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## **Financing Cathedral Construction: an Investment in Social Overhead Capital?**

Paul M Hohenberg and Anne E. C. McCants\*

Economists concentrate their attention on market actors and processes, principally because the mathematically attractive rules of maximization seem to do a reasonable (some say excellent) job of accounting for behavior and outcomes. The existence of public goods, as well as other ways the assumptions of appropriability and rivalness are violated compel us to pay attention also to public production, and therefore to coercive financing and to the political economy of transfer payments (of both signs). In all this a major part of the real economy, the social sector, gets almost no attention<sup>1</sup>. Such neglect ignores the fact that it is large and has a major share in providing desirable objects of consumption other than material commodities. Considerable portions of education, culture (especially that which requires infrastructure to produce and consume), health care (both institutional and in home), conservation and recreation, and, in the contemporary US, the somewhat tattered social safety net are in the hands of non-profit entities. Even the exploding world of information transfer across cyberspace depends, to a greater extent than many realize, on voluntary action.

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\* Respectively, Rensselaer Polytechnic Institute (emeritus) and MIT

<sup>1</sup> Of course, that is not literally true, and there is a vast literature by economists on the non-profit sector. However, it is mainly confined to skeptical consideration of both its efficiency and its claims to improving the distribution of benefits by comparison with public and for-profit enterprise. See, for example, Clotfelder 1992).

It is probably fair to say that in poor countries as well as wealthy ones, if perhaps less so in middle-income societies on the way up, the services provided by the non-profit sector are in high demand. Certainly in our own society, education, health care, and leisure services, as opposed to commodity-using goods such as basic food, shelter, and clothing, have high income elasticity of demand. While for-profit and public actors play a major role in both types of production, social enterprise is most active in the faster-growing first group.<sup>2</sup> Yet the social sector's role is constrained not only by the power and resources available to the other two sets of actors – for profit firms and governments -- but also by the very fact that social enterprise lacks the legitimacy that a solid theoretical underpinning can provide. This disadvantage may apply particularly to large and durable investments, which tie up large amounts of capital long-term, requiring access to credit markets where the unfamiliar is suspect, but also are likely to require a long span of time to execute and thus depend on a planning vision that can look beyond even a full lifetime. Ironically, both for-profit firms and governments often suffer from short-term bias in allocating resources, leaving social enterprise not infrequently as the guardian of last resort of society's long-run interests. Its theoretical weakness is for this reason all the more problematic.

Our object in the present paper is to call attention to social enterprise, and the problems associated with investment in it, in an age when neither state nor market-based enterprise were nearly as well established as they are today, namely the European Middle Ages. We are especially intrigued by the capacity of medieval society to make what appear in retrospect to have been significant and very long-term investments in one form of social overhead capital, religious building. We will focus on the financing and construction of cathedrals (and other major churches) in the new Gothic style, chiefly from the 12<sup>th</sup> to the 14<sup>th</sup> century in and around

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<sup>2</sup> Social enterprise does distribute and sometimes produce basic commodities for transfers in kind, meaning that its role is more critical when income distribution is more unequal.

the Paris Basin. There were of course important precursors to this movement, and many, indeed most, Gothic cathedrals were not “completed” until well after 1400. However, this place and moment in time captures one of the most intensive religious building episodes in western history, the fruits of which are still in wide evidence today. For these reasons a careful study of what we might call “the Gothic moment” seems an apt place to begin a search for the historical roots of public investment.

For a time in the 1970s, largely under the impetus of Kenneth Boulding, economists took greater interest in the broadly defined social sector than they had before, studying what he called the “grants economy.” The main preoccupation was with transfers, both within the private sector and between households and governments. Less attention was paid to social enterprise per se. However, this current of thought was largely swept up into the public choice literature, which itself was ultimately captured by free-market enthusiasts. They focused on government failure in an effort to counter the attention paid to market failure by those to their left.

From the public choice literature we take the insight that large institutions, such as the Catholic Church, however hierarchic their nominal structure, are not typically a single entity for decision making purposes. Rather, they are likely to show internal divisions and divergences that impact resource allocation. In other words, problems of self-interest not only work at the level where entities interact but also within them. From Boulding we take his “social triangle.”<sup>3</sup> (See Figure 1.) This triangle is anchored by the three systems that he claims motivate the functioning of all institutions, regimes and organizations: exchange, threat or coercion, and charity, or what he calls integration. Because motives are seldom purely all of one sort or another, we can situate

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<sup>3</sup> For a good summary, see Caruso 2005. The reference is to K. Boulding, *The Economy of Love and Fear*. Belmont, MA, Wadsworth Publishing Company, 1973, pp. 107-109.

different kinds of economic activity within the resulting three-dimensional space. In the practice of gift-giving, for example, reciprocity is deferred but typically expected (point A), while in social insurance we collectively care for those in need but are individually required to pay the taxes that enable integration (point B).

In the medieval context, exchange itself, (i.e., commerce for profit, to say nothing of credit) was viewed as a threat to the eternal soul that was best redeemed by substantial acts of charity. For nobles and especially rulers, taking and giving were the appropriate ways of interacting with those below them (Scott, 2003, pp. 50-52). Of course, to offset threat with integration, for instance by requiring a donation to the church as the price of absolution, seems to us (as it did to some at the time) to smack of exchange. Also, to threaten someone with exclusion and eternal damnation (if not immediate physical punishment) for diverging in thought and action from the official embodiment of divine love showed a certain lack of confidence in the power of the integrative principle, even though love and charity were the stated foundations of religion.

