pursuing criminals and prosecuting most cases, after a 1555 statute, JPs were obliged to take active investigative roles in felony cases; to organize cases for prosecution, including examination documents; to assist the assize judge in coordinating the prosecution at trial; to bind over for appearance all relevant witnesses, including the accusers and the accused; and to act as a back-up prosecutor when a private citizen was not available.

The declining incentives of citizens and victims to pursue and prosecute left a gap that JPs were intended to fill. However, the growing duties of JPs, particularly in urban areas, meant that "voluntary" JPs were not willing to fulfill the need. In fact, Beattie [1986, 59-65] stresses that one of the deterrents to private prosecution was the difficulty in finding a JP willing to perform the criminal justice functions assigned to them by various statutes. These duties were becoming increasingly time consuming and the rewards (the various fees a JP could collect, the prestige of the position) were clearly not sufficient to compensate for the time and inconvenience of the job. Thus, in 1729, the central government chose to financially support one Middlesex JP to provide criminal investigative and prosecutorial services; he became known as the "court JP." Middlesex was the seat of government and the residences of most government officials and parliamentarians were located there. The self-interest motives of these government officials in transferring the cost of law enforcement onto taxpayers certainly

13. Indeed, the incentives for victims themselves to avoid the pursuit and prosecution functions were growing, so the failure of non-victims to cooperate is not very surprising. As noted above, unsuccessful prosecution was a finable offense, for example. Furthermore, when a victim filed a complaint before a Justice of the Peace, he might have to pay for subpoenas and warrants if his witnesses and the suspect were not present. Beattie [1986, 41] explains that other fees were incurred for the recognizances in which he and witnesses were bound over for trial, for the clerk of the peace or of the assize for drawing up the indictment, for the officer of the court who swore the witnesses, for the doorkeeper of the courtroom, for the crier, and for the bailiff. Beyond these fees, the level of the cost of attending court was uncertain, because the length of the wait for an appearance before a grand jury and the timing of the trial were not known. A victim often had to bear costs of food and lodging for both himself and his witnesses.

comes into question. They were the first to benefit from such expenditures at any rate.

Little record of the first court JP remains, but Langbein [1983, 63] explains that the second, Henry Fielding, along with his brother John who succeeded him in the position, appears to have had a dramatic effect on policing and prosecution in the Middlesex-London area.¹⁴ For instance, George II began paying Middlesex and some London watchmen with tax monies.¹⁵ Then, as Langbein [1983, 67] notes, Henry Fielding began organizing a force of quasi-professional constables in the early 1750s, known as the "Bow Street Runners," to seek out and apprehend suspects, assist in the retaking of goods, patrol, and infiltrate criminal gangs. Fielding was court JP so this group had some "public" status, but they were not a true public police force because their income came from rewards for criminal apprehensions.¹⁶ Wooldridge [1970, 119-120] stresses that "Fielding continuously agitated for governmental financial assistance so his platoon could be regularly salaried ... [but] Englishmen opposed on principle the idea of public police during Fielding's lifetime. They feared the relation between police and what is known now as the police state."

In 1822, Robert Peel was appointed Home Secretary. According to Post and Kingsbury [1970, 13], Peel believed that "you cannot have good policing when responsibility is divided," and that the

only way to consolidate responsibility was through government. But it took Peel some time to actually set up a publicly financed police force. Even after 1829 when Parliament gave Peel the authority and financing to form a London metropolitan police department, including Middlesex, of course, there was substantial opposition from the populace. Citizen concerns were apparently justified. Between 1829 and 1831, for example, Ricks et al. [1981, 6] observe that 3,000 of the 8,000 public police officers, referred to as "Peel's bloody gang" or "blue devils," who had been hired were fired. But support gradually increased in the face of cyclical upsurges in crime.¹⁷ And as Beattie [1986, 67] notes, once powerful individuals and groups began to see that they could shift part of the cost of their own protection to taxpayers, special interest support for public police began to grow. Some London merchants had organized and paid a police force to patrol the Thames River docks, for example, and the metropolitan police department absorbed this function, thereby reducing the merchants' costs. Public police also began to gain political power and expand its scope by, for instance, performing prosecution.¹⁸ Distrust

16. Private rewards for the return of stolen property had been offered for some time, but beginning in 1692, public rewards for apprehension and conviction of criminals were offered in an effort to induce private-sector pursuit, and a class of professional thief-takers or bounty hunters had developed. By 1792, seven other magistrate offices in the London area had operations similar to those in Middlesex.

