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THE NOBILITY NETWORKS OF THE ROYAL CISTERCIAN ABBEY OF CHAALIS IN THE YEARS 1180–1184 AND 1223–1234

Laurent Nabias

This article comes out of research conducted as part of the RECIMA program (Reseaux CIsterciens au Moyen Âge) and discusses the concept of networks as applied to the Cistercian Order. Did a Cistercian network exist? I am not interested here in thinking about networks as metaphoric models, but rather in a quantitative reconstitution of the network of the Cistercian abbey of Chaalis. So, this article will ask: what were the nodes of this network, the nature of the nodes, and their relative centrality? What were the links, and what was the nature of these links and their rules? Furthermore, it will explore whether we can apply this network concept within the institutional hierarchy of the Cistercian Order, or whether it is better suited to evoking the place of the order in the local social network of ecclesiastical and seigneurial powers.

The case study presented here formed part of the research conducted for my PhD, which revealed the shortcomings in existing studies of the relationships between the religious orders – especially the Cistercians – and the nobility residing in the Île-de-France region. To remedy this, the present article studies the complex relationships between the monastic community of the royal Cistercian abbey of Chaalis (near Paris) and individuals outside of the order. The latter are mainly members of the French nobility, either office holders and vassals of the king of France or members of the royal court, but also other ecclesiastical communities, village communities, and even commoners. Using network analysis, this research highlights collaborations between a Cistercian abbey and individuals and groups outside of the institutional hierarchy of the order; it also emphasises the priority that the French nobility from the medieval 'Île-de-France' gave to the Cistercian Order in their strategies of religious beneficence, hoping to gain the support of the order in return for their dominion over people and lands. As indicated by the title, this study covers the years 1180–1184 and 1223–1234. Initially, I had hoped to collate mentions of relevant actors and relations in the numerous documents of the

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¹ Laurent Nabias, "'Pour lui aider à soustenir son estat': Marriages, Strongholds, Networks, Clientelism and Factions in the Former Nobility of the Île-de-France Region from Philippe Auguste to Charles VII (1180–1437)", (PhD dissertation, University of Nanterre 2016).

² The current Île-de-France is one of the thirteen regions of France centered on Paris and the basin irrigated by the Seine and its tributaries. The medieval Île-de-France, for its part, more or less, corresponds to the old medieval province of France or to its march of arms, that is to say to the small Île-de-France between Seine and Oise, and bringing together the countries around Paris. See for its history, Marc BLOCH, "L'Île-de-France (les pays autour de Paris)" in *Mélanges historiques*, Paris 2011, p. 675-787.

Chaalis cartulary dated between 1180 and 1250, and to use this broader time frame to construct the network. However, due to numerous circumstances, including the Covid-19 pandemic and a digital library failure, the 1180–1250 period that was part of the original research programme has been reduced to two periods: 1180–1184 and 1223–1234. Nevertheless, these time frames still provide sufficient mentions of actors and relations in the cartulary from which to build and analyse the network

This article begins with an introduction to the historical context and location of the royal abbey of Chaalis, and to the relevant sources. The middle section will then study the methodology used in building and analysing the network, the ontologies in the charters, the processing of storage in the database, and a discussion of these ontologies. This article ends by examining the results of the network analysis and interpretations of them.

I. HIERARCHY INSIDE OR OUTSIDE THE CISTERCIAN ORDER? MONKS AND LORDS IN THE MEDIEVAL ÎLE-DE-FRANCE REGION

The abbey of Chaalis was founded in 1137 and affiliated to Pontigny Abbey, one of the four oldest daughters of Cîteaux. The abbey is located around 40 km to the north of Paris, in the north of the medieval region of Pays de France, next to the royal city of Senlis (Fig. 1). The abbey is divided into different close and distant granges worked by lay brothers near Compiegne or Beauvais. Many of its relationships were created by and dependent on the institutional hierarchy of the Cistercian Order, and these can be observed in the exchange of manuscripts.³ Thomas Falmagne has studied both Cistercian and local networks⁴ in his examination of the Cistercian circulation of manuscripts, although he did not employ mathematical network analysis in his research. He asked, where did these Cistercian and local routes intersect, and where were there moments of exchange? How were resources shared between the scriptorium and library in the Cistercian network and their local environment, and what were the relationships that linked them to their locality? We are yet to fully unravel the mesh of the cultural fabric in which Cistercian abbeys in medieval France existed; we await the reconstruction of the hierarchies between the different cultural centres, inside and outside the order. Falmagne proposed the integration of the Cistercians into the regional network of the archbishop of Reims and the diocese of Liège, to see whether the network of relationships surrounding a Cistercian abbey depends more on geographical proximity or statutory

³ René LOCATELLI, "Les Cisterciens dans l'espace français : filiations et réseaux," in *Unanimité et diversité cisterciennes. Filiations, réseaux, relectures du XII^e au XVII^e siècle. Actes du quatrième Colloque international du C.E.R.C.O.R., Dijon, 23-25 septembre 1998, ed. Nicole BOUTER (Travaux et recherches. Centre Européen de Recherches sur les Congrégations et Ordres Religieux; 12), Saint-Etienne 2000, p. 51–85 (p. 64–65).*

⁴ Thomas FALMAGNE, "Le réseau des bibliothèques cisterciennes au XII^e et XIII^e siècles," in *Unanimité et diversité cisterciennes*, ed. Nicole BOUTER, p. 201–206.

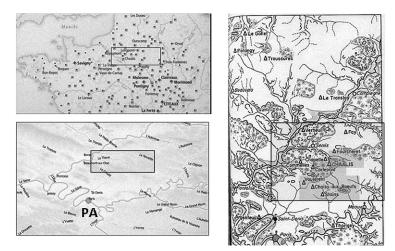


Fig. 1. Chaalis Abbey and its local area.

affiliation. Indeed, relationships induced by the institutional hierarchy, for example, the concerns of the members of the General Chapter, anxious to avoid anarchic or uncontrolled expansion and to ensure a balance between the various decision-making bodies and to maintain unanimity within the Order⁵, are distinguished from other relationships, such as local ones that escape this logic, which are named extra-institutional relationships. The Cistercians were never cut off from the world, but their networks in the Middle Ages and even modern times are still not well understood ⁶

The importance of cooperation between monks and laymen in the constitution of 'monastic networks' has already been emphasised in previous research. Feudal and kinship relations in aristocratic circles were also important to the creation and functioning of monastic networks: they generated the aristocratic solidarities necessary for the endowment of resources for the foundation of an abbey and its economic expansion. They furthermore provided the benefactors who would favour the abbey and the men who would populate it, namely the abbots and monks who came from this same milieu.

Links and connections between the abbey of Chaalis and lords in the medieval Île-de-France region began in 1110 with the foundation of a Benedictine priory by a local aristocrat named Guillaume of Mello. Then, in 1137, the royal abbey of Chaalis itself was founded by King Louis VI and members of the local highest aristocracy: Guillaume le Loup le Bouteiller de Senlis, bottler of the king, and

⁵ LOCATELLI, "Les Cisterciens dans l'espace français," p. 67.

