CEU Medieval Studies

# A NETWORK ANALYSIS – SPATIAL AND TEMPORAL PATTERNS OF THE CISTERCIAN REFORM FROM 1098 - 1400

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A network analysis is useful in a study of a complex system whose organizing principles are not necessarily known. Such a methodology seemed appropriate applied to the Cistercian expansion.[1] In this paper, spatial and temporal patterns are read like a text to gather a general picture of the monks' strategies before administrative structures had been formalized. It proceeds on the assumption that patterns themselves may reveal tactics and strategies not mentioned or elaborated in the written record.[2]

A network is a schematic structure consisting of stationary *nodes* and straight-line *links* whose parts share features in common. The Cistercian reform can be modeled as a network because of the twin pillars of the organization's structure: parental visitation among *filia* (daughter houses) and an annual chapter in Burgundy where most of the abbots were in attendance. In this paper, I treat each foundation as a *node* and each filial relationship as a *link*. The attributes of the network, such as tight, dense clusters or long-distance, aligned foundations hint at the various ways in which the network developed. For instance, long-distance, aligned foundations generally indicate royal support while short, clustered foundations hint at a local resource base such as a local clan or wealthy benefactor.[3]

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[1] Jeff Mendes and S. N. Dorogovtsev, *Evolution of Networks – From Biological Nets to the Internet and WWW*, (Oxford: Oxford University Press, 2003) (hereafter: Mendes and Dorogovtsev, *Evolution of Networks*).

[2] See Constance Hoffman Berman, *The Cistercian Evolution: The Invention of a Religious Order in Twelfth-Century Europe* (Philadelphia: University of Pennsylvania Press, 2000), 1-23, in which she argues that the earliest reference to a text allegedly authored by Abbot Stephen Harding in 1119 can be dated no earlier than 1160, later challenged by Chrysogonus Waddell in "The myth of Cistercian Origins: C. H. Berman and the Manuscript Sources," *Citeaux* 51 (2000): 299-386. For Wadell's own philological and diplomatic work on early Cistercian documents, see "The Cistercian Institutions and their Early Evolution," *L'espace cistercien*, ed. Léon Pressouyre (Paris: Comité des travaux historiques et scientifiques, 1994), 27-38. In my opinion, Wadell's analysis of early Cistercian documents is quite thorough and his argumentation sensible. His work is more nuanced than Berman and he does not dismiss out of hand the 1119 papal bull Berman regards as a forgery; rather he is hesitant to assign dates to early documents. Instead, he gives a range of possible dates and takes pains to correct scholarship in previous critical editions. A sensible and brief explanation of the early institutional life of the order is given by John R. Sommerfeldt in a review of C. H. Berman's, *Cistercian Evolution* (2000) in *Church History* 70: 2001, 786-788.

[3] This article is adapted from my MA Thesis, "Cistercian Network Analysis, A Road Map Through the Mental Imagination of the First Generations of Monks," (Central European University: Budapest, 2008).

Monastic networks vary in terms of size and connectedness. Of all the twelfth century reforms the Cistercians were by far the largest and most vertically integrated. By the time of the death of Bernard of Clairvaux in 1153 some 350 foundations dotted a landscape map of Europe at a considerable distance from one another (Figure 1). Invariably, these foundations were in one way or another linked together in a monastic network. Furthermore, the economic, ecclesiastical and social conditions of these foundations were highly variable and a number of factors were at play during a monastic foundation, so continental patterns must be elaborated or explained by way of regional examples. Thus, this paper proceeds with a continental analysis and then explores general patterns with the aid of the Hungarian network.

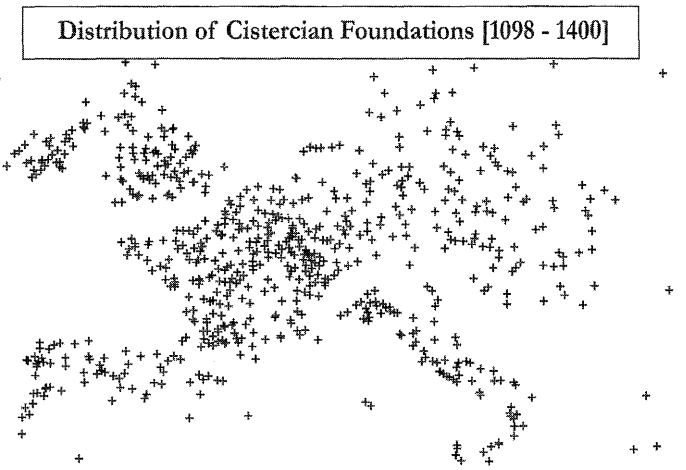


*Fig. 1. A scatter plot can be appreciated even without a map. The spatial distribution of the foundations made from 1098 to 1400 reveals a rough outline of the continent. The sheer density of nodes is evidence that the reform began in Burgundy. The white spaces reveal irregularities in a uniform Christian landscape—mountains, sea, Arab Spain, and so on.*

## Past Scholarship Related to a Network Discussion

Previous scholars have charted and mapped the reform but none have paid exclusive attention to temporal or spatial patterns. Notably, L. J. Lekai described the organization's twelfth century expansion and included a set of reasonably accurate

maps according to modern boundaries.[4] Marcel Pacaut's monograph includes a number of statistical tables and a data analysis by region, although the maps in the appendix are only approximations.[5]

At the continental level, Frédéric Van der Meer's *Atlas de l'ordre cistercien* (1967) stands alone in its ambition to produce a continental mapping of the vast filiation system.[6] Van der Meer's work includes a set of detailed color-coordinated maps. I am indebted to this work but do not rely upon it as source, as a number of corrigenda have been published to correct its mistakes. In the nineteenth century, Leopold Janauschek, a Cistercian monk and scholar, compiled the *Originum Cisterciensium Liber Primus*,[7] a catalogue of foundation dates and alternative place names, including such minutiae as the succession of abbots and dates of relocation. The filiation system is charted in a three-meter-long supplement in the appendix and I used it as a source to construct the network maps that follow.

Continental patterns must be substantiated at the regional level for a network discussion to be meaningful. Fortunately, a number of regional studies helped me to corroborate continental data. For instance, historical geographer R. A. Donkin explored the economic network of the Cistercians in England.[8] Constance Hoffman Berman discussed adoption and incorporation in southern France, a process whereby the network expanded by adding existing monasteries.[9] Among other regional studies are James France's work on the Cistercians in Scandinavia, tracing the influence of ecclesiastical networks[10] and Michała Walickiego,[11] who explored the diffusion of Cistercian

[4] L. J. Lekai, *The Cistercians: Ideals and Reality* (Ohio: Kent State University Press, 1977) (hereafter: Lekai, *Ideals and Reality*).