The fluid, indeed contentious and contested, interplay between threat, exchange, and integration is well illustrated by a remarkable (for scale, magnificence, and durability) episode of investment in social capital, namely the building boom of Gothic church construction in North-western Europe peaking in the 12<sup>th</sup> and 13<sup>th</sup> centuries. Jean Gimpel estimates that by the High Middle Ages, in a then almost fully converted Christian Europe, there was a church or chapel for every 200 inhabitants. For example, Norwich, Lincoln, and York, all cities of less than 10,000 inhabitants, boasted 50, 49 and 41 churches and chapels respectively (Gimpel, 1980, p.7). Similarly, John James estimates that within the 28,000 sq. km. region of the Paris Basin (bounded by Laon and Reims to the northeast and Chartres to the southwest) the remains of 669 major churches built or rebuilt in the Gothic style between 1120 and 1250 are still extant (James,

1997, pp. 41-2). As astounding as that number is, James has found evidence of an additional roughly equal number of lesser church buildings dating from the same period, many of which now lie partially or mostly in ruin. Of necessity then, such buildings represented a sizable footprint on the built landscape, and by extension, a formidable claimant on available resources. How those resources were amassed, by whom and from what sources, and to what end, are all questions that bear directly on Boulding's framework for understanding social spending.<sup>4</sup>

In the Middle Ages the social sector was more or less coterminous with the Church. Although historians have demonstrated that commerce and towns never disappeared entirely in Europe after the fall of Rome, on the civil side the dominant social formation in the later first millennium was the manor: ideally, and nearly so in many places, autarkic, agriculture-based, and with limited production of manufactured and processed goods, such as bread, cheese, and beer as well as cloth and implements. A loose hierarchy of kings and counts linked local lords to a larger realm by ties of feudal allegiance, but the manorial lords exercised near-absolute rule over their fief, in exchange, presumably, for protecting the serfs. The Church was also structured as a hierarchy, with the bishops answerable to Rome in point of rule, but in practice more often to kings or to no one. Hence the real strength and staying power of the early medieval church resided in monasteries, many of which were sited outside the urban space (such as it was) and

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<sup>4</sup> This is not, of course, an isolated example of such a building boom. A similar episode of active social enterprise and investment, namely the building of large (mostly Roman Catholic) parish churches took place in industrial areas of the United States, notably during the period of rapid immigration and industrial growth, 1875-1920. If one considers the number, size, and quality of these churches, and the economic situation of their parishioners, almost uniformly low-income ethnic workers with large families, one cannot help but wonder how this work was financed. Unfortunately, barring a good deal of archival research, the answers are not easy to find. Available sources, including parish histories, seldom go beyond the kind of pious generalities that are also common in accounts of medieval building: it was all accomplished through fervor and sacrifice by the faithful. Even back-of-the-envelope calculations cast doubt on this story, the more so as these parishes and dioceses concurrently invested in schools, hospitals, orphanages, and other institutions. Therefore, the present paper does not tackle these issues, even though the current spate of church closings makes this a propitious time to recall the remarkable feat of collective investment they embodied.

thus formed a counterpoint to the bishop's premises within. Monasteries were also the primary locus of social spending at the close of the first millennium, offering hospitality, poor relief, medical care, and education to the extent these services were available at all outside of the much diminished urban nodes of the late antique world. Monastic scriptoria also served as a semi-secure repository for the learning of the past, and in the course of time would be the source of its renewed dissemination.

Beginning sometime around 1000 CE, but more strongly in the 12<sup>th</sup> century, with invasions from outside pretty much in the past, the revival of commerce and towns began to change the relative importance of the rural (manor and monastery) and the urban (commerce and parish) spheres in western Europe (Scott 2003, Chapter 4, reprising arguments made by Georges Duby). Kings gradually gained real authority over their nominally vassal nobles, while bishops exercised religious and sometimes temporal authority more intensively.<sup>5</sup> It was in this context that the cathedral, or bishop's church, acquired both greater importance and potentially greater resources. During this time, many sees witnessed the building of two (or more) cathedrals, successively in the Roman (Romanesque) and the new or Gothic style. It was the rare bishopric that still had a Carolingian (8<sup>th</sup> or 9<sup>th</sup> c.) basilica to tear down to make way directly for the Gothic, although Laon and Cologne offer two prominent examples (Wilson, 1990, p. 54). In any event, it is important to remember that the Gothic cathedrals were for the most part reconstructions of existing structures, sometimes already fairly large themselves. To be sure, reconstruction was often mandated by damage from fires (or collapse) in this pre-Franklin age.<sup>6</sup> Fires and collapse

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<sup>5</sup> Scott (ascribes the pioneering role of the Paris Basin in the Gothic enterprise (12<sup>th</sup> century) to the strengthening of the Capetian monarchy (2003, p. 13). However, this should not be taken to mean that the monarchy directly financed much of the construction.

<sup>6</sup> A list of even just the most prominent cathedral projects precipitated by fire (or multiple fires) is already quite long: Amiens – 1188 and 1218; Auxerre – 1188 and 1210; Beauvais – 1188 and 1225; Canterbury – 1067 and 1174;

were also among a number of factors responsible for slow progress and interruptions in construction.