17. The reason for the crime cycles is alluded to in footnote 14.

18. Public prosecution was also resisted for a long time, as Cardenas [1986, 361] emphasizes, because "a private prosecutorial system was necessary to check the power of the Crown. If not so limited, the power of criminal prosecution could be used for politically oppressive purposes." However, fear of public prosecution was primarily directed at the central government, so a localized bureaucracy was the natural organization to take on such duties. For more details on public police and prosecution, criminal courts, rules of evidence, plea bargaining, punishment, the end of "justice for profit" and other aspects of modern criminal law as they evolved, see Benson [1990, 43-83; 1992; 1993].

14. Beattie [1986, 226] emphasizes that international military involvement served as a major impetus for the development of public prosecution and police during the eighteenth and nineteenth centuries: "the conclusions of wars ... brought 'a great harvest of crime,' The peace brought back to England large numbers of disreputable men who had spent several years being further brutalized by service in the armed forces, without any provision being made for their reentry into the work force."

15. Parkes [1925, 35] notes that private watchmen had been employed for at least two centuries, and establishment of an unpaid watch had been mandated since Edward I.

of public police persisted for much of the century, however.

V. COMMON POOL PROBLEMS IN MODERN PUBLIC POLICING

The fact that the restitution-based system was replaced by a system dominated by public policing is not a reflection of the superior efficiency of government in production of a public good. Indeed, a clear implication of the analysis is that by taking the private right to restitution and increasing the private cost of cooperation, the only primary benefits of policing that remained for general citizens were common-access benefits. The one exception appears to be revenge. Another benefit was royal revenues, of course, but these revenues were not likely to benefit any victim or witness in any noticeable way, and as Benson [1992; 1993] explains, they ultimately disappeared under the pressures of interest group politics. Consider two widely cited consequences of common property: (1) inefficient overuse or congestion of the common-access resources, and (2) underinvestment by individuals in privately provided resources used to produce common-access attributes. Both clearly apply to criminal law enforcement in the United States, which inherited much of its legal system from Great Britain, including the crime/tort distinction.

Common Access and Congestion

When resources are available in common pools, individuals do not bear the full cost of personal use, so they tend to overuse the resources. An example of the seriousness of the commons problem with public police resources is evident in the direct links that individuals and businesses have between alarm systems and the police. Most studies of such systems find a false alarm rate of well over 95 percent. Kakalik and Wildhorn [1971, 29] report that in Beverly Hills, California, for example, a survey of 1,147 alarm calls to

which police responded found that 99.4 percent were not warranted. These false alarms have been attributed to several factors, including problems with equipment and subscriber error, but the argument here suggests another reason. Those using alarm systems do not pay the cost of each police response so they have no incentive to minimize those costs. And the real cost of these false alarms are the alternative, more valuable uses which are crowded out or must wait for attention—response to real emergencies, crime deterrence. More generally, if policing is a pure public good, then the demands of one individual would not prevent another individual from consuming the same services. In fact, however, the tremendous number of competing demands for police services mean that many demands are crowded out. This is actually the type of “free” good that Minasian [1964, 78] is referring to when he notes that “explicit prices are not allowed to operate as either signaling or rationing devices, but resources *are* consumed in their production.” The congestion that results means that individual police officers and police departments as a whole decide which laws to attempt to enforce and the magnitude of the effort made for each of those laws. This allocation decision results in selective enforcement, as some crimes are crowded out, receiving very little consideration or none at all, while others consume all the police resources.¹⁹

19. Participants in gambling, prostitution, and drug exchanges enter the transaction voluntarily, so victims are not demanding that the police correct specific offensive acts, and there is no direct evidence of crowding, such as files full of unsolved burglaries. There is, nonetheless, a common pool allocation system: demand filters through the political process. Some neighborhoods have no drug dealers or prostitutes walking their streets, for instance, while such activities are very visible in other neighborhoods. See Benson et al. [1992] for direct evidence of crowding. Also see Barnett [1986], Benson [1988; 1990], and Benson and Rasmussen [1991] for common pool analysis of policing.