[5] Marcel Pacaut, *Les Moines Blancs: Histoire de l'ordre de Cîteaux* (Paris: Fayard, 1993) (hereafter: Pacaut, *Les Moines Blancs*).

[6] Frédéric Van der Meer, *Atlas de l'ordre cistercien* (Paris: Edition Sequioa, 1965).

[7] Leopold Janauschek, *Originum Cisterciensium Liber Primus* (Vienna: Vindobonae, 1877).

[8] R. A. Donkin, "Settlement and Depopulation on Cistercian estates During the Twelfth and Thirteenth Centuries," *Bulletin of the Institute of Historical Research* 33 (1960), 141-165; "The Cistercian Grange in England in the Twelfth and Thirteenth Centuries, with Special Reference to Yorkshire," *Studia Monastica* 6 (1964), 95-144; "The Cistercian Order in Medieval England: Some Conclusions," *Transactions and Papers* (Institute of British Geographers), No. 33, (1963), 181-198.

[9] Constance Hoffman Berman, *Medieval Agriculture, the Southern-French Countryside, and the Early Cistercians: A Study of Forty-Three Monasteries*, Transactions of the American Philosophical Society 76 (Philadelphia: American Philosophical Society, 1986).

[10] James France, *The Cistercians in Scandinavia* (Kalamazoo: Cistercian Publications, 1992).

[11] Michała Walickiego, ed. *Sztuka Polska, przedromańska i romańska do schyłku XII wieku* [Polish Art, Pre-Romanesque and Romanesque Architecture to the End of the Twelfth Century], Warsaw: Państowowe Wydawniectwo Naukowe, 1968).

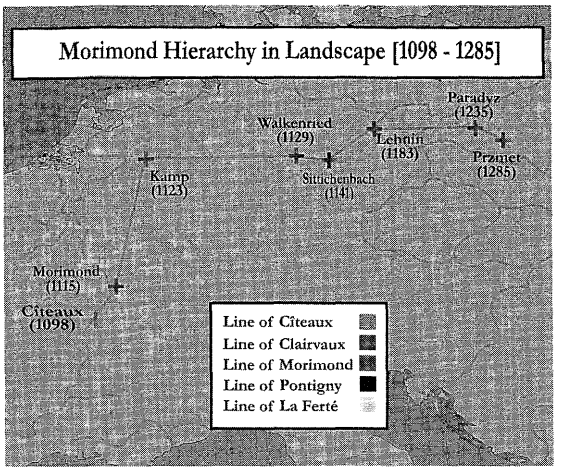


*Fig. 2. Foundations in bold show the genealogical line of Przmet (1285), a filia of Morimond, placed in the landscape as a line of successive foundations from Burgundy during the twelfth and thirteenth centuries. This pattern suggests patronage obtained locally in contrast to long-distance foundations characteristic of the Clairvaux line.*

architecture in Poland.[12] A set of dynamic maps fills a gap in Cistercian scholarship at the continental level with an analysis of the spatial and temporal patterns of some seven hundred foundations, as scholars have done for the Premonstratensian and Carthusian orders.[13] Furthermore, this study takes advantage of historical GIS (Geographical Information Systems), relying upon analytical computer methods to enrich a scholarly understanding of a twelfth-century monastic reform.[14] After all, monasticism is a way of life intimately connected with the landscape and notions of space.[15]

The geographical coordinates were obtained for a great many foundations from a database compiled by scholar monks at the Carthusian charterhouse in Florence.[16]

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[12] Ewa Łużyniecka, *Architektura Klasztorów Cysterskich* [The Architecture of Cistercian Monasteries], tr. Marzena Łuczkiewicz (Wrocław: Oficyna Wyd. Politechniki Wrocławskiej, 2002).

[13] These studies can both be found in a volume dedicated to the archaeologist Philip Rahtz. See James Bond, "The Premonstratensian Order. A Preliminary Survey of the Growth and Distribution in Medieval Europe," *In Search of Cult*, ed. Martin Carver (Woodbridge: Boydell Press, 1993),153-182 and in the same volume: Mick Aston, "The Development of the Carthusian Order in Europe and Britain: A Preliminary Survey," 139-150.

[14] Previous studies have assigned maps only minor importance. Those in Pacaut's (1993) monograph appear to be copied from Van der Meer's *Atlas de l'ordre cistercien* with disregard for accurate placement of foundations. I deal with data reliability later in the paper.

[15] Historical GIS relies upon attribute-based data to study history. For a primer on the subject and a number of applied mapping projects, see Anne Kelly Knowles, *Placing History, How Maps, Spatial Data and GIS are Changing Historical Scholarship* (Redlands, CA: ESRI Press, 2008).

[16] Cistercians, "Monateries in Alphabetical, Chronologial and Geographical Order;" available from http://cistercensi.info/abbazie/monasteri.asp?lin=en (accessed 9 May 2008). It is a challenge in GIS to obtain

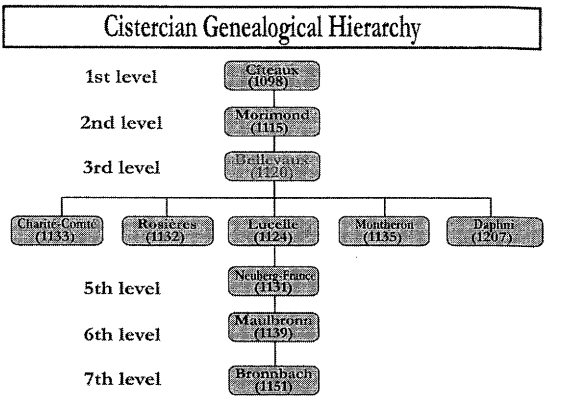


*Fig. 3. The structure of the reform placed one monastery subordinate to another in a genealogical hierarchy. Bellevaux (1120) had five daughter abbeys of its own and was subordinated in the third level of the hierarchy.*

Genealogical lines and parent abbeys derive from a list in Pacaut.[17] The name and date of each foundation can be found in Janauschek's *Originum Cisterciensium Liber Primus*.[18] A modest effort was made to sample the data for accuracy by looking for abbey remains in current satellite imagery. Some abbey remains were easily verified. For those that were not, I compared the maps produced for this study with regional studies of Cistercian foundations. Subsequent scholars will want to improve on my study where time constraints prevented me from doing so.[19]

One might ask, in what way the network should be sub-divided or demarcated

accurate data; the monks at Certosa di Firenze have published Cistercian foundation data on-line. Cistercian scholars will find this an invaluable resource.

[17] Pacaut, *Les Moines Blancs*.