Before tackling the subject of how and why the Gothic cathedrals were built, it is well to look at them from the perspective of a modern-day visitor, more often than not a tourist rather than a pilgrim or worshiper, and to contrast this impression with what a contemporary might have apprehended. Both would view these structures as imposing in their size, towering over a cityscape that even today may still have few or no taller structures built nearby<sup>7</sup>. Almost everyone responds to these cathedrals as esthetically remarkable, and spiritually moving. Today's visitor will usually find the building sparse and monochrome, and quiet for much of the time. In medieval times, by contrast, there was much more frequent religious activity, a larger and almost certainly noisier lay presence, and a great deal of ornament and polychrome decoration. Whereas we contemplate these venerable relics of a distant past with awe, contemporaries often experienced them amid the noise and bustle of construction. The persistence of these cathedrals is indeed remarkable when one considers the ravages of time and weather, the dangers of war and fire, and the attacks not only on the urban fabric but specifically on the cathedrals by schismatics or unbelievers, or (sometimes worst of all) by those who wanted to bring the building up to date in the baroque or classical style (Gimpel 1983, pp. 22-23).

Today's onlooker is apt to draw inferences about how this all came to be that are more comforting than historically accurate. With their massive scale and yet lightness, the cathedrals

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Chartres – 1031, 1134, 1188 and 1194; Chichster – 1114; Evreux – 1119; Glouchester – 1102; Laon – 1112; Le Mans – 1134; Lincoln – 1141; Lisieux – 1136; Paris – 1235-40; Provins – 1188; Regensburg – 1273; Reims – 1210; Rochester – 1138 and 1177; Rouen – 1200; Strasbourg – 1176; Tours – 1188; and Troyes – 1188. The astute reader will notice that in the drought afflicted year of 1188 there were fires in multiple cities, a fact which Murray also attributes to suspicion of opportunistic arson (Murray, 1989, p. 33).

<sup>7</sup> According to Brownell, Lincoln Cathedral was the tallest building in the world for two and a half centuries until its spire collapsed in 1549, and the first building to top the Great Pyramid of Giza (2010).

testify to a period, not all that long in duration, of great creativity in Europe. Through periods of famine and plague, war and religious strife, poverty and oppression, and with what we see as primitive means, these remarkable structures were built.<sup>8</sup> Surely it must have required a great burst of faith, and the union of all social groups, to bring this about. One can just imagine the cleric, the nobleman, the merchant, and the serf side by side, putting their shoulder to the wheel to lift great blocks of stone and freely bringing their treasures, meager or lavish, so that the work might not stop. Indeed, the miraculous accounts written by some clerical building sponsors, most notably at St. Denis and Chartres, worked hard to promote this image.<sup>9</sup> Well, that is not quite how it happened. Philip Ball reminds us to “be wary of the romantic idea that the cathedral ‘belonged’ to the citizens” (Ball, 2008, p. 66); and Scott chronicles the “civic unrest, rioting, violence, and bloodshed” associated with virtually every major historical study of these buildings (Scott, 2003, p. 97). The urban riots at Beauvais, Laon, Reims, and Troyes have all been well documented by Murray and others, while Jane Williams’ study of the windows at Chartres “reveals the deep antagonisms that existed between the various social groups there: “bishop against chapter, bishop and canons against local counts and countesses, and all of these against local tradesmen and peasants” (as cited in Scott, 2003, p. 99).

Our study of the literature on the construction and financing of cathedrals in the medieval West leads us to several conclusions, though they must remain speculative (as well as sometimes counter-intuitive, not to say iconoclastic).

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<sup>8</sup> Joel Mokyr has given the name of Cardwell’s Law to the phenomenon that societies can experience periods of sustained creativity but that these do not last very long (1990).

<sup>9</sup> There is some evidence, most famously in the case of the building at Chartres, that local labor was provided in some cases on a volunteer basis to augment the brute workforce of an intense building campaign. One of the miracles strongly associated with the Chartres narrative is the hauling of cut stone by the women and children of the surrounding countryside as an expression of their love and devotion to the Virgin (Philip Ball, Universe of Stone).



- The cathedral was planned and built as a fitting frame for the ritual and display that formed the core of religious practice, including as sites of pilgrimage where appropriate relics were to be found. The building was not itself of first importance; that is, it was not the “work of art” we understand it to be today.
- The ritual of the cathedral belonged primarily to the bishop in conjunction with the canons. The people, nobles and commoners alike, also participated in ritual display, but theirs was more likely to be centered around a parish church or a monastic endowment, and eventually in chapels located around the periphery of the bishop’s cathedral. This separation was explicitly marked in the cathedral itself by the placement of non-permeable choir screens separating the congregation in the nave from the clergy at the altar. These choir screens were elaborately decorated, and often the more so on the inside that would never be visible to the lay public.
- Actual construction was carried out by people paid to do so, notably by itinerant skilled craftsmen (though the unskilled labor would be local) working in groups under the direction of a master mason. A few of these masons are known by name, and many were likely associated with particular stone quarries.
- Building a cathedral, even in those periods when there was real impetus behind the work, was never the sole or even the primary concern of the promoters. It competed with building other parts of the holy city next to it (Bishop’s palace, cloister, chapter house, etc.), with building churches and monasteries elsewhere in the city, with other municipal projects (bridges, towers and walls), and with the secular struggles of bishops, chapters, and monasteries among themselves, or against kings, nobles, and communes, for power

and advantage. The process was also impacted by major outside distractions, such as wars, crusades, and outbreaks of epidemic disease.