Underinvestment by Victims

Inputs to policing must include privately provided resources. Victims are particularly important inputs in the crime control process. As McDonald [1977, 301] observes, a huge portion of all crimes that come to the attention of police are those reported by victims. Very few arrests for property or violent crimes result from police initiated investigations or actions. Furthermore, without victim testimony, a very substantial portion of the criminals that are arrested would never be successfully prosecuted. Thus, successful production of the commonly shared benefits of crime control such as deterrence requires that an investment be made in providing the victim input. Victims themselves bear the cost of this investment, however, and they therefore have incentives to underinvest in the commons. Non-reporting can be viewed as a decision not to invest in crime control, for instance, and over 60 percent of the FBI Index crimes are not reported to police. One survey, reported by Research and Forecasts, Inc. [1983, 105], concludes that 60 percent of personal larceny cases with no contact between thief and victim go unreported and that less than half of all assaults, less than 60 percent of all household burglaries, less than 30 percent of household larcenies, and only a little over half of all robberies and rapes are reported. Non-reporting is a natural reaction to the high cost of victim involvement with the criminal justice system relative to the private benefits obtained. It is not an example of free-riding to consume benefits without paying. By definition, deterrence has not worked if there is a victim, so to obtain any benefits, they must bear costs.²⁰

20. There may still be some private benefits associated with public policing and prosecution, but they appear to be relatively insignificant. Stolen property is often not recovered, money loss is generally not restored, for example, and revenge is not very likely either. *Uniform Crime Reports* indicate that the portion of reported crimes cleared by arrest is less than 20 percent and declining, and only a small portion of arrests result in convictions.

Underinvestment by Potential Victims

Non-victim witnesses and victims' neighbors are also important inputs into policing, but they have to incur costs of involvement themselves and their private benefits are virtually non-existent. A widespread popular perception is that large numbers of witnesses and others who could provide evidence regarding crimes choose "not to become involved." One tangential piece of evidence provides some insights in regard to the magnitude of their underinvestment. As Sherman [1983, 158] emphasizes, private patrols and neighborhood watches are quite effective at crime prevention. Yet, such voluntary arrangements are not particularly widespread. A Gallup poll reported by Sherman [1983, 145] indicates that organized participatory crime prevention efforts, including but not exclusively consisting of such patrols and watches, were only in place in the neighborhoods of 17 percent of the Americans surveyed. And non-participation is a problem for many of these organizations. After all, even without participating, individuals cannot be boycotted from consuming common-access public police services or the deterrence arising from private patrolling of public streets.

This underinvestment in crime control by witnesses, neighbors, etc. obviously fits the idea of public good free riding better than the underinvestment by victims discussed above, but as Minasian [1964, 77] stresses, even this kind of situation does not mean that an alternative institutional arrangement cannot create a different set of incentives: "the concept of a *public good* has misled people to infer the need for collective action for its production and allocation." Increases in private benefits from crime control, such as an expectation of restitution for potential future victims, or privatization of streets to allow exclusion, as discussed in Benson [1990, 209–211 and 243–244], could create incentives for cooperation, either in participatory

watches or in hiring specialists. Indeed, Benson [1990, 211–213] explains that there are over twice as many private police in the United States today as there are public police, and a substantial majority of these private police are employed as watchmen or security officers in order to prevent crime. They may produce common pool benefits for others in the vicinity, but in fact, deterrence from watching actually tends to be localized, as it probably was with the Anglo-Saxon tithing. At any rate, the private benefits of such crime prevention clearly must also be substantial.²¹

Even if the deterrence aspect of policing might be labeled as public goods, perhaps because non-payers cannot be excluded from public streets, it is not clear that public police effectively produce it. After all, legislators do not enjoy a clear information source like prices when determining how to allocate publicly employed resources, so they often use some statistical representation of the “quality” of work being done. The number of crimes deterred cannot be determined, for example, but as Sherman [1983, 156] notes, arrests is a natural measure of police output, and this is a primary measure that police focus on in their lobbying efforts for expanded budgets. Given this emphasis on arrest statistics, police have incentives to wait until a crime is committed in order to make an arrest, and indeed, after an extensive study of police performance, Sherman concludes [1983, 149]: “Instead of *watching to prevent crime*, motorized police patrol [is] a process of merely *waiting to respond* to crime.” In