[18] Cistercian scholars owe a debt to Janauschek for his painstaking endeavor to gather foundation data for monasteries from cartularies and charters. Although nunneries were quite numerous and present in the life of the Order as early as the twelfth century, I will not deal with them in this study.

[19] Data for abbeys with no known coordinates were obtained by other means. For these, I consulted secondary literature for mention of the abbey by name. For those few abbeys with no mention in the literature save a diocese, I relied on a toponym to relate the abbey to its historic location. For the remaining ten or so abbeys with no known locations, I positioned the abbey at the center point of the smallest determinable geographical extent. An approximation where information was lacking or could not be verified is justified because of the role of uncertainty on a continental scale. If kept to a minimum, say less than 2%, the statistical majority would fall within an acceptable degree of error. Positioning medieval monasteries in the landscape is challenging. For just one example among many, consider the Cistercian foundation of Pilis in the town of Pilisszentkereszt, a Hungarian place name that refers to a certain Holy Cross monastery. The monastery from which Piliszentkereszt takes its name is not the Holy Cross monastery, but rather a Pauline monastery that was incorrectly identified after the Ottoman Turkish period. The monastery for which Pilis was mistaken lies some distance away.

internally? The Cistercians were placed into circaries (administrative divisions), but no evidence suggests that the divisions were more important than filiations. The filiation relationships seemed to have been the path by which resources shifted. Abbots moved easily from one house to another and monks resettled from region to region along filiation lines.[20] It makes little sense, aside from pragmatic considerations, to confine a survey to linguistic, nation-state or kingdom boundaries – or any boundaries for that matter – therefore this study transcends artificial delimiters and crosses kingdom divisions of Bohemia, Poland, Hungary and so on (Figures 2 and 3).

## Spatial Patterns at the Continental Level

What can be inferred from continental patterns? A number of distant foundations suggest an invitation from nobility or royalty. Foundations evenly spaced over time suggest a pattern of colonization whereby a detachment of monks departed to settle a neighboring region. A large number of concurrent foundations suggests adoption, the consolidation or acquisition of monasteries into the network. A continental analysis for these characteristic patterns follows.

When Bernard of Clairvaux entered as a novice along with thirty of his friends and family, a fledgling monastic reform entered its first period of growth. Within a span of three years four abbeys were founded within a radius of 120 km – La Ferté (1113), Pontigny (1114), Morimond (1115), and Clairvaux (1115).[21] After the foundation of Clairvaux (1115) at least one new foundation was added each year.[22] The first four foundations line up in the shape of a cross: Clairvaux to the north, Pontigny to the west, Morimond to the east, and La Ferté to the south. The position of these abbeys with respect to the Cîteaux approximated their future

[20] The thirteenth-century Abbot Stephen of Lexington studied at the Oxford schools before joining the Cistercians. He professed his vows at Quarr (1221) on the southern coast of England and two years later was made the abbot of Stanley, a nearby daughter abbey of Quarr (1223). After six years he assumed the headship of Savigny (1229), and fourteen years later was elected abbot of Clairvaux (1243). Each translation of Stephen along the filial lines shows that the network was a way for a promising young monk to be promoted. A century after these lines were established, filiation lines had become the organization's internal map for the promotion of talent. Furthermore, the number of years Stephen of Lexington was at Quarr (2), Stanley (6), Savigny (14) and Clairvaux (15) closely parallels the number of daughter abbeys each had filiated at the time of his election. The duration a talented abbot would remain was then something of a predictor of the influence each abbey could exert to keep him there.

[21] Abbeys are named in the local vernacular, i.e., Savnik in Slovakian instead of Szepes in Hungarian.

[22] 1116, 1117, 1122 and 1196 were exceptions according to Pacaut, *Les Moines Blancs.*

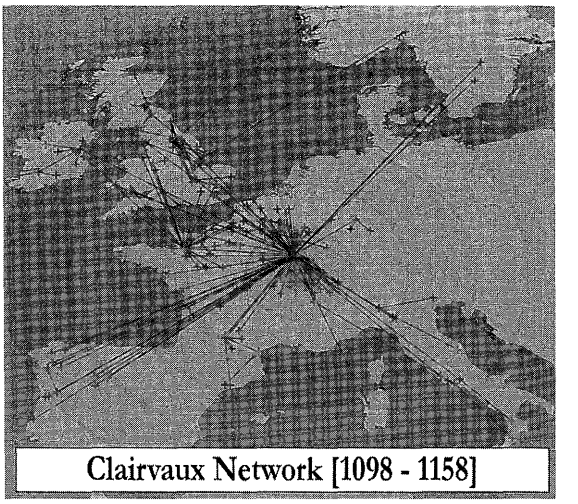


*Fig. 4. Many monasteries were subordinate to Clairvaux through long distance foundations in Scandinanvia, Portugal, Italy, and Ireland; although most foundations are positioned on an axis running diagonally from top-left to bottom-right, the predominant network pattern radiates outward.*

geographical influence. Thus, Clairvaux went on to dominate the north, Pontigny the west, Morimond the east and La Ferté – though not as large as the others – was influential to the south. I believe this pattern is intentional, that Cîteaux wished to foster certain genealogical branches in certain geographical regions.

The expansion picked up speed when Bernard arrived with considerable enthusiasm and missionary zeal. Four foundations occurred immediately after his arrival, followed by a lapse of several years during which the monks built up the requisite resources for a second expansion. An explosion of growth occurred from 1118 to 1121, and the addition of daughter abbeys turned the fledgling reform into an infant network. Thus, the foundations of Cîteaux-Preuilly (1118), Bonnevaux (1119), Cour Dieu (1119), Aumône (1121), Loroux (1121) were scattered to the west, with Bonnevaux to the south. Those of Clairvaux-Trois-Fontaines (1118), Fontenay (1119) and Foigny (1121) were planted to the north. Those of Pontigny-Bourras (1119), Caudouin (1119), and Gondon (1123) were planted to the southwest. The foundations of Morimond were located to the northeast—Bellevaux (1120), Creste (1121), and Kamp (1123), while those of La Ferté, Tiglieto (1120) and Locedio (1124), were planted across the Alps in northern Italy. Each genealogical line shows evidence of distinct regional priorities. In the period from 1098 to 1128 no fewer than 31 abbeys were founded. The monks arrived as far east as central Germany in Ebrach (1127), as far north as Kamp (1123), as far south as Tiglieto (1120), and as far west as Loroux (1121) in northern France.

