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The geography of institutional psychiatric care in France 1800–2000: Historical analysis of the spatial diffusion of specialised facilities for institutional care of mental illness

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ABSTRACT

As in other European countries, specialised psychiatric hospitals were established throughout France during the 19th Century. The construction of these hospitals can be considered as the concrete expression of a therapeutic innovation which recognized insanity as an illness that could be treated in such specialised institutions. The spatial diffusion of these innovative institutions through 19th and 20th century France is analysed and we explore how far this can be understood through theories of diffusion of innovations including geographical models of hierarchical and expansion diffusion (or whether other conceptual models are more appropriate).

The research reported here particularly focuses on the period 1800–1961. It involved the construction of an original historical database of both psychiatric hospitals and information on the cities where these institutions were located. This was used to examine and interpret the different phases of development of psychiatric institutions and the parts of the country and types of geographical setting where they were concentrated. A multiple correspondence analysis was then performed to examine the connections between different aspects of the diffusion process.

The study shows the limitations of classical models of spatial diffusion, which are found to be consistent with some, but not all aspects of the development of psychiatric institutions in France. An alternative political ecology approach seems more appropriate to conceptualise the various processes involved; national policies, social representations, medicalisation of care of mental illness, and urban and economic growth all seem to be associated with the emergence of a variable and complex pattern. This paper also opens a large field of research. Compared with other western countries, the geography of French psychiatric care is relatively under-researched, although there has been a strong spatial dimension to mental health policy in the country. This analysis provides a context for studies of more contemporary processes of French deinstitutionalisation, which is strongly structured by the past heritage of these large asylum facilities.

Introduction

This paper critically explores the relevance of innovation diffusion theories to the geographical development of psychiatric asylums in 19th and 20th Century France. Since Hagerstrand's pathbreaking work in the 1950s, geographers have emphasized the role of spatial structures in processes of innovation diffusion. From various case studies, Hagerstand highlighted temporal and spatial regularities in diffusion processes (Hägerstrand, 1953). Spatial diffusion of an innovation expresses both the conservation and transformation of geographical spatial structures (Saint Julien, 1985). Innovation spread is driven by dynamic spatial interaction. Two models are classically presented: the *hierarchical* diffusion model and the *contagious* diffusion model. The first takes into account the functional hierarchy of settlements. Innovation spreads between densely populated urban areas with a high level of interaction and subsequently filters down to smaller, less influential areas. Size and rank in the urban spatial system are therefore determining criteria of the hierarchical diffusion process. The second model is based on effects of 'distance decay' and contiguity in the spatial diffusion process and involves 'contagious' spread to

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areas in close proximity. An innovation will tend to spread within neighbourhoods close to its point of adoption (Daudé, 2001). Hagerstrand showed that in most cases, diffusion is achieved through a combination of 'hierarchical transmission' and 'neighbourhood contagion'.

Empirical observations of innovation diffusion processes have systematically demonstrated that vertical diffusion down through the urban hierarchy has been dominant in a large number of diffusion processes, accompanied by 'horizontal', contagious diffusion around the larger centres (Pumain & Saint Julien, 2001). Innovations first appear in large cities before spreading into the whole urban system. However, despite the rather general relevance of these diffusion models, not every diffusion process can be described solely using these concepts. According to Saint Julien (1985), other factors can interact with diffusion flows, such as: chance events, market characteristics independent of the urban hierarchy, effects of the existence of a centralised or decentralised management of the diffusion process or the competitive or non-competitive nature of the system.