⁶ Anne-Marie Turcan-Verkerk, "Avant-propos," in *Les cisterciens et la transmission des textes (XII^e-XVIII^e siècles)*, ed. Thomas Falmagne, Anne-Marie Turcan-Verkerk and Dominique Stutzmann, Turnhout 2018, p. 7–17 (p. 13).

Manasses de Bulles, Earl of Dammartin. For his new foundation, Louis VI brought monks from the abbey of Pontigny. The foundation was then confirmed by Saint Louis in 1258. Some of the information included by his biographer, Guillaume de Saint-Pathus, gives a sense of his attraction to the Cistercian life at Chaalis. Even though Saint Louis had a special affection for beggars, he observed the actions of the monks with passion. At Chaalis, when he was given better food than the monks, he made a monk take his silver bowl and in return received a wooden bowl with worse food. Among the main witnesses to his canonisation process, including Pierre de Chambly, Simon de Nesle and Jean de Joinville, were the Cistercian abbot of Chaalis. A miracle was reported that related to the abbey: a Cistercian of Chaalis was cured of a pain that went from his head to his back and loins by putting on a cloak that the saint had given to the abbey.8 But the central role played by the local nobility – and not just the king – in supporting Chaalis is seen in the chapel of the abbey, where numerous coats of arms of the abbey's neighbours decorate its walls. Chaalis was thus a royal abbey, supported by the kings of France throughout this period, which also had deep and ongoing links to important local families

II. INTRODUCING THE CHAALIS CARTULARY

1. The Cartulary

The abbey produced one exhaustive medieval cartulary, and other copies and fragments.⁹ The research presented here relies on this medieval cartulary, now preserved as Paris, Bibliothèque Nationale de France, MS Latin 11003 (Fig. 2). It dates from the fourteenth century, with fifteenth- and sixteenth-century additions. This volume of 392 folios contains mainly a set of notices classified by grange. In total, there are 1700 charter notices, dating from 1021 to 1484.

Alongside the cartulary, the individual original charters which are copied or summed up within it were consulted. These are now located at the Oise departmental archives, or else in the twelve-volume compendium of charters conserved at the abbey of Chaalis. ¹⁰ In some cases, the original charters provided additional information when compared with the version copied into the cartulary, such as

⁷ Guillaume de Saint-Pathus, *Vie de saint Louis*, ed. Henri-François Delaborde, Paris 1899, p. 109.

⁸ Jacques Le Goff, Saint Louis, Paris 1996, p. 853–854.

⁹ See the list in the CartulR database, https://telma-repertoires.irht.cnrs.fr/cartulr/notice-personne/ 1560

¹⁰ Stored at the Institute de France-Royal Abbey of Chaalis – Jacquemart-André Museum, the first five volumes concern the domains of Fontaine and Fourcheret, while the other seven concern the domains of Tranloy and Froyères. In each volume, following the title, there is a numerical MS directory with an analysis of the documents formerly contained in each volume, many of which are now missing. All these documents, many with seals hanging from them, are attached to a sheet of paper and on the back of the previous sheet is repeated the analysis of each document. See http://www.calames.abes.fr/pub/#details?id=IF3040001.

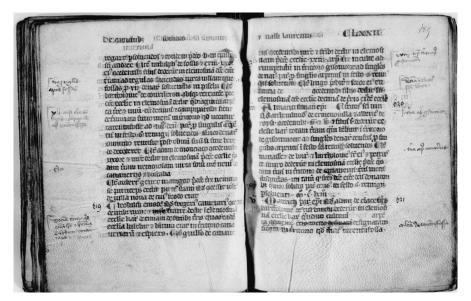


Fig. 2. The Chaalis cartulary, BnF ms Latin 11003.

kinship relationships; these extra details were crucial to constructing the network. We attempted to examine the original copies in these cases, although this was not always possible, due to difficulties accessing the physical archive during the Covid-19 pandemic. To manage these difficulties, we used images of the copies of these originals made by Abbot Afforty in the eighteenth century. Afforty was appointed by Louis XV as "Commissioner for the Research of the Charters of the Kingdom" and spent most of his life copying the charters, titles, and archives for the diocese of Senlis. In half of the volumes he produced, the copies are arranged according to the abbey that produced them, whilst volumes XIII–XXV contain copies of charters from 948 to 1546, arranged chronologically.¹¹

The individual charters in the Chaalis cartulary record numerous donations to the abbey, or allocations of tenures or fiefdoms. These mentions of people and land make visible the vertical links of economic or vassal dependency in which the abbey was implicated. The process of land alienations formed a zone around the abbey where all the actors had common interests. The land establishes a link between the one who has it and the one who exploits it, and then a society is built which contributes to social and politic stability.

¹¹ "Manuscrit Afforty. Collectanea sylvanectensia, vol. 1–21", *L'Armarium*, Senlis, Bibliothèque municipale, [Online] https://www.armarium-hautsdefrance.fr/document/51166, accessed on 03/10/2022. The period between 1240/1241 and 1269/1270 is missing.

2. Methodology

There were several methodological considerations in conducting this research. The first relates to the source of data for this study – the cartulary and charters. As Anna Collar said in the Connected Past conference, ¹² we should not deplore the quality of our medieval data because of a lack of documents. We must instead challenge ourselves to develop a new field of research by focusing on new methods, and we must avoid thinking that "uncertain sources cannot be made into knowledge with the assistance of the computer", ¹³ although we must be precise in identifying the gaps and biases in our data. Keeping this in mind, in our context this problem of limited data can be avoided by studying a global source (the cartulary) with serial chronological data, and with only a few gaps. The data from the cartulary was furthermore augmented for this study by the other charters, as outlined above.

Secondly, the diplomatic corpus presents a heterogeneity of complex social and political interpersonal relationships that are different in nature. This diversity of the sources used to reconstruct the life trajectories of the actors of the charters implies the recording of several categories of links, forming an ontology described in the third section below. Each category of link is then represented on a network subgraph. These networks of links of different natures (the layers) are then superimposed on the same graph. We then speak of multiplexed graphs, coupled networks, networks of networks, or multi-layer network approach, well described in another study for an earlier period. The interest lies in the observation of the coupling of simple networks, to know the relative influence of each type of link in the global network. Here, instead of using the methodology of De Valeriola's study, as explained below, we compare then the centralities between simple and coupled networks and interpret the comparison.

Thirdly, the shape of the network may depend on the written practices of the charters, which differ across the time period under consideration here. Indeed, around the end of the twelfth century, there are long lists of witnesses and large numbers of kinship relations which validate the charters. In the years 1230–1250, on the contrary, the charters contain an important but more limited list of relationships. So, the evolution of written practices leads to knowledge of different aspects of the networks in which the abbey of Chaalis was implicated.