- Funding was always a difficult issue, often to the point of bringing work to a halt for either shorter or longer periods, in the worst cases even centuries. Many resources that might have gone toward the building were instead devoted to ornamentation and to ritual, such as elaborate coronations, funerals and processions, or to the ongoing commemoration of the dead in chapels within the structure. Work at Reims was slowed on more than one occasion by the great expense of crowning a new king, and the cathedral at York was severely compromised by the payments required to be sent to Rome on the accession of each new Archbishop, a burden magnified by the conflict with Canterbury over primacy in England (Clark, 2006, p. 99; and Kraus, 1979, p. 135). On the other hand, the idea has been put forward that lavish church ornamentation and the acquisition of particularly efficacious, and therefore rare, saint's relics tended to attract more donations (Lopez 1952, p. 438, citing C. R. Cheney).
- The secular power and property of churchmen, including bishops, the cathedral chapter, and individual canons had a mixed impact on the process. On the one hand, it provided revenue in the form of rents, feudal dues, tithes, etc. that could fund construction; on the other, it often pitted the clerics against the local population and involved the various actors within the church in potentially costly disputes and conflicts not least among themselves. Similarly, the rise of towns greatly increased the available resources but led to endless conflicts over lordship (with its attendant fiscal returns), involving both who would rule and whether towns and townspeople might free themselves of the constraints imposed by feudal institutions. On this showing, one reason for the chronic financial

difficulties is that, though an urban institution, cathedrals were funded within an agrarian system in which both wealth and social rank depended on control over land and those who worked it. By the 13<sup>th</sup> century, this system, which did not grant full legitimacy to commerce, mobile capital, or rank based on wealth (rather than the other way around), was already moving toward obsolescence, however protracted.

- The structure of the cathedral, though highly variable in its details, was based on functional principles. The cathedral was really two churches: one for the people in the nave, the side aisles, and sometimes the transept and the ambulatory around the choir; and one for the clergy centering on the choir and the altar, and demarcated by screens and/or steps. In this way the cathedral joined the holy and the secular city, but without mingling them. The main functional advantage of the Gothic style over the Romanesque, aside from the ability to add height and mass, was to allow more light on the splendor of the ritual and decoration that marked the clergy and their church.

We can now expand somewhat on the organization of the building process, before turning to the issue of funding itself. It must be obvious that the Gothic revolution (which some have called a crusade or an enterprise) must have involved considerable and often rapid transfer of knowledge throughout the heartland of northern France and beyond (Scott 2003, p. 91). Master builders moved and so did their techniques. But who actually decided to build or rebuild and took responsibility? Who, as one scholar put it, was the *décideur* (Erlande-Brandenburg, p. 233-4)? On this opinions differ, some stressing the role of the bishop, others that of the chapter of canons<sup>10</sup>. From very early days, papal mandates called for bishops to devote a share of revenues to building and this was extended to include the revenues of the chapter by the 13<sup>th</sup> century

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<sup>10</sup> Clark (2006, p. 23) categorically puts the emphasis on the chapter.

(Schöller 2005). Bishops, then, led the way in the Romanesque period and kept that role in the early Gothic period, but gradually yielded greater authority to the chapter in the 13<sup>th</sup> century (Erlande-Brandenburg). It is clear that the latter became the actual landlord of the bishop's church, presumably giving continuity to a project that almost surely would outlive a single prelate. While it is impossible to subscribe to only one narrative about the development of the institution of the cathedral chapter, it is clear from many of the towns where its composition has been studied that they were typically comprised of the younger sons of the local nobility. For while the institution of the chapter had its origins as a kind of urban monastery with the canons living communally, the lay nobility found an independent life more to their liking and the canons came to function more like a board of directors for the cathedral, complete with stipends.

Murray argues that for Beauvais for example, prominent landholding families were able to retain control of chapter appointments despite the efforts of both kings and bishops to usurp control over the appointment process (Murray, 1989, p. 42). In any case, the rise of the chapter as the responsible party was related to the constitution of a separate building fund, the *fabric*. The canons delegated actual management of construction and of cathedral business to officers.

The extent of involvement by the population of the town or city is a much-disputed subject, and there is no question but that the situation differed greatly from place to place. To speak of the urban population in this context is to speak of the commoners, and, where self-government developed, of the commune. [Since the Church and clergy owned or were lords of considerable estates, the peasants also contributed a lot. However, their share was in the main coerced (threat) rather than integrative (love).] Taxes, including the *taille*, which became notorious in *ancien regime* France, and allow us in retrospect to know something about what people earned, also affected urban workers and artisans. As for merchants, we know that the Church was able to

coax many donations out of them by deprecating commerce as inherently suspect and denouncing interest-bearing credit as usury. There was a strong element of threat in this, the more so as the Church had an effective monopoly on access to salvation. Jews, who did not sin by taking interest, were simply expropriated and worse at regular intervals.