In health geography, research on spatial diffusion has mainly focused on the diffusion of infectious diseases, especially non-vectored infectious diseases giving rise to epidemics through human contact (Meade & Earickson, 2000). There is a long history of research to describe and predict how epidemics spread geographically, providing information for action to anticipate, treat and perhaps prevent epidemics. Since pioneering work in the 18th and 19th centuries (Currie, 1792; Currie, 1811; Snow, 1854; Webster, 1799), the emergence of new infectious diseases at the end of the 20th century has given a new impetus to research in this field. HIV/AIDS, for example, was largely studied in the late 1990s (Amat-Roze & Remy, 1990; Bastos & Barcellos, 1995; Dias & Nobre, 2001; Gould, 1993; Kearns, 1996; Shannon, 1994; Wallace & Wallace, 1995; Wood et al., 2000). Recent research has also focused on ancient epidemics, like the plague (especially the second pandemic) or influenza (Spanish influenza for instance) (Anatra, 1987; Hunter & Young, 1971; Lemey, Suchard, & Rambaut, 2009; Merler & Ajelli, 2010; Sabatini, 1987; Smallman-Raynor, Johnson, & Cliff, 2002; Tuckel, Sassler, Maisel, & Leykam, 2006). More recently, numerous studies have focused on the international diffusion of Severe Acute Respiratory Syndrome (SARS) and H5N1 Avian Influenza (Souris, Gonzalez, Shanmugasundaram, Corvest, & Kittayapong, 2010), which are examples of diseases presenting new challenges to public health in this era of more pronounced globalisation (Affonso, Andrews, & Jeffs, 2004; Bowen & Laroe, 2006; Meng, Wang, Liu, Wu, & Zhong, 2005; Shannon & Willoughby, 2004; Smallman-Raynor & Cliff, 2008; Wang, Christakos, Han, & Meng, 2008).

Less attention has been paid to the diffusion of medical innovations and new types of care structure within health care delivery systems. However, research of this type can be helpful in formulating and evaluating policies aiming to improve the provision of care, suggesting what factors may help or hinder the dissemination of good practice and how effectively new initiatives are introduced throughout a health system. For example, complex systems such as health services rely on large and expensive infrastructures and on the provision of trained staff that are difficult to move once they are in place, and considerable effort is often required to achieve universal changes in professional practice. Services therefore develop in a way that is 'path dependent'; the history of development of a service can influence the potential for new development in the future. Investigations of this type include studies of the diffusion of: tomography scanners in the US (Baker, 1979); abortion facilities in the North-eastern US (Henry, 1978); the administration of antipsychotic olonzapine to urban and rural children in Michigan (Penfold & Kelleher, 2007); alternative chiropractic and naturopathic practices in Canada (Williams, 2000), and the international diffusion of yoga (Hoyez, 2007). Diffusion of innovations in health policy and health promotion has also been studied from a geographical perspective. Shannon, Bashshur and Metzner (1971) analysed the spatial diffusion of a prepaid group practice health plan and Nykiforuk, Eyles, and Campbell (2008) studied the diffusion of smoke-free spaces in Canada using Roger's (2003) framework for the diffusion of innovations and classic geographical diffusion models.

Some geographers have also studied the spatial diffusion of hospitals and (most pertinent here) the evolution of national systems of psychiatric hospitals from an historical perspective. These are interesting for the way that they demonstrate the growth of medical power and influence as well as changes in access to care. They also provide the context for studies of more contemporary processes of deinstitutionalisation that have often retained vestiges of the older health care system, still influencing the way care is provided today. Jones (1999) compares implementation and spatial aspects of mental health policy reforms in United Kingdom and Italy since the 1950s, noting that in Italy, the diffusion of reform was spatially uneven. It was more advanced in the industrialised and urbanised north of the country while in the poorer, more rural south, development was retarded and mainly left to the management of voluntary and religious sector organizations (Galzigna & Terzian, 1980). Jones suggests that in the UK, psychiatric hospitals developing through the larger urban centres eventually led to a more equitable distribution in the national space. For Jones, this was due to the strong intervention of the British government in the implementation of a national system of institutions, but the dynamic process of diffusion is not detailed in her paper. In a particularly comprehensive discussion, Philo (2004) gives an account of the development of mental asylums in England and Wales up to 1860, which suggests that various forces came into play. Debate and rivalry among medical professionals were important in the early phases of development. Philo also points to developments from the late 18th to the middle of the 19th centuries, when initiatives to locate asylums in what were thought to be more humane and therapeutic settings outside major cities became increasingly influential. It seems that trends depend on national context since a rather contrasting American study (Hunter, Shannon, & Sambrook, 1986), reports the emergence and diffusion of public 'lunatic asylums' in the United States during the 19th century, demonstrating how over time the establishment of these facilities spread from the north-east to the west of the country. Further research conducted by Bretagnolle, Giraud, and Mathian (2008) on American urbanisation allows us to draw a parallel with the diffusion of the railway network, suggesting that in America, the diffusion of institutions for mental health care (as well as other services) followed geographical processes of colonization and social and economic development taking place at the time. The role of railways and transport networks on the spread of disease and health care has been examined by Hogbin in South Africa during the first part of the 20th century (Hogbin, 1985).