fact, Sherman [1983, 151] explains that about half of an officer’s time is spent simply waiting for something to happen. Police officials claim that this time is spent in preventative patrolling, presumably to produce the public good of deterrence, but systematic observation indicates that such time is largely occupied with conversations between officers, personal errands, and sitting in parked cars on side streets. In other words, police manpower is being allocated to focus on measurable outputs in the form of arrests while sacrificing unmeasurable outputs in the form of crime prevention, just as Lindsay [1976] explains other bureaucracies do. An increase in the probability of arrest does deter some crime, of course—see Benson et al. [1992] for example. The suggestion made here and in Sherman [1983], however, is that a more effective way to deter crime would be for police to actively watch. As Minasian [1964, 77] emphasizes, the “real problem” is the choice between alternative institutional arrangements, and although none “will reside in the ideal world of Pareto,” some will come closer to maximizing the value of scarce resources than others will. When a private security firm is hired to protect a neighborhood or business, for example, the price that consumers are willing to pay measures effectiveness, and that firm has incentives to deter crime through watching and wariness.

VI. HIGHWAYS

The public-good free-rider argument is an ex post rationalization for public provision of policing rather than an ex ante explanation for its development. The same is apparently true of highways, as Albert [1972, 3] explains: “In England the various transport sectors developed gradually and were controlled almost entirely by private enterprise.” Direct evidence of the extent and quality of roads in Britain between the Roman occupation and the twelfth or thirteenth century is almost non-existent, but

21. As explained in Benson [1990], the private sector is still heavily involved in the production of policing services, of course, even though the close knit families and neighborhoods are generally not the institutional basis for cooperation. The fact is that contracting is another way to establish reciprocal relationships, and Benson [1990, 357–364] stresses that a wide variety of additional private contractual arrangements can be anticipated, given expanded private benefits to crime control, such as restitution, thereby reducing the underinvestment incentives associated with policing services.

a good deal can be inferred from various travel records.²² For instance, Gregory [1932, 94] and Parkes [1925, 5] observe that records of military marches demonstrate that at least some roads were in good condition. Similarly, Hindle [1982, 193] explains that Anglo-Saxon and early Norman kings and their courts "also moved incessantly around the kingdom," thus requiring passable roads to carry what Stenton [1936, 6] notes was a "very sizable company." Representatives of the king, including his tax collectors and judges, and of the church with its widespread holdings, also traveled extensively. Furthermore, as Gregory [1932, 95] and Willan [1976, 13] both point out, England had fairly steady advances in population and in culture during this period, and internal trade was expanding, all requiring increasingly extensive internal communications. Clearly, as Stenton [1936, 21] concludes, the road network in medieval England was adequate for "the requirements of an age of notable economic activity, and it made possible a centralization of national government to which there was no parallel in western Europe." However, the roads were not created nor maintained by the state.

While considerable long distant travel occurred in the early medieval period, Beresford and St Joseph [1979, 273] note that "most medieval roads were entirely local in purpose with an ambition no higher than to serve the villagers' immediate wants. There was need for lanes to provide access to holdings in the fields; to take loaded wagons to the windmill or to the watermill in the meadows; to reach the woodland with its timber, its fruit and its

pannage for swine; to take the flock to the common pastures and heaths." Indeed, most of the benefits of roads were internal to a hundred. According to Webb and Webb [1963, 5], there is no actual documentation of local road maintenance and production before manorial records began to be produced in the twelfth and thirteenth centuries, but several inferences can be drawn from customary law. First, as Webb and Webb [1963, 6-7] observe, those with customary obligations to maintain roads were primarily responsible for removing any impediments to travel such as overhanging trees, hedges, logs, and water through a drainage ditch and/or building up of the roadway. Second, some of the property rights to the land over which a road passed belonged to the owner of the land on either side of the road: Pawson [1977, 65-66] notes that if a road was abandoned, for instance, it reverted to that landowner. However, Pawson [1977, 66] also stresses that one customary Anglo-Saxon right to that property was assigned to the commons: "the right of passage was a communal right." Indeed, Jackman [1966, 5] explains that the concept of the "highway" referred to this customary right of passage rather than to the roadway or path itself. Third, Jackman [1966, 4] also points out that the manorial records indicate that all land owners were obliged to the hundred, and later to the parish, to watch over the roads on their land and keep them clear of obstructions. Thus, as Jackman [1966, 33] explains, the hundred and/or parish was responsible for seeing that its members maintained the roadways over their land, although Bodey [1971, 14] notes that the actual need for enforcement was rare. Individuals apparently cleared roads in recognition of the many benefits of neighborhood cooperation outlined above and of other factors discussed below.