The first allegiance of townspeople was undoubtedly to their own parish or monastic church (Krauss 1979, p101). In addition, commoners were often not welcome in the Bishop's church, as at Paris and Lyon, where the clerics refused to grant them access to burial or other remembrance in the cathedral (Krauss 1979, pp. 15, 101). What donations they made frequently went to fund chaplaincies, or regular masses in side chapels to the memory of the donor or a loved one. At most they paid for a window (guilds sometimes sponsored these) or for decorating a side chapel. So the part played by commoners in actual construction funding is obscure, save in those cases, such as Amiens or Strasbourg, and in Italy, where the commune took major responsibility for the project.

As for the building process itself, it was subject to many vicissitudes, beginning with finding funds to carry it on. However, there were also limitations, constraints, and difficulties from other causes. Work generally followed a seasonal rhythm, stopping in the cold months save for the stone carvers. [Jean Gimpel put forward the interesting thesis that the wooden "lodges" in which these craftsmen worked in winter, carving the "free" or high-quality stone, gave the name to the chapters of the Masonic ritual and brotherhood that emerged later (1983, pp. 65-68).] Another source of delay came from the need to allow the mortar to dry and set fully, so that it would not fail when new stone was set on top of the section just completed (Scott, p. 23; and especially

James, 1989<sup>11</sup>). As is typical of pre-industrial times, work went on from dawn to dusk, but with breaks. Moreover, the six-day week made way for many holy days, so that all in all a building site was active no more than 150 days a year. It is also probable that harvest times would see absenteeism, while the veneration of Saint Monday no doubt goes back at least that far. Finally, there is the issue of how many workers a cathedral building site might have on it at any one time. Probably no single range covers all contingencies, the more so as there were often long periods of total or near inactivity. However, an active Cathedral project seems typically to have employed between 100 and 300 persons on site.<sup>12</sup>

We must also say something about materials, a big part of the cost and concern for the projects.

The right stone was of primary importance, and, with water transport, could be sought far afield if need dictated (Caen for Salisbury cathedral, for example). Nonetheless, the geological mapping work of James suggests that proximity to high quality stone was an important ingredient in spurring the Gothic boom. The Paris Basin was renowned for its wide distribution of, and hence easy access to, the best kind of limestone, the so called *calciere* (James, xxx).

Land transport, even over relatively short distances, quickly raised the cost of heavy materials, so that stones were often dressed at the quarry to avoid hauling waste. The job of quarrying must have been particularly difficult, given the fairly primitive tools available. In addition to stone, construction required large amounts of lime and sand for mortar, as well as timber (for

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<sup>11</sup> John James has dedicated the better part of a 40 year research program to demonstrating that a hallmark of Gothic construction was its necessarily interrupted quality. Every building site was home to an often surprisingly large number of master masons (and their itinerant crews) in succession, each bringing their own templates and design details to the project. Thus, rather than seeing Gothic as an achievement of scholastic and artistic unity as the public so often does today, James views the best Gothic monuments as marvels of a harmonious whole made out of disparate and remarkably uncoordinated parts.

<sup>12</sup> Westminster Abbey's records show a modal/mean presence of 309/331 workers in season not counting those who quarried or transported materials, but this is viewed as a maximum under atypical royal patronage (Scott, pp , 33). Parish churches and other smaller projects would have employed many fewer persons, of course.

scaffolding, roofing, and interior decoration), lead (for roofing), reeds (for scaffolding), glass and metal.

We come, then, to the issue of funding itself. Is it possible to give a meaningful sense of the sums involved? It is difficult, at any rate, if only because of the infinite complexity of monetary units. The basic money of account was straightforward enough: the old Roman system of £, s, d or pounds (*livres*), shillings (*sous*) and pence or deniers that survived in Britain until 1971. But various regions had their own version of the pound or *livre*, as well as florins, marks, and other units. English money was strong, the *livre tournois* was worth less than the *livre parisis*, and so forth. Furthermore, debasement meant that actual coins varied even more in value. Cutting through all this, what can we say by way of orders of magnitude. The daily wages of workers on cathedral sites have been recorded in at least some cases. They appear to have ranged from well less than 1 *sou* for laborers and lowly assistants, to 2 *sous* for skilled craftsmen, it being understood that workers were paid only for days actually worked. Since we have seen that a work year was hardly more than 150 days, this means that a site could be kept active (with 100 workers) for about £ 1,000 per year for the cost of labor. To this, a lower bound, must be added the cost of materials, so that one can estimate the amount required to make progress at about £ 1,500 to 2,000 per year. For a finished cathedral, of course, large sums would also be spent on decoration and ritual objects. If it required 40-50 years of actual work to build a cathedral, one can very roughly estimate the total cost at something over £ 100,000 not including more than minimal decoration<sup>13</sup>.

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<sup>13</sup> Few scholars are as foolhardy as we are in giving total figures, if only because most cathedrals were not actually finished. See Scott 2003, pp. 35-36 and Gimpel 1983, p. 37. Also recall the point *supra* that magnificence tended to attract donations.