¹² Anna Collar, Tom Brughmans, Fiona Coward and Claire Lemercier, "Analyser les réseaux du passé en archéologie et en histoire," *Les nouvelles de l'archéologie* 135 (2014), p. 9–13.

¹³ Jennifer EDMOND, "Managing Uncertainty in the Humanities: Digital and Analogue Approaches," in *TEEM'18: Proceedings of the Sixth International Conference on Technological Ecosystems for Enhancing Multiculturality*, New York 2018, p. 840–844 (p. 844).

¹⁴ Sébastien De VALERIOLA, Nicolas RUFFINI-RONZANI, and Étienne CUVELIER, "Dealing with the Heterogeneity of Interpersonal Relationships in the Middle Ages. A Multi-Layer Network Approach," *Digital Medievalist* 15:1 (2022), p. 1–28.

III. THE ONTOLOGY OF RELATIONSHIPS BETWEEN INDIVIDUALS AND ENTITIES, AND THE DATABASE STRUCTURE

The principles of the storage of information about the network rely on the information recorded by the charter, the primary reference which cites individuals or entities, and interactions or relationships between them. So, the recording of texts in the relational database is based on the fundamental principle that it is the documentary object itself which constitutes the primary reference. 15 The personal, individual links forged during these "biographical events, these brief moments frozen by the documentation" are thus found in the sources in the form of traces. The visible relationships link the community of "abbas et conventus ecclesiae Karoliloci' - the members of the royal abbey of Chaalis of differing status (abbot, monks and lay brothers) grouped inside the closed monastic community – to individuals external to the order. These include religious persons from other orders, dependant peasants, bourgeois, nobles, and even members of the royal court. In other charters, the abbot and monks are nominally cited as individual witnesses of the charter. These relations illustrate the influence of different groups acting on individuals as well: "Individual acts within multiple frameworks are influenced by many constraints which weigh on [the individual's] action. The idea also persists that individual action is inscribed within groups."¹⁷ The observation of individual and not just group existences leads to a reflection on the fields of individual action and social relations, in the fields of interactionist sociology.

1. Ontology-based relational information system

First, the question must be raised of the recording and processing of this relational data. Recording the data requires the setting up of an ontology of actors and social interactions, following the work of the sociologist Michel Grossetti. ¹⁸ He proposed a robust ontology and a division of the objects of study of the social world between individuals with multiple identities on the one hand, and collectives or entities on the other hand. He also referred to instrumental and coordination resources used as issues, constraints, or objectives in these interactions, as, in this context, economic and natural entities such as land and territorial kinships. A relational ontology then describes interpersonal conflicts, networks of power through

¹⁵ Pascal Cristofoli, "Aux sources des grands réseaux d'interactions," *Réseaux* 152:6 (2009), p. 21–58.

¹⁶ Isabelle Rosé, "Reconstitution, représentation graphique et analyse des réseaux de pouvoir au haut Moyen Âge. Approche des pratiques sociales de l'aristocratie à partir de l'exemple d'Odon de Cluny († 942)," *Redes: revista hispana para el análisis de redes sociales* 21 (2011), p. 199–272 (p. 208–209).

¹⁷ Jean-Pierre Dedieu, "Les grandes bases de données. Une nouvelle approche de l'histoire sociale. Le système Fichoz," *Revista da Faculdade de Letras. História*, 3:5 (2004), p. 101–114 (p. 105).

¹⁸ Michel Grossetti, "Quelle est la matière du monde social? Un essai d'ontologie robuste," in *Sociétés en mouvement, sociologie en changement,* ed. Marc-Henry Soulet, Québec 2018, p. 251–273.

feudalism, power over men, and the exploitation of natural resources such as land, through the extension of domains by purchases, sales, exchanges or donations. The analysis of these conflicts and relationships shows the power wielded by different local actors and the abbey, each in search of expansion of its domain and seigneurial rights. The question then is: how should we record individuals, individuals/entities (human group leaders) or entities/collectives, which constitute the nodes in the network, and their relationships, which are the network edges, in the database structure? How should we deal with these connected individuals and entities, as individuals within a secular or religious administration entity, and as individuals within patrilineages? And how should we establish methods for analysing such multiplex networks involving diverse links and nodes?

Then let us consider the ontology of the actors, which are classified into two categories. The first category is represented by individuals – nobles and non-nobles – of the local Île-de-France society, recorded with their attributes in the database in the individual table, IND_individual, which contains the list of actors and their attributes. The attribute data of individuals consists of their baptismal name, patrilineal name, nickname, coat of arms, their status or title, the formula used in the charters (noble of royal or princely family, of high, medium or low nobility, bourgeois, without quality) and whether they were described as a layman or cleric, alongside the date of the first and last mention of them in the texts, and their approximate, estimated or definitive dates of birth and death.

But individuals are not the only actors represented in the database: "There is hardly any action in which the individual does not act according to a link, either with another individual or with another collective." 19 Thanks to this link, which defines the concept of relationship: "At any given moment, the actor exists only through the link that binds him to the other, whether it is a legal person or a group."²⁰ Therefore, individuals – our first category of actors – interact with the second category of actors, called collective actors or entities. These are recorded in the ENT entities table, as religious establishments, and regular, secular and ecclesiastical courts, but also public establishments (town, communities of inhabitants), or institutions, whether they are secular, like administrations or princely hotels, or religious, like monasteries or abbeys, including Chaalis Abbey. The distinction may also be made between relationships between individuals, relationships between individuals and entities, and those between entities. The historical context is important here. At the end of the twelfth century, bishops as individuals were designated as validators of the charters. At the beginning of the thirteenth century, they were replaced by representatives of officiality, who have no special name and are understood as legal personalities. Thus, the nature of the relationship changes, and the network too, as we decided not to schematize the social network between the abbey and other entities (such as other abbeys) at the beginning of the study.

¹⁹ Dedieu, "Les grandes bases de données", p. 107.

²⁰ Ibid.

In terms of interpersonal relationships, each person is linked in many ways – formal or informal, exclusive or not, ephemeral or more durable, assured or uncertain – to other entities, individuals, collectives or resources of all kinds, that can take on the status of instrumental resource, coordination resource, or constraint or stake. The degree of the relationship is more or less strong (especially in cases of conflict or opposition). However, weak ties should not be neglected in constructing a network, according to Granovetter: they allow contact with more people from different backgrounds and thus increase the resources available.²¹ The strength of the link is determined by four criteria: emotional intensity, intimacy and therefore trust, frequency of interactions (temporal dimension), and finally the importance of the services exchanged. An ontology of interpersonal or individualresource relationships can then be drawn up according to their characteristics and, above all, their nature. These relationships illustrate the groups of influence which act on the individual, and vice versa.