As long distance travel increased, particularly by merchants and by representatives of the church and government, the

22. The Romans built "great military highways" in Britain, as Jackman [1966, 1] notes, and there is little doubt that these roads, largely constructed with "public" funding, were important transportation arteries for centuries. However, Jackman [1966, 4] goes on to explain that the Roman road system "was by no means so good nor so complete" as the road system in later periods. Also see Gregory [1932, 94] for a similar observation.

need for good connections between different communities' road networks increased. But most local communities had relatively little interest in building and maintaining connecting arteries and bridges.²³ Of the three groups most in need of good inter-community connections, however, it was the church and the merchant community that took up the task, not the government.

Merchants and Monasteries

Jackman [1966, 15-16 and 30-32], Gregory [1932, 97-98] and Pawson [1977, 72-73] provide numerous examples of merchants and merchant organizations contributing to the construction and/or maintenance of roads, and especially bridges. Indeed, some guilds and wealthy benefactors continued supporting bridges and roads well into eighteenth century; as Pawson [1977, 73] explains:

Many private improvements were, of course, carried out purely in self interest. New roads were built to promote the exploitation of mineral wealth within estates, and to enable landowners to divert existing highways ... Sometimes an economic interest led to improvements in the surrounding area, benefiting everyone.... However, when there was little direct return to those involved in private schemes, there efforts were primarily for the social good. It was illegal for a toll to be charged on a public highway without the consent of parliament so it was not possible to charge those who benefited from such works except by voluntary means.

However, there were actually some very important rewards for such local benefactors in the form of local prestige and respect. After all, as Hindle [1982, 207] stresses, roads played a very significant role in determining the success of a town

and its established markets, so other members of the community would tend to be very grateful to someone who aided the community in this way. Building and maintaining roads and bridges was an investment in reputation, not unlike advertisers who pay for television programing to be broadcast free of charge as discussed in Minasian [1964].²⁴ And for Christians, even more significant personal benefits were anticipated.

The medieval church had considerable demands for long distant travel. The church encouraged pilgrimages and maintained frequent tours by peripatetic preachers and friars. Perhaps the most significant source of church travel was the monasteries, however: as Gregory [1932, 95] and Jackman [1966, 8] both note, the monasteries' scattered estates required constant visits. Thus, Jackman [1966, 8] emphasizes that the church promulgated the belief that care of the roads was "a work of Christian beneficence, well pleasing to God." This created incentives for private citizens to aid in the maintenance of roads and bridges, and Jackman [1966, 16] observes that the Bishops' registers throughout England provide ample evidence of such activity. Indeed, Jackman [1966, 15] and La Mar [1960, 13] both find that it was not uncommon for bequests to be left for the construction or maintenance of a road or bridge. More importantly, as Jackman [1966, 30-31] stresses, the monks were assigned, by custom, the responsibility of maintaining the roads and they willingly took on the task because it "was a pious work highly to be commended." Furthermore, by promulgating such beliefs, the church hierarchy created incentives for local parishioners to maintain roads throughout the country, thus explaining the longstanding customary obli-

23. Some bridges were built and maintained by hundreds, however: Webb and Webb [1963, 107] note that the term "Hundred Bridges" continued in use into the eighteenth century.

24. See Klein [1990] for an excellent discussion of the interplay between self interests and social pressures in the private development of highways in the early history of the United States.

gation that local parishes had for road maintenance, as Jackman [1966, 30] and Pawson [1977, 68] explain.²⁵ Indeed, with the break down of the hundreds under the Normans, the parishes apparently took on the major obligations of road maintenance, with the aid, encouragement, and where necessary, supervision of the monasteries and bishops.

The various groups and individuals who maintained roads in England prior to 1500 were apparently quite effective, as suggested in Darby [1973, 174 and 287], given the technology available. The system of voluntary road maintenance, based on the cooperation of the monasteries and parishes, was ultimately undermined, however, by the almost continuous struggle for power between the English kings and the church. As Jackman [1966, 29] points out, Henry VIII finally dissolved the monasteries in 1536–1539, divided their properties, and transferred them to “a class of rapacious landlords who would be slow to recognize any claim upon their rents for the maintenance of roads.... The inevitable result would be a rapid decadence of many highways which had hitherto been in common use”; also see Gregory [1932, 96] and Parkes [1925, 7] for similar observations. While various individuals and guilds continued to provide support for some roads and bridges, the elimination of the monasteries and the undermining of the incentives of the Church to encourage its parishioners to maintain roads in general was apparently quite significant. The customary right of passage that had evolved, primarily as a right for members of local communities,

apparently was, for some of those communities, creating a common pool problem that could not be alleviated without the monasteries. Indeed, Jackman [1966, 30–31] contends that the dissolution of the monasteries was the primary reason for passage of the “Statute for Mending of Highways” in 1555 mandating that parishes establish very specific road maintenance institutions.