While this is in medieval terms a very large amount of money, it may be compared to the £ 500,000 – 1,000,000 that were gathered up by kings embarking on crusades in the heyday of that effort, the latter being the amount spent by St. Louis (IX) on his first crusade in the middle of the 13<sup>th</sup> c. (Krauss 1979, pp. 7, 287). It also compares favorably with the staggering sum of £ 250,000 promised (and at least mostly paid) to Edward III of England in the 1360s for the ransom of King John of France and a few other notables, or any number of other preposterous ransoms resulting from the staged clashes of the nobility during the One Hundred Years War, in which the object was more often to capture than to kill (Postan, 1964, p. 45-47). In the medieval as in today's world, public or social finance shifts to a higher gear when war is involved. For example, in the 1290's when Edward I of England was faced with war on three fronts (France, Wales and Scotland), he resorted to extraordinarily high levels of taxation on the clergy and laity alike. In 1294 he demanded a full half of all clerical incomes, and a further tenth in the two subsequent years (Mate, 1982, p. 762). Not surprisingly perhaps, the Priory of Canterbury, despite being one of the richest in all England, built no new barns, granges, mills or chapels during these lean years, among the many economies they were forced to endure on account of Edward's wars (Mate, 1982, p. 764).

Yet even if we do not take war as the relevant metric by which to judge the expense of building a cathedral, we find that the cost of doing so was well within the realm of the possible as compared to other large projects of the period, many of which we would see as substantially more wasteful than building a monument still standing nearly a millennium later. For example, Clark cites the expense shouldered by the commune of Reims for two royal coronations in rapid succession (Louis VIII in 1223 and his twelve year old son Louis IX in 1226). Although the latter ceremony was described by contemporaries as having been only "modest," the combined total came to



9,053 Parisian pounds, just shy of the 10,000 pound expenditure on the Gothic reconstruction of the cathedral during the first decade of work following the fire of 1210 (Clark, 2006, p. 99). More modest building projects could be even more easily (relatively speaking anyway) carved out of the ordinary expenses of a religious establishment. When John of Cella became the new abbot of the powerful monastery of St. Alban's in Hertfordshire he began what was to be a nearly century-long project of renovation and rebuilding of all the major buildings of the Abbey, including the church. He began with a ground-up renovation to the monk's dormitories and the refectory somewhere around the year 1200, at which point Matthew of Paris' chronicle tells us that the chapter gave up its daily wine ration for fifteen years to pay for it (Frisch, 1987, p. 40). The Abbot's timing was poor in a certain regard as this period also witnessed the bitter conflict between King John and the church over clerical elections (at its most intense between 1208 and 1213), followed immediately by his conflict with the barons which resulted in the Magna Carta in 1215. Both of these conflicts cost clerical entities dearly, in direct costs as well as in lost manorial revenue (Frisch, 1987, p. 39). Nevertheless, the ambitious building campaign proceeded, even picking up steam with the election of the new Abbot William of Trumpington in 1214.

All of this suggests that a more useful way of thinking about the cost of cathedral building is in terms of forgone opportunities within the context of the contemporary economy. In this regard, a most interesting study has been completed by Bernard Bachrach estimating the opportunity cost of building a fortified masonry tower in the Angevin holdings of Count Fulk Nerra at the close of the 10<sup>th</sup> century. Using a method similar to that employed by James for the cathedral at Chartres, Bachrach estimates that building the tower required the wheat surplus (that is above maintenance and reproduction requirements) "produced by slightly more than 460 agricultural workers from

more than 2,700 hectares of average arable” to provide the calories needed each year by the workers assigned to building the tower (Bachrach, 1984, p. 53). In other words, the full time efforts of at least 4 and possibly 5 agricultural workers were needed to sustain each worker (with his dependents) assigned to the building project. This was indeed a formidable outlay for an agricultural economy which in lean years sustained seed yield ratios of as low as 2:1 and only occasionally in very good years managed as high as 4:1 or more (if we are to believe M. M. Postan and Georges Duby).

However, Bachrach goes on to point out that the requirement to sustain a mounted warrior and his horse with wheat-equivalent calories amounted to the surplus of almost twelve agricultural workers. Furthermore, this amount would be required every year and for every knight, not just for the total workforce occupied for the few years that the fortified tower was under construction (Ibid). The cost of building was indeed not trivial, but the cost of men and horses at arms was nevertheless much higher. When we combine this finding with other research done by architectural historians documenting the strong connections between military architecture and cathedral building in the Middle Ages, it is at least possible to suggest that monumental ecclesiastical building could substitute in part for what would have been even more prohibitive military expenditures. For example, the very distinctive parapet design on the west façade of the Abbey Church at St. Denis was included “both for the beauty of the church and, should circumstances require it, for practical purposes” (Abbot Suger as quoted in Gardner, 1984:109 and 113).

Yet even if Gothic construction was not excessively expensive in the context of noble expenditures, all scholars agree that shortages of funds (as well as other priorities) regularly plagued the building of cathedrals and often stopped work for extended periods. It follows that

fundraising was a constant preoccupation of those responsible, either bishop or chapter. What we know of that process has a curiously modern ring, *mutatis mutandis*. Basic to launching the effort were the contributions of the clergy, whose temporal wealth was often considerable. Much of it came from feudal lordships and the right to levy a variety of taxes, rents, and dues. Since these were loosely specified, with a mix of documents, customs, re-interpretations, and farming (in the fiscal sense) arrangements, there was always room to ramp up the pressure if funds were needed. Sometimes, however, bishops needed papal permission or a favorable papal ruling, and this, it turns out, could be expensive. The Vatican was a complicated place to navigate, and various Curia officials needed to be placated with bribes.