The existence of interactions and entities raises above all questions of medieval relational practices, linked to the elaboration of an ontology of medieval social interaction. In other words, there is a choice of categories to name both interacting collectives and social relations, which we must make while avoiding anachronisms. Michel Grossetti's²² ontology of entities classifies them into individuals, collectives and resources. To do this, a dictionary of interpersonal relationships needs to be developed, and a typology of relationships needs to be defined. As J. P. Dedieu states about the Fichoz system, "The database requires the elaboration of a general syntax of relations which constitutes in itself a research programme in its own right". 23

An individual can assume multiple identities, continuously hold a predefined role or deviate from it and create unpredictability, hence the importance of the temporal scale. Among the collectives, we can classify abbeys. Michel Grossetti also mentions other entities, resources, whether economic and natural such as land and land royalties, but also cultural goods such as circulating manuscripts, and symbolic or cognitive resources such as ideas, knowledge, liturgical traditions, and architectural know-how. A collective is defined by the resources shared by all its members, and by them exclusively. We therefore studied relationships between individuals themselves and recorded them in the table RLI relation individual (Fig. 3). The relationships of the abbey-collectives already constituted within the Cistercian order, or the relationships between abbey-collectives and individuals, are recorded in the table RLE relations entities (Fig. 4).

²³ Ibid.

²¹ Mark S. Granovetter, "The Strength of Weak Ties", American Journal of Sociology, 78:6 (1973), p. 1360-1380.

²² GROSSETTI, "Quelle est la matière du monde social? Un essai d'ontologie robuste," p. 251–273.

Individual number	1803					
First individual	MOUCHY	Ermentrude				
	MOUCHY	Eve		11620000	11950000	
	MOUCY	Jeanne				
	MOUCY	Philippe		12310900	12310900	
	MOURET	Marie		12950000	13060000	
Second individual	BAILLI	Symon		12310900	12310900	
	BAILLI	Yves		12310900	12310900	
	BALAIGNY	Guillaume				
	BAR	Edouard	1	12970000	13361100	
	BAR-DAMMARTIN	Clémence		11380000	11830120	
	Transaction witness Investiture witness Holds a fiefdom of					
Date of beginning	12310000					
Date of end	12310000					
Description	Philippe de Moucy had held a fief of two arpents from Symon de Bailli before 09/1231.					
Indexed reference	H 5269 (1231)					
Sources / Bibliography	Archives of Oise department, H 5269 (acte de 1231) Cartulary of Chaalis, BnF. Ms. Latin 11003, fol. 167 n°596					
Reliability	5					

Fig. 3. Record of a relationship between two individuals, Philippe de Moucy and Symon de Bailly.

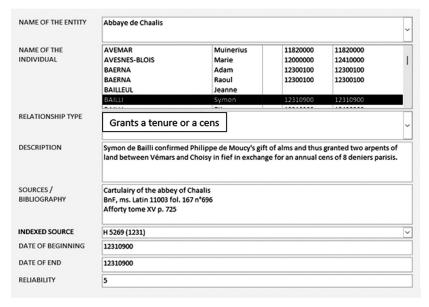


Fig. 4. Record of a relationship between an entity (the abbey of Chaalis) and an individual (Symon de Bailly).

2. The nature of the relationship

A dyadic relationship between two people, or between a person and a collective sharing the same resource, known as coordination, can be the result of several relational categories at a more or less fine granularity. Two aspects in this typology of links must be considered: their potentiality and the durability of the relationship. What is the potential of an identified link between two individuals to become a lasting or ephemeral relationship? Or, in other words, what is the social (or future economic exchange generating) potential of a link? Importantly, when considering this question, the study of network dynamics allows us to examine the evolution of the network structure over time. It distinguishes between ephemeral links (economic exchanges, charter testimonies) and more structural links, such as kinship ties.

It is therefore important to specify the typological dictionary of social ties, and so here I lay out a few ontologies based on parental, juridical, economical, and feudal categories. These are implemented in the database according to specific tables which contain these elements of this typology of established relationships, named type tables, associated to RLI_relation_individual or RLE_relations_entities. In the following, I will illustrate my explanations with elements of table type TYP_id_0 which contains the dictionary of ontology. The advantage of the structure of this type of table is its open and dynamic nature, it can be continuously enriched, offering the user a scrolling menu of relationship types that are continuously enriched when a new type of relationship is observed in the sources, without having to modify the overall structure of the database.

Firstly, the Chaalis cartulary and the charters describe relationships of kinship, friendship, collegiality or neighbourhood. Kinship relations may be divided into alliance, consanguinity and spiritual kinship (Table 1). An ontology of economic relations, composed of donations – as opposed to non-merchant and merchant exchanges, following Florence Weber's works²⁴ – may be built. Economic transfers described by the donation structure scheme,²⁵ have previously been studied by a group of historians and philosophers, as seen in the works of Alain Testart and Marcel Mauss.²⁶ In the present research, following François Athane, we distinguish four subgroups of economic transfer: gifts, market exchanges like sales, non-market exchanges, and predatory acts. A gift is defined as "a transfer that is not due and whose counterpart is not due either".²⁷ If a counter-gift is required, then the first transfer is not a gift. Alms are not gifts. The exchange is a transfer due, and the counterparty is also due. If someone makes a transfer of property to another, renouncing their ownership, the transaction is no longer a gift, but instead

²⁴ Florence Weber, "Transactions marchandes, échanges rituels, relations personnelles. Une ethnographie économique après le grand partage," *Genèses* 41 (2000), p. 85–107.

²⁵ François Athané, *Pour une histoire naturelle du don*, Paris 2011.

²⁶ Alain TESTART, Critique du don: études sur la circulation non marchande, Paris 2007; Don et sciences sociales: théories et pratiques croisées, ed. Eliana MAGNANI, Dijon 2007.

²⁷ TESTART, Critique du don, p. 56-57.

KINSHIP RELATIONSHIPS			
YP_id_0	TYP_group	TYP_subgroup	TYP_lib
1	KINSHIP	inbred	father
2	KINSHIP	inbred	mother
3	KINSHIP	inbred	brother
4	KINSHIP	inbred	sister
5	KINSHIP	marriage	husband
6	KINSHIP	marriage	wife
7	KINSHIP	inbred	son
8	KINSHIP	inbred	daughter
9	KINSHIP	marriage	witness marriage
10	KINSHIP	Spiritual	godfather
11	KINSHIP	Spiritual	godmother
12	KINSHIP	Spiritual	godson
13	KINSHIP	Spiritual	goddaughter
14	KINSHIP	Spiritual	baptism witness

ECONOMIC TRANSFERS RELATIONSHIPS

TYP_id_0	TYP_group	TYP_subgroup	TYP_lib
40	TRANSFER	wages	life annuity contract
44	TRANSFER	exchange	direct exchange for good
45	TRANSFER	exchange	direct exchange for money
46	TRANSFER	donation	money donation
47	TRANSFER	donation	gift of good
48	TRANSFER	predation	money theft
50	TRANSFER	renting	tithe seizure
55	TRANSFER	exchange	counter-donation
56	TRANSFER	exchange	exchange return for good
57	TRANSFER	exchange	exchange return for money
59	TRANSFER	spiritual	Payment of the quint denier
84	TRANSFER	transaction	grants a donation with reward