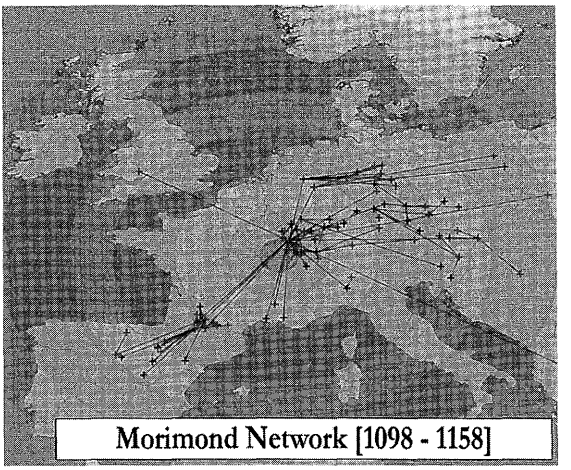


*Fig. 5. Morimond's links are randomly oriented to the east and aligned radially only to the southwest, while the prevailing pattern is that of colonization. Notice the regional character of the line—the bulk is in the Holy Roman Empire—while a foundation not shown is Belmont (1157) in the Holy Land.*

During the thirty years from 1128 to 1158, the Cistercians arrived at the geographical extent of their influence in the Middle Ages, as far west as the Kingdom of Portugal and as far east as the foundation of Belmont (1157) in Syria as a result of a crusade. The monks went north to settle in southern Scandinavia and south to settle in the Italian peninsula. During these thirty years growth was concentrated in the core area, but foundations were also in dense concentration in the British Isles and in northern and southwestern France. Scattered growth occurred in Bohemia, Poland, Germany, Leon and Castille (Figures 4, 5, 6).[23]

After sixty years, continental patterns were well defined. The line of Clairvaux extended predominantly on a diagonal from the British Isles to the tip of the Italian peninsula and contained a number of long-distance links (See Figure 4). The foundations of Morimond contained a number of non-aligned links that proceeded in a steplike-fashion from west to east (Figure 5). Foundations direct from Cîteaux extended broadly but followed a dominant axis from north-central Europe to the western Iberian Peninsula (Figure 6). Foundations in the genealogical line of Cîteaux and Morimond tended to be filiated in varying non-aligned directions to nearby monasteries, suggesting that they grew by means of colonization and occurred regularly through time. The characteristics of the line of Clairvaux followed a different pattern. Links were likely to be made direct to

[23] See James Bond, *Monastic Landscapes* (Stroud: Tempus, 2004) for the vast panorama of effects monastic culture had on the landscape; in this volume he discusses manors and granges, deer parks and rabbit warrens, fisheries and fishponds, churches and chapels, orchards and vineyards.

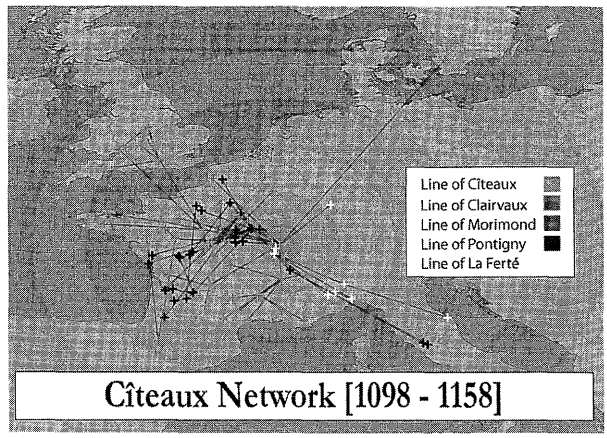


*Fig. 6. Discussion about the line of Cîteaux presumes La Ferté and Pontigny as small enough to be included. As such, Cîteaux represents 23, one quarter of the network hierarchy, a line of 24 direct foundations in two distinct periods: 1098 to 1147 and 1200 to 1240. In the first sixty years its influence was confined to medieval France and England.*

Clairvaux, whether close to the core area or distant from it, aligned in orientation like the spokes on a bicycle wheel. The network maps reveal internal networks that were distinct from one another but overlapping – that of Clairvaux and that of Cîteaux and her eldest daughters – the latter showing less of a centralized tendency and fostering more connections between its members.

Thus, certain spatial patterns prevailed. Cîteaux remained influential throughout the network, planting direct foundations without regard for geography. Each of the lines proceeding out from the first four daughters, however, maintained a regional priority and certain monasteries became regional hubs, such as Kamp (1123) and Savigny (1147). Rather than a broad, diffuse, step-like outward expansion, the continental pattern created regional hubs, monasteries that articulated future growth in a number of different directions. Some areas far removed from resource-rich Burgundy were quite prosperous. On a whole, the landscape distribution was rather disparate compared to the Carthusian and Premonstratensians, whose foundations show a greater propensity to cluster. From a bird's eye view, Cistercian foundations tended to cluster within the core area, on either side of the Pyrenees, on the island of Sicily, along the western Iberian Peninsula, and on the eastern coast of Ireland.[24] These spatial patterns will now be put in the context of the overall temporal development of the reform.

[24] Leinster, Meath, Oriel and Uliad.

## Temporal Patterns at the Continental Level

If a rock is thrown into the center of a pond ripples will propagate outward from the center in concentric circles (Figure 7).[25] The pond model is useful to describe growth in the Cistercian monastic reform, whereby the countryside may represent the surface of the pond and propagating waves represent successive detachments of monks departing for neighboring lands. The expansion can then be seen to proceed in a wavelike fashion.[26]

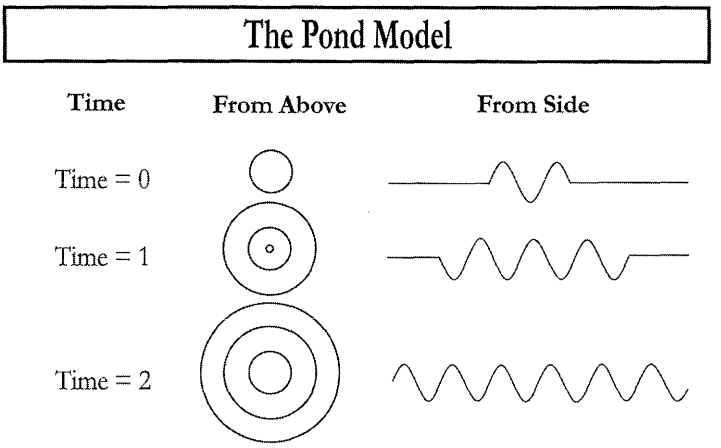


*Fig. 7. A rock enters a pond at time zero and waves begin to disperse. Provided there is no obstruction waves propagate outward, but as the waves get further away from the center they get weaker. This model will be used to describe the Cistercian expansion as the dispersion of an innovation through a uniform plane.*

[25] The Pond Model derives from the mechanics of waves when a disturbance is introduced in a continuous plane. See, for example, Art Hobson, *Physics: Concepts and Connections*, (Englewood Cliffs, NJ: Prentice-Hall, 1995): 195-201. In principle, a wave is a disturbance that travels through a medium and transfers energy.