The local nobility and the more distant kings and dukes apparently participated rarely in cathedral construction, lending some force to the argument that building cathedrals forms part of the rise of towns and states, and lies outside the overwhelmingly rural manorial/monastic system that had hitherto prevailed. We have already discussed the role of the urban commoners, occasionally very invested in “their” cathedral but more often at daggers drawn with an episcopate they saw as haughty and grasping.<sup>14</sup> What we know is that bishops often engaged in regular fundraising campaigns that in fact resembled those undertaken today by non-profit organizations, especially to finance a capital project.

Again, the initial impulse often came from donations by a few wealthy people, whether clerics or lay people, whom Jean Gimpel compares to the ultra-rich philanthropists of the American gilded

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<sup>14</sup> The burghers of Lyon were particularly exorcised when the archbishop and the chapter, the latter having gone into debt to lobby the pope against the former, both claimed the right of justice over the city. The resulting upheavals in the late 13<sup>th</sup> and early 14<sup>th</sup> century led to churches being damaged rather than built (Krauss 1979, pp. 93-96).

Age (1979, p. 27)<sup>15</sup>. But in both cases, the generosity of the few could not finish the job, and more systematic efforts aimed at a wider base were required. Clergy, and/or paid specialists were sent around to solicit funds, often accompanied by holy relics to draw crowds and put them in a giving mood. Local parish priests were instructed to exhort their flock to donate to the bishop's campaign, even though their own church might be badly in need of funds, and to push charitable giving in the confessional. These efforts also drew on an analog of charitable tax deductions in our time, the grant of papal indulgences. The subject of indulgences is fraught, Martin Luther having been neither the first nor the last to rail against their "sale." Simply put, indulgences were supposed to grant remission from the temporal penance (keeping "lean" a whole year, for example) imposed by a confessor when absolving a penitent from sin<sup>16</sup>. They could in particular be awarded for "good works," in principle as recognition for demonstrating a contrite spirit and therefore well within the "integrative principle" in Boulding's social triangle. But since donations to the Church fell within the purview of good works, the exchange principle was surely not far away. The Church obviously recognized the potential for abuse here and designated trafficking in spiritual goods as simony, a grave sin and proof that it must have happened. Today's Church, by the way, rejects the often-repeated view that indulgences were supposed to shorten one's stay in Purgatory, somewhat like a "get out of jail free" card in Monopoly.

To return to our starting point, what was the role of the cathedral and does it qualify as social overhead capital? There is no doubt that cathedrals proclaimed the power and glory of a particular city and diocese, of its bishop, and of the Church and its God and saints in general.

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<sup>15</sup> In today's capital campaigns, the initial or quiet phase consists of trying to raise up to one third of the target amount from a relatively small number of affluent supporters.

<sup>16</sup> Rouen cathedral has a tower, dating from the 15<sup>th</sup> century, called the Butter Tower, as it was supposedly paid for with the proceeds of permission to skip the more severe restrictions for Lent (Krauss 1979, p. 214).

Given the role of the Church, this can be seen as proclaiming the civilization of Christian Europe, or as defending the primacy of the Church against competing forces such as kings and nations, or even vis-a-vis urban commerce and manufactures. On a more day-to-day level, the cathedral enabled and symbolized the dual role of the clergy, to be in the world and yet apart. It served as a gathering place, especially on feast days and other great occasions. The largest cathedrals could hold most of the population of a moderate size town (up to 10 000)<sup>17</sup>. As Ball reminds us, “when a service was not in progress, [the people] would meet their friends here, bring in their dogs and their hawks, arrange trysts, eat snacks, etc. The poor might even bed down for the night in the gloomy recesses. Stalls clung like limpets to the walls of the building. At Strasbourg, the mayor held office in his pew in the cathedral, meeting burghers there to conduct business. Wine merchants, probably employed by the chapter itself, even sold their wares from the nave of Chartres – selling inside the church, they were exempt from the taxes imposed by the count of Blois and Chartres” (Ball, 2008, p. 66). Cathedrals also drew visitors, in some cases large numbers of pilgrims (Santiago de Compostela, Chartres, and Canterbury to name only the most famous). They might also be seats of learning, but no more so than monasteries. This is perhaps not a lot of immediate return for the enormous effort of building them. However, if one uses a zero rate of discount, appropriate to unworldly matters, and reckons as a return their drawing power for tourists in the last two centuries, the cost-benefit calculation changes.<sup>18</sup>

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<sup>17</sup> (Gimpel, 1979, p. 7). One of us (PMH) has been in Chartres cathedral with 6 000 others during the annual student pilgrimage, pretty well filling the place with most sitting on the floor.

<sup>18</sup> A recent article in the New Yorker profiles an Italian producer of luxury goods who donates to, among other causes, restoring a monastery in a small Umbrian town. The abbot of the monastery is quoted as saying that “...monks take a long view of things, so if it takes fifty years to do it we’ll manage” (Mead 2010, p. 79).