FEUDAL VS CLIENTELISM RELATIONSHIPS

TYP_id_0	TYP_group	TYP_subgroup	TYP_lib
16	VASSELAGE DEPENDANCE	Lordship	holds a fiefdom of someone
18	VASSELAGE DEPENDANCE	Lordship	invests someone with a fiefdom
21	VASSELAGE DEPENDANCE	Lordship	restores a fiefdom
22	VASSELAGE DEPENDANCE	Lordship	confiscates a fiefdom
58	VASSELAGE DEPENDANCE	Lordship	holds a tenure or a fiefdom of someone
78	VASSELAGE DEPENDANCE	Lordship	confirmation of sale

15	VASSELAGE DEPENDANCE	Feudal oath	witness of feudal charter
17	VASSELAGE DEPENDANCE	Feudal oath	vavasseur
19	VASSELAGE DEPENDANCE	Feudal oath	investiture witness
20	VASSELAGE DEPENDANCE	Feudal oath	to give confession and homage
JURIDICAL RELATIONSHIPS			
28	JURIDICAL RELATIONSHIP	Transaction	validates and confirms a transaction
43	JURIDICAL RELATIONSHIP	Transaction	witness of transaction
81	JURIDICAL RELATIONSHIP	Transaction	confirms a donation with return payment
82	JURIDICAL RELATIONSHIP	Transaction	sworn faith of protection against others
85	JURIDICAL RELATIONSHIP	Transaction	concede an exchange
80	JURIDICAL RELATIONSHIP	Civil agreement	validates a civil agreement
71	JURIDICAL RELATIONSHIP	Civil agreement	witness of civil agreement
76	JURIDICAL RELATIONSHIP	Juridical conflict	co-arbitration of a dispute outside parliament

Table 1. TYPE Table of relationships

an exchange in the economic sense of the term. Formed by two transfers, each being the counterparty due from the other, there is no exchange of gifts. There are also two other types of exchange, agreed or not. First, the T3T, named the Transfer of the Third Type, is when the transfer is required, often juridically, but the counterpart (the transfer in return) is not due, for example, taxes, chores, tribute, pensions, or allowances. Finally, predation consists of demanding transfers that are not required otherwise, generally by violence (see Table 1).

Concerning relationships of dependence, three main types of dependency relationships are identified: vassal-like relationships (Table 1), wage-earning type relationships that are part of a bastard feudal system, and client relationships. We speak of bastard feudalism when the links between lords and vassals are replaced by personal contracts between master and servant, with the indication of a salary to be paid in exchange for rendered services.²⁸ As for the client relationship, Testart defines this term as "a relationship between two individuals, a boss and a client, engaged in a voluntary, non-legal way, and maintained for the benefit of both parties, who proceed to an exchange of gifts." As we have already indicated, the gifts are not due: "if they could demand it, it would no longer be a customer relationship but a relationship of a different nature: a contract, possibly a contract

²⁸ The notion of bastard feudalism was first developed by Kenneth Bruce McFarlane, "Bastard feodalism," *Bulletin of the institute of historical research*, 20:61 (1945), p. 161–180. See also Olivier Mattéoni, "Société contractuelle, pouvoir princier et domination territoriale: Jean I^{et} de Bourbon et la noblesse d'Auvergne," in *Institutions et pouvoirs en France: XIV^e-XV^e siècles*, ed. Olivier Mattéoni, Paris 2010, p. 82–119; *Avant le contrat social: le contrat politique dans l'Occident médiéval, XIII^e-XV^e siècle*, ed. François Foronda, Jean-Philippe Genet and José Manuel Nieto Soria, Paris 2011.

of exchange or a vassalage relationship".²⁹ However, individuals enter into a patronage relationship with a patron, or integrate a patronage,³⁰ expecting something from it: a sum of money, a fiefdom advantage, support for the acquisition of a position, or ascension to a higher position, even if they cannot demand anything. These gifts and counter-gifts, intrinsic to the client relationship, are necessarily self-serving.

At a time when royal sovereignty had not yet superseded suzerainty, the first to use the services of older nobles was the king of France, even though he was not their direct lord. For the king, giving was a way of bringing the lords into his own clientele. The meaning of the client relationship differs from that of the contract. The client relationship depends on the social sphere of gift and counter-gift, and deviates from the meaning of vassalage. While both feudal and client bonds are bonds of personal dependence, based on the commitment of the individual to his lord or patron, there is one essential difference: the clientage bond is informal, while the bond of vassalage is sworn.³¹

The deeds of practice contained in the Chaalis cartulary also often refer to juridical relationships. Arbitrations, agreements and informal conciliations form a first type of social interactional mechanism on the legal level. The conciliation largely persisted even when the judicial power of the centre increased. Kings and princes integrated this practice into the formalised official mechanisms of conflict resolution, while seeking to limit penal transactions. The notion of conciliation can cover several mechanisms, including informal agreement and transaction arbitration. Two ideal types are frequently encountered: actual arbitration, where arbitrators make a decision according to learned law or custom, and the less formal "amicable composition", where arbitrators provide a solution to the dispute. Much remains to be done in the study of pacification procedures, of arbitrators, and of the whole world of related social mechanisms. Arbitration practices were part of local social relations, and they reflect the play of social, administrative and charismatic legitimacies.

²⁹ Alain TESTART, "Clientèle, clientélisme, évergétisme et liturgies," in Clientèle guerrière, clientèle foncière et clientèle électorale. Histoire et anthropologie, ed. Valérie LÉCRIVAIN, Dijon 2007, p. 223, 228

³⁰ Following Jan Dumolyn, "patronage is a socio-political relationship based on personal relations between unequal bodies: rulers (patroni) and their subjects (clients), who can offer each other something", Jan Dumolyn, "Les réseaux politiques locaux en Flandre sous la domination bourguignonne: les exemples de Gand et de Lille," *Revue du Nord*, 365:2 (2006), p. 309–329 (p. 310, 311).

³¹ Valérie LÉCRIVAIN, "Le rapport de clientèle dans la perspective comparative" in *Clientèle guerrière*, ed. Valérie LÉCRIVAIN, p. 13-31 (p. 22).

³² Nicolas Offenstadt, "Interaction et régulation des conflits. Les gestes de l'arbitrage et de la conciliation au Moyen-Âge (XIII°-XV° siècles)," in *Les rites de la justice : gestes et rituels judiciaires au Moyen Âge*, ed. Claude Gauvard and Robert Jacob, (Cahiers du Léopard d'or 9), Paris 2000, p. 201–228.

³³ On judicial investigations, *L'enquête au Moyen Âge*, ed. François BOUGARD, Jacques CHIFFOLEAU and Claude GAUVARD, (Collection de l'École française de Rome 399), Rome 2008. See also Marie DEJOUX, *Les enquêtes de saint Louis: gouverner et sauver son âme*, Paris 2014.