[26] Of course, there were non-uniformities in twelfth-century Europe. The proximity of the Swiss Alps, the presence of the Arabs in the Iberian Peninsula, and competition from the Premonstratensians all complicate the simple model, but the pond model is still useful as a starting point. Just as the ripples on a pond oscillate between peaks and troughs, it took some time to gather sufficient resources for the exodus of yet another detachment monks. If the model were elaborated, it would include a few smaller rocks scattered in the pond to represent other sporadic changes in the system, such as the arrival of the reform in major population centers or an influential bishop who begins to promote the reform.

Growth can be divided arbitrarily into eight concentric circles. In contrast to the period 1098 to 1128, when 60 percent of growth occurred within 250 km, only 20 percent of growth occured in this same ring from 1128 to 1158. During this latter period, a much greater number of foundations lay in a concentric ring from 250 to 500 km away, in the regions of northern, western and southern France and the western part of the Holy Roman Empire. Thus, growth had gone well beyond the core area in the period 1128 to 1158 and a great number of abbeys added during this time period were added in regions outside of the core area. Thus, with exceptions the pond model can help to explain the temporal character of the expansion.

As suggested by the pond model, over five-year intervals from 1128 to 1158 the expansion shifted outward from the core area. In the first five-year period from 1128 to 1132, growth was concentrated in the core area at a distance less than 500 km. Foundations in this time period were almost exclusive to the core area although several foundations were made in England and one in Austria. During the next five-year period, from 1132 to 1137, growth remained concentrated in the core area, but further growth followed in the Holy Roman Empire, southern and northern France, England, northern Italy, and across the Pyrenees in Castille and Leon. Furthermore, in each of the new regions, growth continued to fill in the blank spaces on the map.

Consider a smaller time interval to elucidate the events of the period further. If five-year time intervals are chosen, the pattern can be made even more precise. During the five-year intervals from 1132 to 1158 the growth rates were 12, 12, 19 and 13 abbeys per year. If, however, the adoption of Savigny and its dependents monasteries is excluded, the growth rate adjusted to ignore this single addition would be an average of about 13 abbeys per year. During the five year interval from 1143 to 1147 only four abbeys were added within in the 0 to 250 km core area whereas forty percent of the abbeys were added from 250 to 500 km, most in northern and western France and southern England. As the pond model suggests, growth occurred outside of the core area in successive waves. Thus, by the five-year period from 1142 to 1147 there was little growth in the core area while most of the growth occurred in a ring from 250 to 500 km away. It was not until the death of Bernard in 1153 that growth across the entire network slowed after an ordinance of the General Chapter in 1152 sought to bring a halt to new foundations. Thereafter Clairvaux continued to add foundations while the Cîteaux line did not.

To summarize the temporal patterns, the Cistercians generated a self-functioning monastery at the rate of one per month for nearly two decades. Assuming Cîteaux

played a role in decision-making, it seems that at a growth rate of one per month the organization added new foundations as part of a concerted effort to expand. Once new foundations were settled, these foundations were responsible for relaying information to Burgundy so further decisions could be made. I consider the sheer volume of growth as part of a strategy or plan to expand the network (Figure 8).

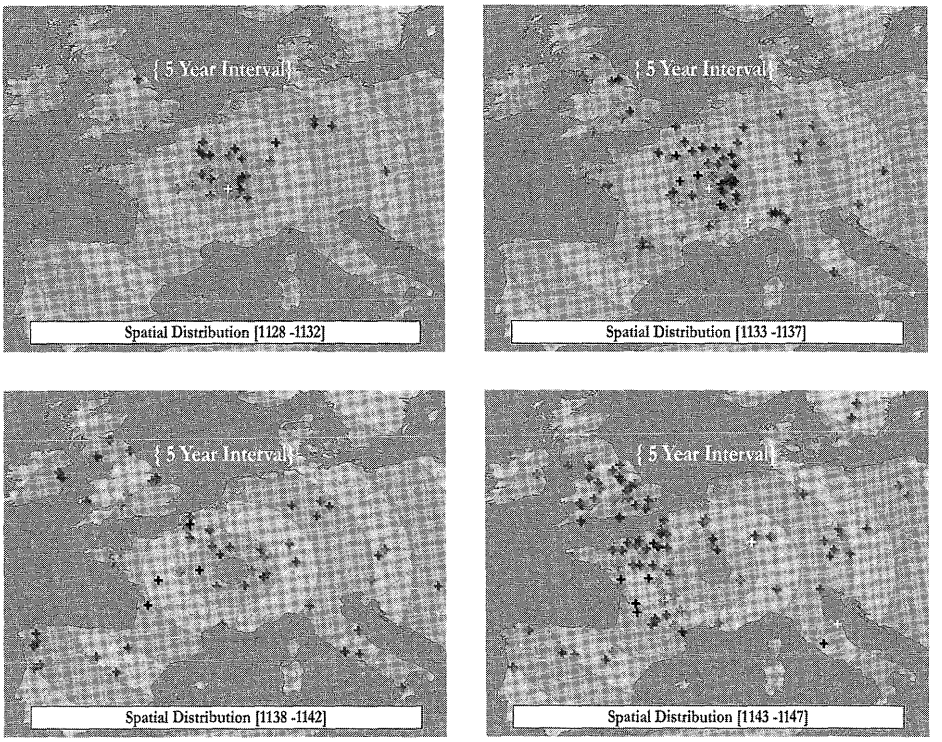


*Fig. 8. From left to right and top to bottom, see the distribution in five-year intervals move away from the core area. Compare 1133 to 1137 with the interval one decade later, 1143 to 1147, for a noticeable shift outward. This is the period of takeoff as the Cistercians were welcomed by a wider population.*

## The Cistercian Expansion as the Development of a Network

It appears that these "zones of influence" were part of some sort of a strategy to multiply Cistercian foundations. Since the organization required regular attendance at the motherhouse, when each new member admitted in a given year was introduced to the rights and responsibilities of membership, the expansion must have been a

focal point of the General Chapter, if not explicitly in terms of growth objectives for the coming year, then indirectly by way of introducing new members.