The Mandated Parish System

Under the 1555 statute, two surveyors of highways were to be chosen by the JPs from a list provided by each parish. The surveyors were obliged to travel the parish at least three times a year to inspect the roads and bridges, see to it that land owners kept the roads and ditches clear of impediments, organize annual maintenance procedures for parishioners, watch for and stop wagons drawn by more than an allowed number of horses or oxen, and announce before the church meeting any violators of the statute. They were also required to collect and account for the fines, compositions, and commutations that arose in conjunction with highway maintenance or lack thereof. The JPs were to audit the surveyors’ accounts, hear pleas of excuse for non-fulfillment of the statute’s labor requirements, levy fines and order seizures for violations, and when necessary, collect a tax from the parish residents to cover an extraordinary expense. Furthermore, both JPs and surveyors were to perform their tasks gratuitously. All manual labor, tools, horses and carts needed for repairing the roads were to be provided gratuitously by the parishioners for four eight-hour days, and then six after 1563, chosen by the surveyors.²⁶

In much of the country the mandated obligations of the highway statute of 1555

25. Religious beliefs were significant in the Anglo-Saxon legal system as well. When the guilt or innocence of the accused could not be determined from the evidence, the hundred turned to God as an arbitrator. Both parties would agree to perform an ordeal and accept the outcome as a decision, and the superhuman arbitrator revealed a decision by the failure of one of the parties to survive the ordeal unharmed. Without strong religious beliefs or modern sources of evidence, blood feuds might have been more common.

26. See Webb and Webb [1963, 14–26] for more details on this statute and others which followed.

were probably unnecessary, and in the rest of the country they were unsuccessful. It appears that roads were not deteriorating significantly in most rural areas where the benefits and costs of road maintenance were largely internal to the parish because through traffic was minimal. This accounted for perhaps 80 to 85 percent of the roads in the country. On the other hand, the mandated obligations were not sufficient for the maintenance of many of the major arteries of long distance travel, particularly in the area of London and some other trading centers. As Parkes [1925, 6-7] explains, these were the roads over which government officials and merchants traveled, and where traffic by heavy wagons, long pack trains, and herds of cattle "kept the roads in a perpetual slough." It is recognized in Parkes [1925, 8], Albert [1972, 8], Darby [1973, 290 and 372], Webb and Webb [1963, 29], and Pawson [1977, 68-69] that parishioners were unwilling to invest in maintenance when the road was, in effect, a free-access common pool whose benefits were being consumed by outsiders. Indeed, as Parkes [1925, 9] explains, the mandated investments were often made even higher because the best time of the year for road repairs was also the busiest time of the year for most parishioners. Many parishioners did not show up for the mandated work, others sent their children or a substitute instead, and as Parkes [1925, 9] reports, those who did present themselves, "often poor men who could ill afford wageless days—would spend most of their time in standing still and prating, or asking for largesse of the passers-by ... so that they became known as The King's Loiterers, in derision of their earlier title, the King's Highwaymen." Thus, Willan [1976, 3] finds that JPs were obliged to collect large numbers of fines from those who were unwilling to work.

A long series of statutes followed in an attempt to create sufficient negative incentives for the parishioners and surveyors to