³⁴ Jean-Claude SCHMITT, La Raison des gestes dans l'Occident médiéval, Paris 1990.

Finally, a third type of interaction is also visible in the cartulary. It is often brief or ephemeral, and is found especially in deeds, which list witnesses or signatories and validators. If interactions between the same individuals listed in the deeds are repeated in other sources, it is possible that their repeated interactions developed into a lasting relationship, the nature of which, however, remains to be defined.

The ontology of possessions may also be interesting to study. It is linked to different types of property or royalties, following the typology given by Joseph Morsel.³⁵ A reflection on this topic, which will not be developed here, should include the table of cultural goods and their mode of distribution in both the table of possessions and the table of relations between individuals and possessions. In this way, the transmission of books, knowledge, and architectural know-how could be studied; although I did not find information concerning these types of possessions in the Chaalis cartulary, it is possible that they could be studied in the context of the networks of other religious houses.

A final ontology that had to be managed for this project was the relationships created during an individual's career. A career relationship, in other words an office held within a royal or princely hotel, therefore creating a subordinate relationship with the head of the institution, is recorded in the career table named CRR. The position label is selected from a list defined by a very specific typology, taken from Thierry Kouamé's book,³⁶ which is recorded in a specific TYPE table. The typology can be enriched as new types of career positions are discovered in the sources.

3. Discussion on edges and ontology

The ontology of relationships may be discussed, and we had numerous debates on this subject inside the RECIMA project. For example, a lot of elemental relationships are unidirectional ones: for example, X is a witness of Y, X concedes an exchange initiated by Y, or X is the father of Y, and not the reverse. But each of them belongs to a subgraph, that is, a graph of the edges of the network which belong to the same category. We want to compare and add them. So, to simplify the scheme, we decided to manipulate non-oriented graphs, which means that the sense of the relationship between two nodes has no importance.³⁷ And each edge is balanced with a number called weight which is the number of relationships, mentioned in the charters, from the same category between the same vertices. So, the subgraphs are also weighted.³⁸

³⁵ Joseph Morsel, *La noblesse contre le prince: l'espace social des Thüngen à la fin du Moyen Âge (Franconie, v. 1250–1525),* (Beihefte der Francia 49), Stuttgart 2000.

³⁶ Thierry Kouamé, Le Collège de Dormans-Beauvais à la fin du Moyen-Âge: stratégies politiques et parcours individuels à l'Université de Paris (1370–1458), Leiden 2005.

³⁷ See also DE VALERIOLA et al., "Dealing with the Heterogeneity", p. 9.

³⁸ *Ibid*, p. 10.

Let us now describe these relationships with the example of a charter from 1183, shown in Figure 5: the bishop of Senlis announces a donation made by the knight Aubry of Guignecourt to the abbey of Chaalis (economic transfer) and validates it with his own seal (example of juridical relation). Then we can see that this donation is acknowledged by Aubry's father, spouse, brother, and children, who all take part in the economical transfer; thus parental and juridical relationships are highlighted. Aubry held this land in fief from Evrard of Borretz, so there we see a feudal relationship. As the charter is dated from 1183, and thanks to the copy of the original charter made by Afforty, we can also learn about the parental relations of Evrard of Borretz and all of the witnesses (juridical relations) of Aubry of Guignecourt, of Evrard of Borretz, of the wife of Evrard, and the witnesses of his sons.

To represent a network graphically, we must make software and sociological models of the relationships analysed in the charters: the relational model of the

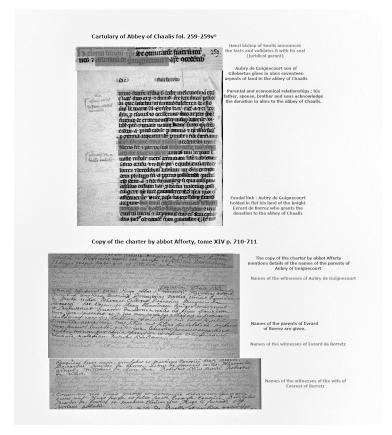


Fig. 5. Example of relationships in a charter.

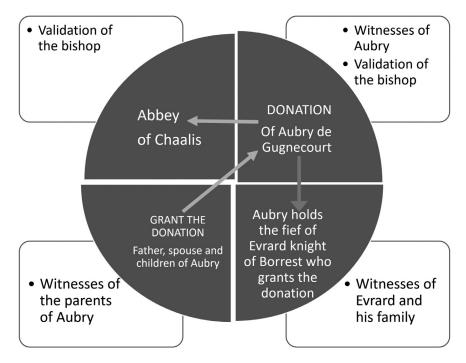


Fig. 6. Relations model.

source is shown in Figure 6. It is obvious and essential to say that this model will be abstract and incomplete. It is based on incomplete sources, and we selectively sorted the data during the course of the research. So, how shall we process these relationships without being too schematic or too simplifying? As Edmond argued, "ontologies reduce the complexity of the information around a particular object, stripping it of its original context and its provenance",³⁹ and so the same historical reality can be modelled or represented as different simplified information systems.

We simplified the ontology by studying only the cooccurrences relationships of the abbeys in the documents. A cooccurrence relationship is established between two actors when these persons are mentioned in different documents for different events; charters mention similar occurrences between them. We chose to study the impact of the different types of relationships on the form of the network. Relationships with resources or possessions are not represented, which makes it difficult to identify a circulation of lands, even if the same rights are claimed on the same land by different individuals in different charters. However, this method could be used to study the circulation of cultural goods such as manuscripts, ideas, knowledge or skills.

³⁹ EDMOND, "Managing Uncertainty in the Humanities", p.4.

IV. NETWORKS AND DISCUSSION

In this final section, the results of the research will be discussed; having constructed and modelled the network, what was revealed about the abbey of Chaalis and its relationships with local individuals? To start with what we might assume would be obvious links – between Chaalis and other Cistercian institutions (seen as entities) – no reference to the abbey of Pontigny was found in the cartulary between 1180 and 1184, perhaps surprisingly. The only reference to another Cistercian house was an act which ruled on a dispute with the neighbouring abbey of Breteuil.

In terms of the egocentric network between the abbey and the individuals in direct relation with it during the same period, two types of relations are visible, transfer and juridical ones. But this graph is a starlike type of graph (Fig. 7). This is not a network, only a list of contacts. The first lesson of the circular graph is that links were found with commoners, nobles, clerks from the local clergy, and bishops of Paris, Senlis and Meaux.