It is thus clear that a good deal can be learned from studies of diffusion of mental health care institutions in the 18th, 19th and early 20th centuries. It shows the interdependencies between socio-economic development and health care developments across national spaces. This diffusion of institutional structures is interesting in that it also represents the concrete implementation of ideas about appropriate models of psychiatric care. The emergence and dissemination of an idea concerning psychiatric care is not necessarily perfectly matched by the *implementation* of the idea through construction of the specialised psychiatric hospitals that are of interest here. In this study we are particularly concerned with the diffusion of this concrete expression of a new care model through the modification of the psychiatric infrastructure, since it is

at the point of construction of these new facilities that changes in provision of psychiatric care will have started to have an impact on the care environment for people with mental illness. The innovation diffusion model also raises some interesting issues concerning whether or not there is a specific 'tipping point' in time and space at which an innovation begins to spread, or whether change is influenced by more continuous processes of path-dependency whereby past actions and thought influence present patterns of change.

In this paper we contribute to the international discussion concerning the importance of national context in the history of psychiatric care provision by considering the development of psychiatric institutions in France during the study period. The analysis aims to determine the relevance of 'classic' diffusion models in this process (which might suggest psychiatric care development was part of socio-economic growth and development in France, as in America). Following Philos' and Jones' European examples, we also seek to identify other key processes, associated with professional medical influence and governmental health care policy at the time, that also appear to have driven the growth of the system.

The lunatic asylum as an innovation in 18th and 19th Century France: from the 'alienist' perspective on government policy

Here we briefly summarise the processes that influenced the diffusion of the 'lunatic asylum' as a model of psychiatric care in France during the 18th and 19th centuries. Prior to these developments, no specific *medical* or *health care* response was proposed for people with mental disorders. They were placed in institutions for the indigent and criminals. Hitherto 'insanity' had not been understood as a treatable illness, so the aim was to restrain people identified as 'mad' and prevent them from disturbing public order, not to try to cure them. Foucault (1961, chapter II) suggests that in France, and particularly in Paris, this approach was clearly illustrated in institutions called *Hôpitaux Généraux* created in 1656 (Imbert, 1982) to implement this policy described by Foucault (1988 edition, p. 38–64) as 'the great confinement'. The lamentable conditions of their confinement were already being identified in the 18th century (Colombier & Doublet, 1785).

At around the start of the 19th century, in France as in other countries, we begin to see the seeds of innovation: insanity began to be interpreted as an illness that could be cared for in specialised institutional settings. This therapeutic innovation was rooted in the emergence of the philanthropic and humanist ideals of the 18th century. These were associated with a shift away from demonological interpretations of madness and the growing pre-eminence of naturalistic explanations. The idea of the curability of mental illness and the legitimacy of the physician's role in the social management and treatment of madness also contributed to the emergence of this innovation (Foucault, 1961; Gauchet & Swain, 1980). These ideas were promulgated through the 'alienist' school of thought, calling for the separation of 'mad' people into specialised, therapeutic settings as recommended by Pinel (1801) in France, and Tuke (1813) and Browne (1837) in the United Kingdom. They were developing the concept of mental 'alienation' (mental illness viewed as a person's inability to integrate in society), arguing that a mental disorder inhibited the sufferer's feelings to such an extent that eventually, both the self and the external world seemed unreal.