Furthermore, requisite human resources would have derived from the existing network and a discussion of which monks would move to new foundations would likely have taken place. According to network theory, an organization builds its membership by attracting new members to popular nodes, a principle known as *popular is attractive*, which suggests that once established in the landscape, new abbeys were attached to those with the most foundations already. The most popular abbeys or those with the largest *degree of connectivity* became even more popular, a principle of network theory that causes certain nodes on a network map to become more important than others.[27] Certain hubs then became depositories of region-specific information.

Why was an integrated network in the interest of Cîteaux? The very notion of reform holds an ideal as a model for others to follow. Those who wish to live up to the ideal must conform to a standard practice. Subordinate relationships helped each monastery to conform to the ideal. The vertical hierarchy placed Cîteaux at the top and her four eldest daughters beneath, who in turn each gave birth to their own filia. In this way, the Cistercians were the most vertically integrated of all the reforms. Because of the twin pillars of the *Carta Caritatis* – the General Chapter and parental visitation – monasteries could influence subordinate daughters though visitation and meet with all the others at the annual chapter meeting.[28] Regular communication helped the network control for quality while giving abbots independence in their own affairs. If an abbot became errant in his practice or when resources were shifted the network became a direct conduit for interaction, otherwise its substantial effect was psychological as it emboldened fidelity to the reform.[29] This web of connected monasteries was in a modern sense an international organization.

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[27] Mendes and Dorogovtsev, *Evolution of Networks*, 1-15.

[28] See Chapter V of the *Carta Caritatis Prior* as given in the appendix in Lekai, *Ideals and Reality*. Parental visitation was established with this decree: "Let the abbot of the senior church visit once a year all the monasteries he has founded; and should he visit more often, let them for that reason rejoice all the more." See Chapter VII for the establishment of the General Chapter: "Let all the abbots of these churches come to the New Monastery once a year on the day they decide among themselves, and there let them treat of the salvation of their own souls; if something is to be emended or added to in the observance of the Holy Rule or of the Order, let them so ordain it, and let them reestablish among themselves the good of peace and charity."

[29] This strict vertical hierarchy is in contrast to a network with closed loops, where members interact with one another and thereby share ideas and exchange resources. For a discussion on the difference between network structures see Mendes and Dorogovtsev, *Evolution of Networks*, 1-15.

Besides the transfer of resources among its members, the network gave each of its members an opportunity to participate in a representative legislative body. Each year in Burgundy abbots gathered in a week-long General Chapter to introduce new members and correct errant abbots required by the *Carta Caritatis* to submit their faults. Returning to Scandinavia, Poland, and Iberia, abbots would bring news from all the other parts of Europe. This annual gathering is cited in the secondary literature as unique for its time and this large meeting must have had the character of an international summit. The influence of abbots as opinion setters and the convenience of distributing a message so easily led Emperor Frederick Barbarosa to send a letter to the chapter in 1177 to inform the abbots that he had accepted the supreme pontiff Alexander III, "sensing that in doing so was to notify the church at large."[30] A half century later, in 1212, Arnaud Amaury, former abbot of Cîteaux and archbishop of Narbonne, sent word of the victory over the Spanish Muslims at Las Navas de Tolosa, knowing that returning abbots were likely to pass along the announcement.[31] By way of the General Chapter, when news arrived in Burgundy it was sure to reach the rest of Europe.

The development of the Cistercian network was concurrent with others, such as the universities, decretal collections, and Lateran councils, and must be understood in the context of the so-called twelfth-century renaissance, in which a rebirth of culture and institutions was seen across Europe.[32] The following section proceeds with a regional example to show how a network worked in the diffusion of the reform throughout Europe.

## A Regional Case Study — The Hungarian Network

What can be said about a network that developed almost entirely outside of the primary period of expansion? Hungarian foundations were made during the mid-twelfth, late twelfth and early thirteenth centuries during a time when Cistercians

[30] Hugh Lawrence, *Medieval Monasticism, Forms of Religious Life in Western Europe in the Middle Ages*, 2d ed. (London: Longman, 1989), 192.

[31] Ibid., 192.

[32] For a discussion of the twelfth century renaissance see Charles H. Haskins, *The Renaissance of the Twelfth Century* (New York: Meridian Books, 1955), or more recently, Giles Constable, *The Reformation of the Twelfth Century* (New York: Cambridge, 1996). A study of the relationships between information networks would be an interesting research topic. For instance, what was the relationship between the Cistercian General Chapter and the diffusion of papal decrees? A close reading of the General Chapter resolutions from [1116 - 1285] may provide examples of this type of information dissemination.

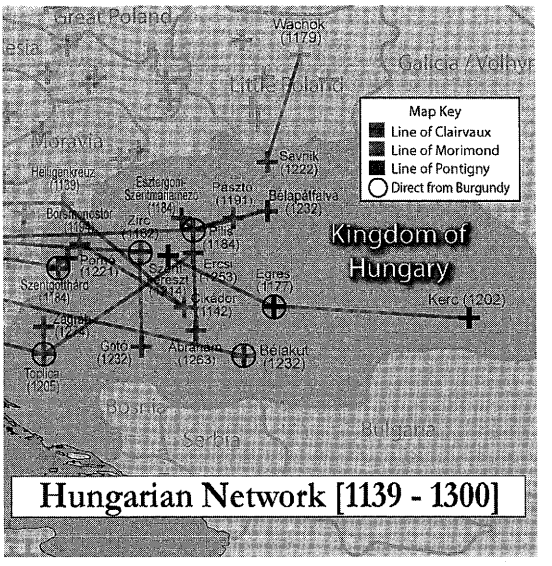


*Fig. 9. Map showing the network connections between Cistercian foundations in Hungary. Half of the Clairvaux foundations had direct connections to the west in Burgundy, whereas the Morimond foundations exhibit patterns typical of central Eastern Europe, where monasteries were filiated to nearby neighbors, such as Savnik in the north, which is believed to have been involved in the north-south trade with Poland.*

found favor with Hungarian kings, bishops, and noble families. For over a century a number of benefactors invited the monks to be integrated into existing ecclesiastical and economic networks.[33]

The Cistercians in Hungary have been studied by a number of scholars who have divided the patronage on the basis of king, bishop, and clan/family.[34] The number of foundations roughly descends in number among these three groups. In Hungary, it depended on the time period; in the late twelfth century the king's patronage was strong and in the early thirteenth century clan support prevailed. The abbey of Cikádor was established in Hungary in 1142 at the invitation of King Géza II (1141-1162), in the lifetime of Bernard, from the abbey of Heiligenkreuz (1139)

[33] The region of medieval Hungary included Transylvania, all of present-day Slovakia, and the region adjacent to the Adriatic Sea that includes present-day Croatia.