do their mandated duties in maintaining the common pool highways. Ultimately, as Pawson [1977, 71] and Webb and Webb [1963, 20-21] explain, none worked and the system of fines developed into commutations, relieving parishioners' obligations and allowing JPs to hire laborers to work under surveyor supervision. These funds proved inadequate, however, as noted by Webb and Webb [1963, 36]: "Indeed, what with the lack of any definite valuation roll or fixed assessment, the complications and uncertainty of the law, and the unwillingness of both Surveyors and Justices to be at the trouble of legal proceedings against their neighbors, it is plain that under the commutation system the greatest inequality and laxness prevailed." Thus, commutations were supplemented with a general highway tax after the mid-seventeenth century. However, Webb and Webb [1963, 51-61] also emphasize that an even more important source of funds was generated by criminal fines levied through presentment or indictment of the parish as a whole for the non-repair of its highways. They [1963, 53-54] observe that some parishes were perpetually under indictment, and "At varying dates in the different Counties, but eventually ... nearly all over England, it became the regular thing for a parish periodically to find itself indicted at the Sessions for neglecting to keep its highways in repair." Parishioners chose to pay substantial fines rather than repair roads. Despite these sources of revenues, however, Parkes [1925, 30] and Jackman [1966, 48-49] both conclude that the quality of road and bridge construction and repair did not compare to conditions that had existed under the monks' supervision and encouragement.

Alternative Institutions: Tolls and Turnpike Trusts

Roads obviously do not have to be treated as common pool resources. Tolls

can be charged and non-payers can be excluded, given appropriate property rights. However, in England, the right to charge a toll was severely restricted. Landowners could charge for the right to pass through private grounds, given that a customary right of passage had not been established, and Pawson [1977, 73–74] points out that enterprising landowners began to establish and charge tolls on “private roads,” allowing travellers to avoid the “ill-repaired public highways.” Furthermore, the king, and later parliament, could grant the power to collect tolls, and Jackman [1966, 9–11] explains that there is evidence that the merchants who formed local governments of several market centers, the burgesses, had requested and been granted the right to collect tolls as early as 1154. Tolls were, in fact, an important source of royal revenues, as Jackman [1966, 11] notes, but those who collected them often could retain some portion for their own purposes, including for road and bridge maintenance.

The destruction of the monasteries and the failure of the parish system to maintain the major long-distance arteries of the country left the government with few options. One was an attempt to ration the commons through various restrictions on how it could be used, such as weight limits, limits on the number of horses, and so on, as detailed in Pawson [1977, 74–75]. The local officials expected to enforce these laws were reluctant to do so, however. The second and more important approach was to loosen the central government’s control over and claim to tolls so that charges for actual road users could be made by local groups. A long series of Acts were passed beginning in 1663 which established local *ad hoc* bodies known as “Turnpike Trusts.” It must be emphasized, as in Albert [1972, 12] that these turnpike trusts were not a central government innovation, however. Members of local parishes, burdened by high road maintenance costs under the parish

system began to petition parliament for the right to charge tolls.²⁷

After about 1700 the process became increasingly standardized. Moyes [1978, 406] explains that a group of local landowners and/or merchants would accumulate the money necessary to fund a Turnpike Act in parliament and to carry the cost of the trust through its start-up period. Most Turnpike Acts established a Turnpike Trust made up of a large number of important parishioners. The trustees were unpaid and forbidden to make personal profit from the trust. They were responsible for erecting gates to collect tolls, and for appointing collectors, a surveyor to supervise repairs, a Clerk, and a Treasurer. The funds collected could only be applied to the road named in the Act. These roads were usually existing highways, although there were some cases of new roads, particularly after 1740. The Trusts were granted monopoly power over the road, generally for twenty-one years, so the common property attributes of the road were substantially reduced. As explained below, however, significant common property attributes remained.

Turnpike formation really began to accelerate during the 1740s and 1750s, as Moyes [1978, 407] notes, and by 1770 Trusts controlled almost 75 percent of the eventual 22,000 miles of turnpikes. In Darby [1973, 374, 502 and 454], it is noted that the turnpikes were maintained using the same techniques as the monasteries and parishes had employed before, that only about one-fifth of the nation’s roads became turnpikes, and that in general, the parish roads were not in any worse condition than the turnpikes. This does not mean that the same expense and effort was required to maintain the parish and turnpike roads, of course. Turnpikes de-

27. For extensive discussions of the Turnpike Trusts, see Pawson [1977], Webb and Webb [1963], and Albert [1972].

veloped in the parishes where the commons problems of overuse and underinvestment by long distance travelers were the greatest, while the roads in the remaining parishes were primarily used for local travel. Thus, at least initially, the turnpikes used conventional methods of repair, but as Pawson [1977, 107] stresses, the turnpikes used these methods far more intensively. However, some Trusts hired paid surveyors who developed expertise in road maintenance, and after 1750 some specialists engaged in considerable experimentation and innovation.