For the French alienist Pinel (1801), the asylum was the only suitable place for 'moral treatment' requiring the patient's isolation from society as a whole, as well as from other groups who were seen as 'deviant' and dangerous to society. The lunatic asylum thus became the preferred therapeutic instrument of this moral treatment, secluding mentally ill people from the stresses of mainstream society and family life and incarcerating them in a secluded place, ideally situated in tranquil countryside where a strict moral framework was imposed. Foucault (1988 edition, 259) argues that '…the asylum becomes, in Pinel's hands, an instrument of moral uniformity and social denunciation…'. 'Place' has considerable significance in this model; physicians aimed to put the mentally sick in a new situation, removed from places, objects, people and circumstances that shaped their usual relationships and behaviour. At this period, well before the introduction of psychotropic drugs, 'moral treatment', acting on intellect and feelings, also marked a move away from physical treatment by traditional methods of blood-letting and purges applied to the patient's body (Goldstein, 1997).

Pressure of opinion was building in France in favour of extensive reform and was beginning to be felt by both the government and the medical profession. In a report on institutions for the 'insane' presented to the French Interior Minister in 1819, the alienist physican Esquirol wrote: 'These unfortunate people are treated worse than criminals and reduced to a worse condition than animals'. It was at around this period that Esquirol introduced the term 'asylum' to distinguish psychiatric care institutions from both the *'Hôpital Général'* carceral regime and *'Hôtel-Dieu'* hospitals for paupers, since these earlier types of institution were considered oppressive, arbitrary in their treatment of mentally ill people, and likely to exacerbate their condition (Lantéri-Laura, 2001). Esquirol wrote: 'I would like us to give these facilities a specific name which does not bring to mind a painful image; I propose we name them asylums' authors' translation from (Esquirol, 1818, p. 26). The term 'lunatic asylum' was still used as late as 1937 when it was replaced by 'psychiatric hospital'. By then, psychiatry had become an established practice within the medical profession and psychiatric institutions had entered into the clinical domain. The later phase of our study period thus arguably represents the shift to a different model of care associated with a new phase in the diffusion of changing ideas about psychiatric treatment that were expressed in the new facilities built most recently.

The governmental response to the 'alienist' model, promoting the asylum as an institutional model, was the 1838 Lunacy Act. This required that every French *département* (representing the local administrative tier of national government in France) provide a 'facility dedicated to host and care for lunatics'. Promulgated under the July Monarchy, the Lunacy Act continued to influence the provision of care for mental disorders, for over 150 years as it was only revised on June 27th 1990 with the '*Act relative to the rights and protection of people hospitalised because of mental disorders and to their hospitalisation conditions*'. The Lunacy Act of 1838 instituted the mandatory provision of mental health care in each administrative *département* either by the creation of at least one asylum or by contracting with an authorized voluntary hospital to do so. This legislation could therefore be expected to have had a significant impact on the geographical diffusion of this type of institutional structure, albeit that the 'Lunatic Asylum' was not specified as the model on which these facilities were to be built. Individuals that were to be housed in these new facilities were nevertheless described as 'lunatics' rather than 'insane' or 'agitated' which suggests that the law makers were influenced by the 'alienation' paradigm proposed by Pinel.