[34] For a Hungarian catalogue of medieval monastic foundations see Beatrix Romhányi, *Kolostorok és társaskáptalanok a középkori Magyarországon* (Cloisters and Chapters in Medieval Hungary) (Budapest: Pytheas, 2000); For a summary in English of the Cistercian foundations in Hungary see Romhányi's "The Role of the Cistercians in Medieval Hungary: Political Activity or Internal Colonization?" *Annual of Medieval Studies at CEU* 9 (1994): 180-204 (henceforth: Romhányi, "The Role of the Cistercians.") For a catalogue in Latin of Hungarian foundations see F. L. Hervay, *Reportorium historicum ordinis cisterciensis in Hungaria* (Rome: Editiones Cistercienses, 1984); for an analysis of the first Hungarian foundation, Cikádor, see László Koszta's article, "A cisterci rend története Magyarországon a kolostoraik alapítása idején 1142 - 1270 [The History of the Cistercian Order in Hungary during the Period of Establishment, 1142 - 1270], *Magyar egyháztörténeti vázlatok* 1993, No. 1-2, 115-128.

in the line of Morimond. Scholars have noted that reverse patronage, Hungarian bishops in support of Heiligenkreuz, continued for some time and that at one time Heiligenkreuz considered relocating to Hungary. Yet no subsequent foundations were made in Hungary for nearly four decades. Foundations were resumed when King Béla III (1172-1196) ascended the throne. He financed five foundations during his reign, three of which were in the direct line of Clairvaux. I will now elaborate the social context in which the Cistercians were invited to establish their foundations (Figure 9).

Though Hungary was far from the royal court in Paris, since the mid-twelfth century King Béla III had been improving his contacts with Western powers at the same time that Hungarian clerics had been going west for ecclesiastical training. Lukács is the first Hungarian who can be identified in Paris, at the school of Gerard La Pucelle sometime before 1156; he later became head of the church in Hungary as archbishop of Esztergom.[35] Other clerics followed him, such as Job, who studied at Sainte Genvieve from 1177-1181; Jakab, Adorján, and Bethlehem were other Hungarian clerics who studied in the schools of Paris.[36] Those who trained in the West brought back modern ideas about ecclesiastical management along with connections to Burgundy that became important for Cistercian foundations.

Although Archbishop Lukács' relationship with King Béla III was ambivalent at best, similar to the relationship between Thomas Beckett and Henry II, Lukács was responsible for strengthening relations between the Hungarian church and Parisian intellectual circles. It is likely that when Cistercian monks were studying in Paris they encountered Hungarian clerics who were doing the same. These encounters would later have forged relationships between Hungarian clerics and Cistercian abbots. The foreign relations of King Béla III improved after the death of his wife, Anna Châtillon (1184), when a second marriage allowed him to align himself with the West. After trying unsuccessfully to arrange a marriage in the Byzantine court where he had been raised as a child, he looked for marriage prospects elsewhere, trying first to marry Matilda, granddaughter of Henry II, and then settling upon an arrangement with Margaret of France, sister of Philip Augustus. Margaret had been married to Henry the Young, king of England, but because of political hostility between England and France there was a fight over her dowry, which is said to have been of considerable size. Laszlovszky suggests that "the proposed marriage was a

[35] József Laszlovszky, "Nicholaus Clericus: a Hungarian Student at Oxford University in the Twelfth Century," *Journal of Medieval History* 14 (1988): 222 (hereafter: Laszlovszky, "Nicholaus Clericus").
[36] Adjorjan became bishop of Transylvania and Jakab became bishop of Vác, ibid., 222.

very good offer for the French and English kings and offered a good solution for their long lasting quarrel over Margaret's dowry."[37] These were the conditions that may have precipitated a renewed invitation to the Cistercians to settle in the east.

The period of rebirth of Cistercian foundations under Béla III, roughly the last quarter of the twelfth century, began with the foundation of Egres (1177) sometime before Béla's marriage to Margaret. The influence of Hungarian clerics trained in the French court may have influenced his decision to ally himself with the West. Laszlovszky argues that "Béla III and his wife had a very close relationship with the Cistercians" and that they used Cistercian monks as their confessors.[38] Meanwhile, Bernard was active in the conflict over papal succession in his support of Innocent II over Anacletus II. The period of the renewal of Cistercian foundations in Hungary came at the time when the cult of Thomas Beckett was established; he was murdered in Canterbury Cathedral in 1171 and made a saint in 1173, a year before Bernard of Clairvaux himself was raised to the same status.

It is known that Margaret of France was close to Thomas Beckett, having been accompanied by him on her journey to England. If, during this period, King Béla III had strengthened his contacts with the West by his marriage to the daughter of Louis VII, then his support of the Cistercians would have perpetuated the cults of two key personalities from the west – Thomas Beckett and Bernard of Clairvaux. Propagating the cults would have sent a signal West that the king of Hungary supported the papacy in its struggle with Emperor Frederick Barbarossa. Just as Roger of Sicily had used Clairvaux earlier in the century to garner support in his political struggles, so might Béla III have used the Cistercians to improve his standing with foreign powers. Thus, Hungarian clerics in French schools and Bela III and his relations with the West were two of the evolving social networks that grew concurrently with the Cistercians' presence in Hungary.

At the time of Béla III there was also a developing economic network that may have been a possible motive for the introduction of Cistercian organization to strengthen the regional economy. Several of the Hungarian foundations were made directly from monasteries in Burgundy that were of considerable size and influence. The monastery of Clairvaux was responsible for Zirc (1982), while Acey was the mother of Pilis (1184) and Trois-Fontaines the mother of Szentgotthárd (1184). On the basis of these network connections, there was a transfer of modes of production

[37] Laszlovszky, 222-224.

[38] Laszlovszky, "Nicholaus Clericus:" 224.