We must talk about a network when we also consider the links between the nodes (alter-ego) in relation with ego (here the abbey of Chaalis). As can be seen from Figure 8, the abbey of Chaalis is identified inside the local network as found in the charters of the cartulary. The networks represent 287 nodes linked by 806 relations; all of this information is contained in only 19 charters! The labels and the dimensions of the nodes are proportional to the measure of their betweenness centrality. The betweenness centrality measures the number of times that an individual is on the shortest path that connects an individual A to an individual B of the network. The larger the dimension of the node, the more the actor occupies an important intermediary position between all the nodes of the network

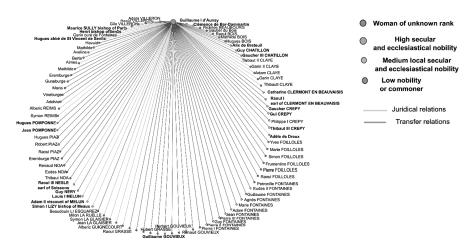


Fig. 7. Network around the abbey of Chaalis. For colored figures 7 to 13, see https://recima.hypotheses.org/cistercian-worlds-colored-figures

We should also use the closeness centrality. The centrality of proximity amounts to examining for each vertex its proximity to all the vertices of the network. For each vertex, we calculate the distance which is the sum of the geodesic distances connecting the vertex to all the other vertices of the graph. The smaller the distance, the more central the vertex. This centrality allows us to identify the cutpoints in the network, perhaps with little connectivity with the others, but essential as relay individuals or bridges, serving as intermediaries.

Then, if we want to study the local network where the abbey is integrated, let us build the global multiplex network where we suppressed the abbey (Fig. 9). Then, as in the De Valeriola multi-layer network approach, 40 we ask how each category of edge contributes to building the network. But, unlike in that study, we do not know a priori the composition of the parties and cannot reconstruct them manually, so we cannot vary the weighting of each category of links to assess which one leads to the most faithful model of reality, as we do not know it a priori. On the contrary, we try to identify the central individuals of the network from this or that

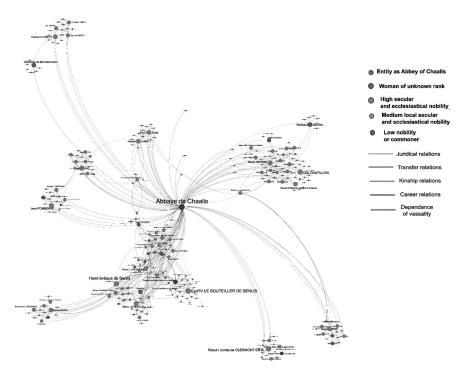


Fig. 8. Multiplex network of Chaalis 1180–1184, nodes proportional to betweenness centrality.

⁴⁰ Ibid., p. 2, 8.

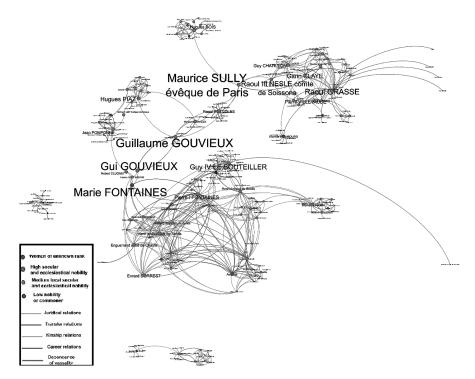


Fig. 9. Multiplex network without the abbey (1180-1184).

category of edge and compare the related places of the types of relationships in the following subgraphs: the subgraph of transfer and kinship relationships (Fig. 10), the subgraph of juridical relationships (Fig. 11) and the subgraph of dependence relationships (kinship, clientelism and vassality in Fig. 12). The arbitrary distances between the nodes in the network representation is due to the use of a force-based algorithm in Gephi software. In each of them, the larger size of each edge is proportional to their wedge, the larger size of each vertex is proportional to the betweenness centrality (see definition above), that we use – we could also use the closeness centrality – to identify the cut points of the network.

We thus see that the network is a multiplex one with five types of links. In descending order of prevalence, these are: juridical links (66% of the total), economic transfers (14%), kinship links (kinship 10%), feudality (6%) and career links (4%). If we suppress Chaalis in the network, we encounter the juridical links (70%), kinship (11%), feudality (7%), followed by economic relations of transfer (5.6%) and finally career links (5%). We may therefore suggest that the local network where the abbey is in contact is built thanks to juridical links as transactions and subscription links. Now we ask if the rule of other types of relationships plays an

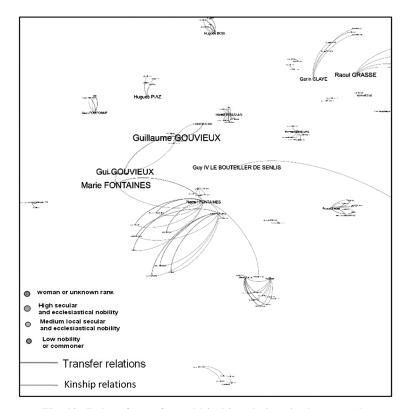


Fig. 10. Rules of transfer and kinship relations in the network.

important rule too on the betweenness centrality of the nodes. Figure 11 represents the network of juridical links, which leads me to conclude that the network of juridical links constitutes the skeleton of the global network, as the networks made by the other links generate more separate clusters (Figs. 10 and 12). As mentioned in De Valeriola's study in relation to the subscription category, the juridical category (i.e. for us the sum of transfer and subscription sub-categories) is of great importance. Links of this category have a strong "explanatory power within the graph." If we only consider the global and the juridical networks without the abbey, Simon I de Lizy, Bishop of Meaux, Maurice de Sully, Bishop of Paris, and Henri, Bishop of Senlis are central in the juridical network, along with their associated canons.

Representatives of the high nobility are highly present in the network as well. We can see Raoul III de Nesle, Earl of Soissons and Lord of Montjay, near to Meaux, and members of his family, including his wife, Adèle of Dreux, from the cadet

⁴¹ DE VALERIOLA et al., "Dealing with the Heterogeneity," p. 17–19.

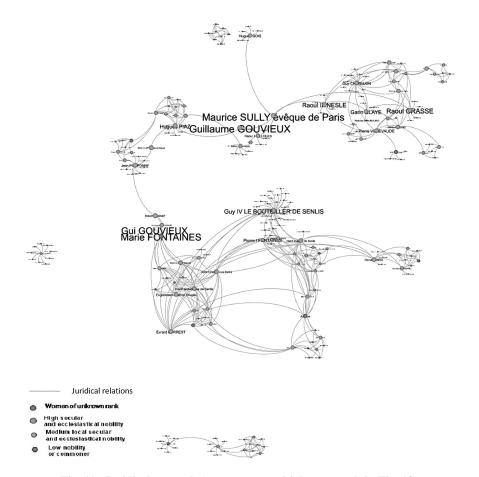


Fig. 11. Juridical network (compare to multiplex network in Fig. 13).

branch of the Capetian, along with Guy of Chatillon, his son. On the contrary, the Raoul, Earl of Clermont en Beauvaisis, in the north of the region, and the lords of Crepy feudal lords of Nanteuil, in the east, are separated from the centre cluster of the networks. That is a clue to indicate that those geographical regions are not linked to the centre region of the abbey. However, we must be clear about some biases of the method, since we had to project the network on to a geographic map to show how the isolated nodes or clusters are geographically distant from the abbey, and that the central cluster is close. This causes some distortion of the network.