While the 1838 Lunacy Act did not include direct guidelines on the type of site that should be preferred for asylum facilities, psychiatric ideas on the subject had already been clearly expressed in France. The Esquirol (1838) thus specified that asylums should be built outside cities for economic and therapeutic reasons. The following quote illustrates alienist ideas that dictated 19th Century views of what might constitute (or undermine) a therapeutic setting for care of mental illness: "*Most lunatic asylums are located*

in cities, a few in the countryside, in the plains or on the heights. In cities, space is lacking, the sick are excited by the hubbub and the noise of the population; visits are more numerous and more frequent; nurses are more distracted, more inclined to leave, while in countryside, there is more space, the sick enjoy more peace and quiet, can go out for a walk in tranquil surroundings or engage in gardening; they have fewer visitors and finally, there are economic advantages. Buildings on a high plateau are more favourably situated but when the plateau is not sufficiently extensive, buildings cannot develop on the same level or be sufficiently spaced out; terraces and steps are then required because of the uneven ground." He specifically cites the example of Antiquaille hospital in Lyon: "*Located at mid-altitude on the Fourviere Mountain, it is built on the ruins of an ancient Roman construction. This choice of location was unfortunate. It was impossible to design suitable buildings: yards are too narrow, promenade galleries are missing, the ground is arid, and vegetation cannot improve the view or refresh the air. Water is not very abundant whereas it is required in such a house. Views are certainly very extensive, but the insane can constantly see their fellow citizens coming and going on the banks of the Saone River and in the neighbouring streets. They hear the hubbub of the city; is that not sufficient to provoke feelings of irritation likely to increase and to maintain delirium?" (translated by the authors from Esquirol, (1838, p. 463)).*

In the following analysis we shall treat the establishment of 'asylum' facilities as a 'proxy marker' for the implementation of a major innovation in the care of people with mental disorders in France. These asylums constituted a new type of clinical and therapeutic environment for care of mental illness as conceived by Pinel. In the following discussion we use the term 'asylum' to refer to state sponsored, specialised psychiatric hospitals in France that were either established following the 1838 Lunacy Act, or pre-existing facilities, including voluntary or religious institutions, recognized by the government as meeting the requirements of the Act. Other institutions providing mental health care (in multi-specialty general hospitals or independent institutions not recognized by the state) are not included in this category, although their contribution in the general context of care provision is taken into consideration in our analysis. In this study, 'asylum' therefore refers to an administrative category of residential institution. These institutions did not all systematically incorporate every aspect of Pinel or Tuke's asylum model of care, and it is likely that the care provided over the period covered, varied from one institution to the next. However, one aspect of asylum design does become apparent in this analysis; the preference for a rural or semi-rural location as an ideal site. Our analysis indicates that this had a significant and lasting influence on the geographical development of psychiatric care in France and contributed to the specific geographical pattern of diffusion of asylum facilities around the country, as will be discussed below.

Our focus on the establishment of institutions corresponds to the Schumpeterian definition (Schumpeter, 1912, 1939) of an innovation, which is distinct from an invention as it describes the process by which a new idea is effectively adopted by society (Dortier, 2004). The lunatic asylum can also be considered as an '*institutional* innovation' according to the Pederson's (1970) definition, because it does not directly apply to individuals or households (as in '*individualistic*' or '*domestic*' innovation), but involves the introduction of a collective service. This is underlined by the way the innovation was not left to develop randomly, or under the sole influence of the medical profession. Government legislation was introduced as a means of organizing and centrally coordinating the even spread of asylums to every part of the country.

Using the functionalist perspective proposed by Brown (1981), we consider to what extent the diffusion of 'lunatic asylums' in France corresponded to a '*decentralised* process' (spreading autonomously throughout the national space) or a '*centralised* process' propagated under the control of a national agency or policy, which determines diffusion conditions (Daudé, 2001). Centrally managed innovation diffusion may follow different time space paths than individualistic or decentralised processes. In this case, the adopter of the innovation was central government, aiming to influence the process of innovation through local administrative and geographical levels of government throughout the country. The government of the day was keen to demonstrate the effectiveness of this recently created government structure, inspired by the egalitarian and republican goals of the French Revolution (1790). In 1838, legally assigned with new powers in terms of resources, broader responsibilities and greater facilities, French *départements* provided a conduit for central power to all parts of France, ensuring the management of national space in line with central government policy (Burguière & Revel, 1989). This was paralleled by increasing spatial accessibility of most parts of the country, particularly in the first part of the 19th century with the expansion of the railway network (suggesting interesting potential parallels with Bretagnolle's study mentioned in the introduction). These processes might have been expected to encourage homogenization and evenness in social and economic development across all French *départements*, though they might also have tended to encourage early adoption of the new model of psychiatric hospital in the geographical centres of central governmental control in Paris, the capital city, and in provincial centres of government.