The Turnpike era came to an end due to a combination of at least two political economy factors. First, the structure and characteristics of the trusts created significant principal-agent problems. The Trustees were not allowed to earn a profit. The toll gates were farmed out, and while trustees were supposed to monitor the gatekeepers and surveyors, their incentives to do so were very weak. Furthermore, the trusts had monopoly rights and there was no threat of takeover. With little monitoring and no competition, Hindley [1971, 63] notes that corruption was rampant "and only a small part of the money collected for the upkeep of the road was in fact used for that purpose." Second, there was significant political opposition to the trusts, from those involved in competitive transportation modes such as the river and canal barges, from trade centers that already had effective transportation connections and feared competition from other centers where road connections were to be improved, from some landowners and farmers who feared that better roads would make it easier for their low-wage laborers to be attracted away, and from those farmers supplying local markets who feared that improved roads would bring in competition from distant suppliers. Therefore, Albert [1972, 12 and 24-29] demonstrates that the successful Turnpike Acts always reflected significant political compromise, including long lists of toll-

exemptions for some of the powerful individuals and groups who opposed each Act. Jackman [1966, 260-261] observes that large scale agricultural interests and, in some areas, industrial groups, were particularly effective at obtaining exemptions. Often those who obtained exemptions were some of the worst abusers of what to them remained a common pool resource. Jackman [1966, 261] stresses that exemptions grew over time and seriously reduced the revenues of the trusts.

The combination of principal-agent problems and political exemptions meant that the trusts were unable to fully finance road maintenance. Rather than solving the underlying incentive problems, however, the government began to empower the trusts to draw on "statute labor"—the labor parishioners were mandated to provide under the 1555 highway statute. Initially, the trusts were required to pay wages fixed by parliament, but Hindley [1971, 62] notes that later some labor was required without payment. Some trusts could even appropriate materials. Opposition to turnpikes grew, and turnpike riots occurred throughout the country: Albert [1972, 26] explains that the rioters were usually parish laborers required to work without pay, and farmers, miners, and carriers who were not influential enough to obtain exemptions but who wanted free access to carry large loads over the turnpikes. Hindley [1971, 63] sums up the view of many regarding these events, concluding that "What was needed, of course, was some mechanism of national road policy." Indeed, Hindley [1971, 73] goes on to state that "Whatever other thoughts may be provoked by a study of the history of English roads during the eighteenth century at least we may be led to doubt whether the Englishman's much-vaunted love for personal liberty is not quite simply a dislike of efficiency and a scarcely secret love of violence. The refusal to countenance the expenditure of public money on road-building, or on a central

and effective police force, guaranteed him a road system that was among the least serviceable and most dangerous in Europe." While there are numerous parallels between the development of public policing and public roads, the common pool perspective suggests a different conclusion than Hindley's for both services. Recognizing that these are common pools reinforces Minasian's [1964, 79] point that the outcomes reflects existing property-rights arrangements and that "alternative exclusion and incentives systems" would produce different results.

VII. CONCLUSIONS

According to Samuelson [1969], there is "a knife-edge pole of the private good case, and with all the rest of the world in the public good domain by virtue of involving some consumption externality," but a "slippery slope between private and common property" might be a better analogy. Indeed, when stacked against the reality of historical institutional evolution, the public goods concept appears to be little more than an *ex post* justification for claiming that the *only* efficient policy is publicly providing various goods and services, such as policing and highways, at zero money prices. In contrast, common pool analysis emphasizes that incentives arise because of the definition of property rights, and therefore, it suggests an array of pos-

sible policy prescriptions involving the internalization of various costs and benefits through privatization of rights. Furthermore, this property rights perspective provides an accurate description of the historical evolution from private to public arrangements for the production of both policing and highways, something that the public goods concept cannot do; after all, as Samuelson and Nordhaus [1985, 713] explain, public goods could not have been produced by private institutional arrangements. A series of property rights alterations and limitations made by the government of England undermined the incentives of individuals to cooperate in the production of both policing and road maintenance, creating significant common pool problems that government production has not been able to overcome. Suggesting that these services are now public goods, even up to the point where crowding sets in, is analytically empty because, as Minasian [1964, 79-80] explains, "the theory generates economic analysis which is not based on the opportunity cost notion." Rationing of scarce resources cannot be avoided by declaring that no one can be excluded; such a declaration simply means that first-come first-serve and the inevitable reality of congestion costs determine who gets what, or that regulations establishing non-price rationing mechanisms must be established.

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