If the cathedrals only partly qualify as social overhead capital from an economic point of view, what of the possibility that their construction was a drain on more productive uses of capital and labor? Robert Lopez raised the point in a short and superficially modest article many years ago (Lopez 1952). He pointed to towns that appear to have exhausted their substance in a disproportionately magnificent cathedral, while other communities grew and prospered with less extravagant churches. Among the former one may cite Beauvais, Salisbury, Bourges, and many more, while the latter include most Italian city-states (but not Pisa) and Bruges. Of course, from Roman times to ours, other forms of conspicuous investment (baths then and stadiums then and now) have proved to be white elephants. Lopez is careful to point out that the major cities, from Paris to Venice, could absorb the cost of a major cathedral with no loss of momentum. In the case of both these cities, moreover, cathedral building benefited from plunder. Venice profited from the crusades and Paris from the annexation of Normandy by the French Crown (Lopez 1952, p. 434-5, Krauss 1979, p. 5). We would add to these another possibility, namely that the duration of construction may simply have outlasted a phase of prosperity of the city.<sup>19</sup> Merchant towns tended typically to experience temporary booms, perhaps again a working of Cardwell's Law, or in keeping with the Network System of competitive and fluid trade flows and shifting economic leadership among cities (Hohenberg and Lees, 1995, pp. 63-4).<sup>20</sup>

Indeed, Herman van der Wee has suggested a very different way of thinking about the resource demands of Gothic construction itself. Rather than viewing it as does Lopez as investment forgone for more productive uses, he concentrates instead on the contribution made by Gothic to

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<sup>19</sup> A similar point is made by M. M. Postan in his assessment of the costs (or benefits as some have argued) to the English economy of the One Hundred Year's War. He reminds us that we "must not ascribe to the war what was due to the hundred years" (Postan, 1964, p. 53).

<sup>20</sup> Amiens, for instance, enjoyed a lively trade in woad until their English customers declared a boycott and seized the stocks in 1295 (Krauss, 1979, p. 41)

a general increase in technical knowledge, understood as either practical or abstract or a combination of both. He argues that “cathedral building concentrated resources in a sector where the few potentialities of technological progress could be actualized in the most promising way” (van der Wee, 1984, p. 268). He seems almost to suggest that even if the buildings were used for no good social purpose, the very act of building them contributed in ways not available elsewhere in the economy of the High Middle Ages to the development of human capital. A similar argument has been made by the historian of science, David Turnbull, who argues that Gothic cathedrals were akin to laboratories with geometry as the common language employed to transfer knowledge from one place to another. Thus, they contributed to both “science and technology,” and it is this combination that “allows ad hoc progress to constitute real progress in collective practice” (Turnbull, 1993, pp. 321 and 332).

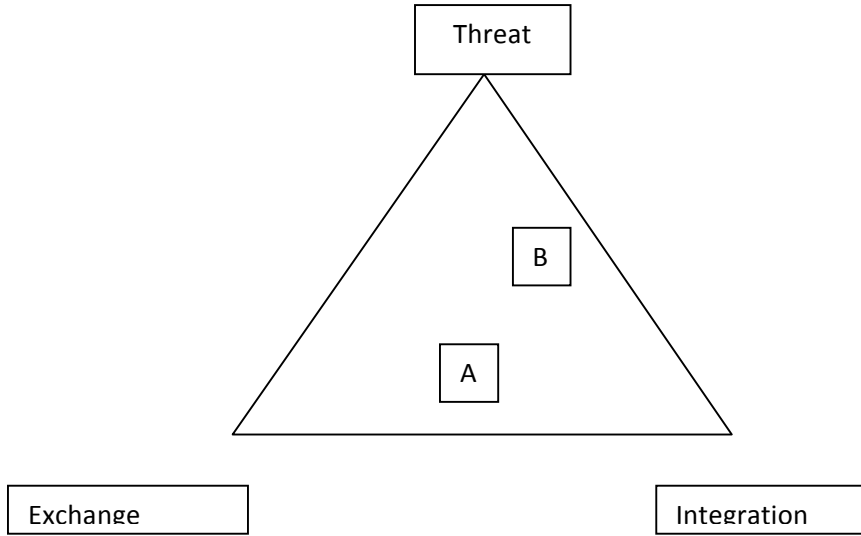
And what of the donations that built the cathedrals? Where do they fit into Boulding’s social triangle? On the face of it, the integrative principle should dominate. There is no doubt that without faith (to say nothing of hope and charity) these impressive structures would not have been built. But faith was reinforced with strong elements of threat or coercion as well, both from the temporal power of the Church and its prelates and from their ability to punish on earth as well as banish and damn. To be excommunicated, for example, was no laughing matter, though bishops often overreached and tried to put whole communities outside the pale. And of course from the 13<sup>th</sup> century on the Inquisition pursued those who were deemed not to hew to the official line. Nowhere was this more true than in the Holy Office’s birthplace in Southwestern France during the suppression of the Cathar heresy (the so-called Albigensian crusade of the 13<sup>th</sup> c.). As we have seen, there was also a strong element of exchange involved, not only in the

matter of indulgences, but also in the purchase of chaplaincies and other ways of honoring the dead (funeral processions, burial in a sanctuary, commemorative windows, etc.).

Yet the cathedrals themselves remain, and the most skeptical among us can hardly fail to be moved in their presence. Perhaps, like sausages, legislation, and statistics, cathedrals should be enjoyed without too close concern for just how the material means to erect them were gathered. At any rate, compared to medieval people's alternative means of celebrating and propagating the true faith, such as crusades and campaigns against deviant thought, or in contrast to the multitude of destructive behaviors pursued by the nobility to concentrate and display their power, cathedrals regain their luster.



**Figure 1**



The Social Triangle (after Boulding, 1973)

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