This review of the processes influencing asylum diffusion through French national space suggests it can be viewed as an example of an innovation diffusion process in which the original innovation took place through an informal network of reformers, (which might have produced rather randomly distributed sites for the very first asylums), but that after 1838, the leading adopter was a collective (state) agent, operating through a highly structured geographical and administrative hierarchy. The following analysis explores how these processes influenced the diffusion of asylums in 19th and 20th century France. The state hierarchy was strongly centred in the capital city and its regional seats of government, and had the potential to control the pattern of spreading the innovation through the national space. This could lead one to expect an even, more or less simultaneous geographical diffusion of asylum facilities designed to ensure provision in each *département*. In many other cases of innovation diffusion, the largest urban centres are most likely to be the sites for early adoption. However, in this case, the diffusion phase dominated by the 'alienist' model of care could be expected to result in the early establishment of asylums in rural or semi-rural settings close to major towns and more particularly, in the proximity of regional administrative centres.

Data collection

To investigate spatial diffusion of psychiatric hospitals in France from the 19th century to the present day, the initial task involved building an original historical database of psychiatric hospitals, their location and date of establishment, indicating the points at which, in different parts of France, asylum facilities were first adopted as innovative care institutions for the mentally ill. This was achieved using a number of different data sources. These data were then analysed and interpreted in the light of the conceptual frameworks and the historical context discussed above.

Data from the National Register of Health and Social Facilities (*Fichier National des Etablissements Sanitaires et Sociaux, FINESS*) were employed. This is based on information provided by local agencies of the Ministry of Health and Social Affairs. Created in 1979, the *FINESS* inventory made it possible to precisely locate existing facilities and the date on which establishments set up since

1979 became operational. However, it does not allow us to reconstitute the history of hospital development prior to 1979; hospitals which closed before 1979 do not appear in the register, and the date of establishment for older facilities is not included. This inventory is therefore not sufficient for our purpose but is useful to supplement and consolidate historical information from other sources.

Archival data were used for the earlier period. The French National Statistics Service (*La statistique générale en France SGF*) published data on asylums from 1835 to 1942. In the introduction to the volume covering the period 1854–1860, the Minister of Agriculture, Commerce and Public Works indicates to 'His Majesty the Emperor' that *'this work not only allows us to appreciate the administrative situation of our asylums and its degree of development; it also contains a certain amount of strictly medical information, which appears to be helpful for the very delicate and difficult study of one the cruellest human infirmities*' (translated from Statistique de la France, 1865, p. 10). The format of this publication was modified over time. While *FINESS* was produced as a register in list format, the *SGF* provided more comprehensive statistical data on hospitals presented by *département* and by year. These data allow us to correctly date the creation of asylums established between 1835 and 1942.

Complementary information was sought in historical studies on French psychiatry. Two main archival sources were used. The first was the website created by Dr Caire on the French History of Psychiatry (http://psychiatrie.histoire.free.fr/). This site constitutes a rich documentary database on psychiatric hospitals. Hospitals are presented by *département* with the date of creation when known. In addition, personal communication with the author made it possible to enhance the information available from this source. The other useful source was found in the paper by Longin (1999), which presents historical periodisation of the construction of psychiatric hospitals. Institutions can be dated and located within *départements*. Most of the data were taken from official reports (Constans, Lunier & Dumesnil, 1878; Esquirol, 1818).