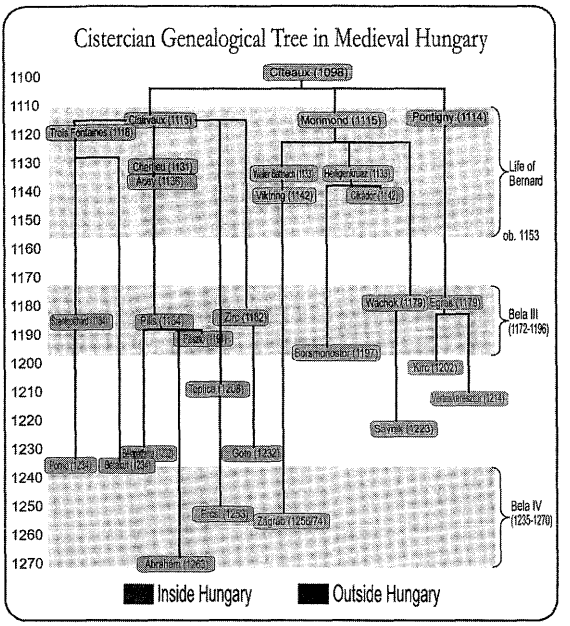


*Fig. 10. This temporal distribution shows relations between Hungarian Cistercian monasteries. Resources were exchanged along these network lines, such as the translation of John of Limoges, who was abbot of Zirc (1208-1218) before becoming prior of Clairvaux. Drawn with time increasing verticall, monasteries aligned horizontally were founded at approximately the same time.*

and agricultural and industrial technologies from west to east.[39] Romhányi describes how "all monasteries but three were situated on main commercial routes such as the most important waterways or the road used since ancient times."[40] Proximity to trade networks would have encouraged the Cistercians to manufacture finished goods. Archaeological investigations uncovered a water system at Pilis that is similar in its design to that of Fontenay.[41] Water power could have been used, as it was elsewhere, to power bellows in blast furnaces. Egres was connected with the salt trade. Zirc and Cikádor received incomes from tolls.[42] Pásztó was in a market town and the patron of the parish church, St. Nicholas, was connected to long distance trade. The economic network in which the monasteries were established hints at relations with suppliers, financiers, and traders for raw materials and finished goods. By the time of their arrival in Hungary the Cistercians had become financiers and could have been valuable agents in a burgeoning economy. If the Cistercians

[39] For a study of the economic basis for Cistercian foundations in Hungary see Romhányi, "The Role of the Cistercians:" 181-199.
[40] Ibid., 184.
[41] Ibid., 188.
[42] Romhányi, "The Role of the Cistercians:" 185.

were not used as colonizing assets as they were elsewhere to introduce agriculture into unpopulated regions, they could have been used by the Hungarian kings as a stimulus to regional economy. King Béla III could then have taken advantage of the extant network to which they belonged to strengthen the economy of his kingdom. After having outlined the growing social networks related to the invitation of the Cistercians, I will now describe the Hungarian network with an emphasis on the filial connections between abbeys (Figure 10).

During the reign of King Emerich (1196-1205) and King Andrew II (1205-1235), seven foundations were made: Bélakút (1232), Bél (also known as Gotó) (1234), Esztergom (1200), Kerc (1202), Pornó (1221), Savnik (1216), and Ercsi (1253).[43] Of these foundations, which spanned a period of four decades preceding the Mongol invasion, Bélakút and Savnik were founded by sons of King Andrew, Kerc was supported financially by the king but was a daughter abbey of Egres, while the remaining four abbeys can be considered clan or family foundations.[44] Among these only Savnik, suggests evidence of colonization. This abbey was subordinate to Wąchok (1179) in the line of Morimond and may have been connected with the north-south mining trade. Kerc was founded the furthest from the others, in present day Romania, a daughter of Egres. Kerc was unique among the others in that it was the only late foundation supported financially by the king.

This foundation would have increased the trade network which Béla III had expanded earlier by relying on the Cistercian network. Scholars have noted that Kerc lay adjacent to a trade route that connected Transylvania with the Balkans and led to Constantinople. This abbey, though situated in a heavily forested area, was eager to take part in long distance trade.[45] It may have traded with Hermannstadt (Sibiu, Nagyszeben), a town in close proximity at a distance of 35 km and one of the major towns of the Saxons. After the abbey's dissolution all of its estates and belongings were given to the town. Kerc can be considered an asset in Béla IV's economic plan, although a general expansion plan seems to be missing from the later Hungarian foundations, which occurred under various circumstances. One further note: Hungarian kings relied upon the abbots as foreign diplomats, particularly

[43] See Hervay or Romhányi for details of the circumstances of these foundations. My purpose here is to deal strictly with the connections to broader social and economic networks; to deal with each foundation individually lies outside the scope of this study.

[44] Romhányi, "The Role of the Cistercians:" 182.

[45] Romhányi, "The Role of the Cistercians:" 183.

the abbot of Pilis, who often functioned as an envoy of the king abroad.[46] To this general picture mention of a key individual must be added – John of Limoges, who was transferred along filiation lines from Clairvaux and made abbot of Zirc (1208 to 1218). John of Limoges was arguably one of the most influential personalities in Hungary at the beginning of the thirteenth century, suggested perhaps by his appointment as prior of Clairvaux when he left Hungary. This was an important position in the Cistercian network because the abbot of such an influential house would likely often have been called away on business and the prior would remain behind with de facto control over a numerous population of monks. Intelligent, pious abbots could reform a lax monastery.

I have shown how the Hungarian foundations formed relationships with resource-rich Burgundy with the local support of ecclesiastical and economic networks. The Clairvaux line is characterized by a pattern of long-distance, radial links and a number of these terminate in the Hungarian kingdom, where the monks were welcomed for over a century. In this way, a regional case study helps to explain the patterns visible at the continental level.

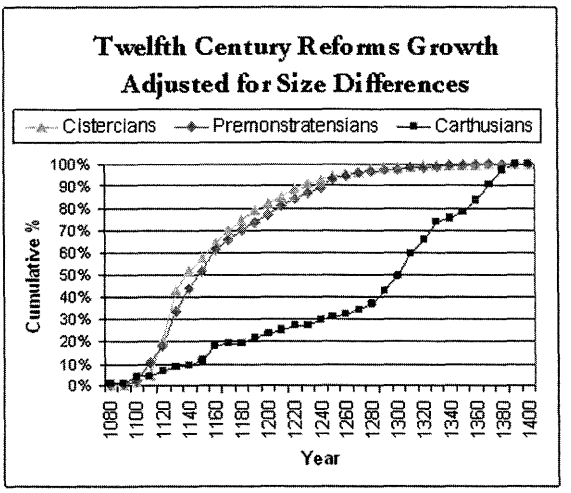


*Fig. 11. The curves are adjusted to factor out differences in the size of monasteries. The Cistercians and Premonstratensians grew earlier and shared similar growth curves, while the Carthusian growth was protracted over some three centuries. These estimates do not include closures or dissolutions.*

[46] Romhányi, "The Role of the Cistercians:" 193.

## Conclusions

Constance Hoffman Berman minimized the role of networks in her monograph *The Cistercian Evolution*, arguing that the reform, even by the 1160s, was still a collection of haphazard associations not necessarily uniform in practice. However, the temporal and spatial patterns in the landscape present evidence to the contrary. The sheer volume of coordinated growth suggests classifying the reform as a network. Regardless of whether the expansion was deliberately planned at Cîteaux, there was a surge in monastic foundations nonetheless, and the sheer volume suggests evidence that the network was functional and integrated.