The most important conclusion that we can draw from the network is that the old local nobility is prominent in the centrality ranking, alongside a number of important persons working in the royal house or administration, such as Guy IV le Bouteiller de Senlis, bottler of King Philipp August, and John of Pomponne,

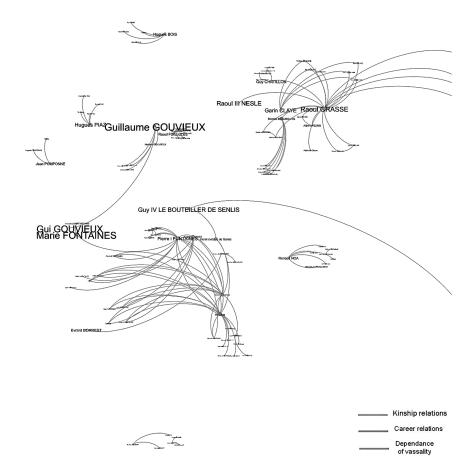


Fig. 12. Rules of kinship, career, and vassal relations in the network.

a great knight cited in the armies of the king and the armorial of Wijnbergen. We can also see other representatives of royal power, such as Guillaume of Gouvieux, provost of the royal tower of Montmeliant, Evrard of Borrest, and Eudes of Fontaines from Fontaines-Chaalis, the village in which the abbey was built.

Furthermore, the elaboration of the charters has an impact of our knowledge of the network. If we now consider the networks of 1223–1234 (Fig. 13), we see no mention of bishops and their canons or witnesses in the charters, and no kinship network, as parental laudation is absent in the charters. Thus, neither in this study nor in De Valeriola's research, ⁴² was the kinship network important, as parents

⁴² Ibid.

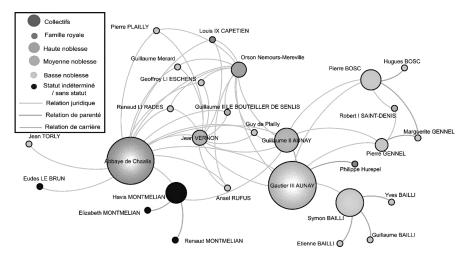


Fig. 13. Juridical, kinship and career relationship, 1223–1234, Granges of Vaulerent and Charlepont.

contribute to the network of subscriptions and are not simple co-subscribers. Empty spaces are formed in the kinship networks which decreases the density of the juridical network. In this new juridical network, the new royal and local officers are very well placed in the betweenness centrality ranking, represented by the brothers Gautier II d'Aunay and Guillaume d'Aunay of a family of seneschals of Dammartin, whose earl is Philipp Hurepel, son of Philipp August, along with Orson de Nemours-Mereville, who worked for King Louis IX.

CONCLUSION

The conclusions drawn from this research relate to and augment the work of Thomas Falmagne, who proposed integrating Chaalis into the wider regional network in which it existed. What the research outlined in this article does is to emphasise the fact that the abbey was also deeply embedded in the local network of the medieval Île-de-France; at the beginning of the period under study, this included the neighbouring bishops, canons and the old local nobility, and across the whole period the officers of the royal court. Contrary to what we might have thought, the economic relations of transfer around the land and the economic levies (tithes, rents, cens) do not condition the network.

The network is built thanks to the juridical links which evolved according to diplomatic medieval practices and writing. In this context, charters containing disputes, agreements or trials on the surrounding network are of particular interest. But kinship and career links must be followed too. They help us to identify the local power of nobles from the middle nobility, and royal officers involved in these

trials. As a final point, the use of network analysis helps us to sort strong from weak actors and links, and to better understand the whole structure of the network of relationships of which the royal abbey of Chaalis was a part.

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Les réseaux nobiliaires de l'abbaye royale cistercienne de Chaalis dans les années 1180-1184 et 1223-1234

Dans le cadre du programme RECIMA (Réseaux cisterciens au Moyen Âge), cette contribution étudie les relations complexes entre la communauté monastique de l'abbaye royale cistercienne francilienne de Chaalis et des individus extérieurs à l'ordre, en analysant les mentions des acteurs dans le cartulaire et les chartes de l'abbaye datées des années 1180–1184 et 1223–1234. En utilisant l'analyse et l'exploration visuelle des réseaux multicouches représentant les différentes catégories de relations et les rôles centraux de certains individus, cette recherche met en évidence de nouveaux réseaux d'influence d'une abbaye cistercienne en dehors de la hiérarchie de l'ordre cistercien basés sur des relations juridiques et de souscription. Elle souligne la priorité que la noblesse française de l'Île-de-France médiévale accordait à l'ordre cistercien dans ses stratégies de bienfaisance religieuse, espérant un soutien en échange de sa domination sur les personnes et les terres.

The nobility networks of the royal Cistercian Abbey of Chaalis in the years 1180–1184 and 1223–1234

As part of the RECIMA program (Reseaux CIsterciens au Moyen Âge), this article explains relationships between the royal Cistercian abbey of Chaalis and individuals outside the Order by analysing the actors mentioned in the Chaalis cartulary and charters dated between 1180–1184 and 1223–1234. Using analysis and a visual exploration of multi-layer networks representing different categories of relationships and the central roles of specific individuals, this article highlights new networks of influence on Chaalis outside of the hierarchy of the Cistercian Order on the basis of juridical and subscription relationships. It emphasizes the priority that the French nobility from the medieval "Île-de-France" gave to the Cistercian Order in their strategies of religious beneficence, hoping for support in return for their dominion over people and lands.

Die Adels-Netzwerke der königlichen Zisterzienserabtei von Chaalis in den Jahren 1180–1184 und 1223–1234

Im Rahmen des RECIMA-Programms (Reseaux Cisterciens au Moyen Âge) befasst sich dieser Artikel mit den Beziehungen zwischen der königlichen Zisterzienserabtei von Chaalis und Personen außerhalb des Ordens, indem er die im Kopialbuch und in den Urkunden von Chaalis aus den Jahren 1180–1184 und 1223–1234 erwähnten Akteure kritisch untersucht. Mit Hilfe von Analysen und einer visuellen Untersuchung vielschichtiger Netzwerke, die verschiedene Kategorien von Beziehungen und die zentrale Rolle bestimmter Individuen abbilden, zeigt dieser Artikel neue Netzwerke der Einflussnahme auf Chaalis auf Basis rechtlicher Beziehungen oder aufgrund von Zugehörigkeiten jenseits der Hierarchie des Zisterzienserordens auf. Er stellt den Vorzug, den der französische Adel der mittelalterlichen "Île-de-France" dem Zisterzienserorden in seinen Strategien religiöser Wohltätigkeit einräumte, in der Hoffnung als Gegenleistung Unterstützung für seine Herrschaft über Land und Leute zu erhalten, besonders heraus.