To analyse the spatial diffusion of psychiatric institutions at d*epartmental* level, a temporal and geographical database was constructed showing French *departmental* boundaries and the associated resident populations for each period. First drawn up in 1790, the boundaries of French *départements* were modified throughout the 19th and 20th centuries, partly because of modifications to national borders (such as Germany's annexation of the Alsace and Moselle regions during 1870–1918) and partly because of changes within the national space due to demographic and urban growth during the 19th century. Rapid and spatially uneven population growth since the 19th century led to increasing disparities in population size between *département*s. Various base maps were constituted for different years from a historical database of French towns and their attribution to *départements* (http://cassini.ehess.fr). Demographic data used to assess the scale of urban development were collected from different sources: INED-INSEE census demographic tables (Croze, 1988) for the period 1861 to 1982, and the Royal Almanach for the years 1801 and 1816 (http://sref.free.fr, http://splaf.free.fr/).

For local analyses, another database comprised of historical data on French cities initially produced by Pumain (Pumain & Riandey, 1986) and completed by Guerin and Paulus (Guérin-Pace, 1990; Guerois & Paulus, 2002; Pumain & Riandey, 1986) was used. This database contains city population figures for the period 1831 to 1999, and a classification of cities distinguishing between: urban centres (most populated parts of urban agglomerations), isolated cities (urban areas bounded within a single urban space), suburban areas and rural areas. This morphological definition of cities, taking into account both population size and continuity of built up areas, combined with information on the dates urban areas first developed, reflects the structure of the French urban system at different time periods.

More detailed information was compiled for each asylum analysed and for locations in which they were located (Table 1).

Analysis

The analysis was designed to explore whether the geographical pattern of the diffusion of asylums in France seemed consistent with the processes thought to be influencing this diffusion, as reviewed above. The analysis proceeded by first trying to establish whether the 1838 legislation provided a major impetus to the development of asylums throughout the country, which would be consistent with the idea of a *centralised institutional* innovation. Then, at different historical phases of development of asylums, the analysis investigated the parts of the country where they were set up and the types of geographical setting where they were concentrated. In order to model the neighbourhood diffusion process, a contiguity matrix of French *départements* was created and in each *département,* Euclidian distance was calculated between asylum locations and the city where the *Departmental* administrative centre, (representing the local seat of government power), was located. Finally, to bring all this information together, a multiple correspondence analysis (MCA) was performed on the dataset to examine the connections between different aspects of the diffusion process. At this point we were also able to explore the possible significance of independent and religious institutions that were not recognized by the state as psychiatric 'asylums', but which may have influenced the spread of alienist ideas.

Descriptive analysis was carried out using the SAS statistical package, MCA was carried out with SPAD software (Morineau & Aluja-Banet, 2000; Morineau & Morin, 2000).

MCA is a useful tool to identify the main dimensions of a spatio-temporal diffusion process (Saint Julien, 2001). It allows us to highlight key components of the diffusion process and to analyse their interactions. Of the various techniques for multivariate analysis available, MCA (or 'homogeneity analysis') (Everitt & Dunn, 2001) was selected because it can include categorical variables (Lebart, Morineau & Piron, 1998; Volle, 1997). Alternative methods also considered were multiple factorial analysis (MFA) (Escofier & Pagès, 1998) or mixed data factor analysis (MDFA) (Pagès, 2004). However, MCA was preferred since it is widely used and understood, as well as being the most likely to offer statistically robust results. To carry out this MCA, quantitative variables were converted into nominal categories, choosing a classification which would generate similar numbers of categories as were present in the qualitative variables. If the variables in MCA differ significantly in the number of categories, this will tend to distort their impact on the analysis. This is because variables with a large number of categories will carry disproportionate weight in the resulting dimensions.

Table 1
Variables characterising the asylum facilities and the places where they were located, incorporated in the MCA.

- The public or voluntary character of the hospital (2 categories)
- The religious or secular character of the hospital (2 categories)
- The step of the diffusion process where the hospital was created (5 categories)
- The population size of the locality at the time of creation of the hospital (8 categories)
- The type of city, from urban centres to rural areas (4 categories)
- The Euclidian distance between the asylum location and the local seat of the Government power (6 categories)
- The population size of the *département* at the time of creation of the hospital (4 Categories)
- Statistical French regions (NUTS1) (8 categories)
- The total number of lunatic facilities in the *département* (5 categories)
- The existence of a former lunatic facility in the *département* (2 categories)
- The contiguity of the *département* with a former adopter (2 categories)

The units of analysis for the MCA are the lunatic asylum locations created in French *départements* since the 17th century. Variables used in the MCA are listed in Table 1. The full range of variables are only included in the MCA for asylum institutions of interest here (state-sponsored psychiatric hospitals that were recognized by, or were established in response to, the 1838 Lunacy Act). However some information relating to private and non-specialised institutions that were not in this category are also projected on the MCA plots as illustrative individual cases, which may influence the pattern of relationships in the rest of the analysis. For example, a psychiatric ward in a general hospital, could have constituted an 'acceptable' way of caring for people with mental health problems in a *département* and such provision may have resulted in a delay in the establishment of a dedicated asylum facility in that area, or progressive independent institutions may have played a role in the dissemination of alienist ideas in psychiatry. The MCA includes information on the position of *départements* within each of 8 statistical regions in France, (using the Territorial Units for Statistics nomenclature defined for the Member States of the European Union (NUTS1)). This gives an indication of the geographical position of the *département* where innovation took place at different time points, and the category of settlement in which the asylum was located.

Components of the MCA were then used to build a classification of different types of lunatic asylum locations. This Cluster Analysis was based on a hierarchical ascendant classification using 'Ward criteria' aimed at both maximising inter-group inertia and minimising intra-group inertia. To optimize cluster homogeneity, we used the 'dynamic nodes' method, a consolidation procedure involving aggregation around moving centroïds.

Results

Temporal-spatial trends in the adoption of lunatic asylum facilities in French départements from 1617 to 1981

Fig. 1 shows the time trend in the proportion of *départements* adopting the asylum model of care (i.e. for each year, the proportion of *départements* that had established at least one asylum). The diffusion of these psychiatric institutions through France lasted almost 400 years, from 1617 to 1981. As shown on Fig. 1, the diffusion process is still incomplete, because eight *départements* out of 95 have never had a specialised, public sector psychiatric hospital, whereas the 'deinstitutionalisation' of psychiatric care began in the 1960s with the introduction of acute psychiatric units for the provision of care within general hospital structures. Four of these eight *départements* had been accommodating people with mental disorders in specialised wards in general hospitals since the 19th century. The other four *départements* had never previously provided a specialised public hospital service for mentally ill patients but currently provide acute psychiatric beds in multi-specialty hospitals.

The general form of the curve is consistent with the typical pattern of development of innovation diffusion processes. The curve is similar to an 'S-shaped' logistic form, apart from a perturbation caused by the resumption of new adoptions after the 1940s, as registration of new hospitals recommenced in France after a hiatus during World War II. Particularly notable is the absence of any change in the trend associated with the introduction of the 1838 Act. The rate of innovation had started to progress most rapidly well before this date, and the rate of diffusion of the asylum model across *départements* in France actually slowed down shortly after the 1838 Act was passed. Therefore, it seems that at most the Act only confirmed a pre-existing trend of introducing the process, but there is no evidence that it led to its acceleration. As is typical of diffusion processes, four main phases in the introduction of French asylums can be identified, similar to the stages of 'emergence', 'expansion', 'consolidation' and 'new expansion' proposed by Hägerstrand (1953). These are marked on Fig. 1 and the *départements* involved in each phase are plotted on the maps in Fig. 2. Details of the type of locality in which the new institutions were set up are also given in Table 2.

Phase 1: emergence of asylum institutions (17th and 18th centuries)

Initial innovation during the 17th and 18th centuries commenced in certain geographically dispersed centres around the

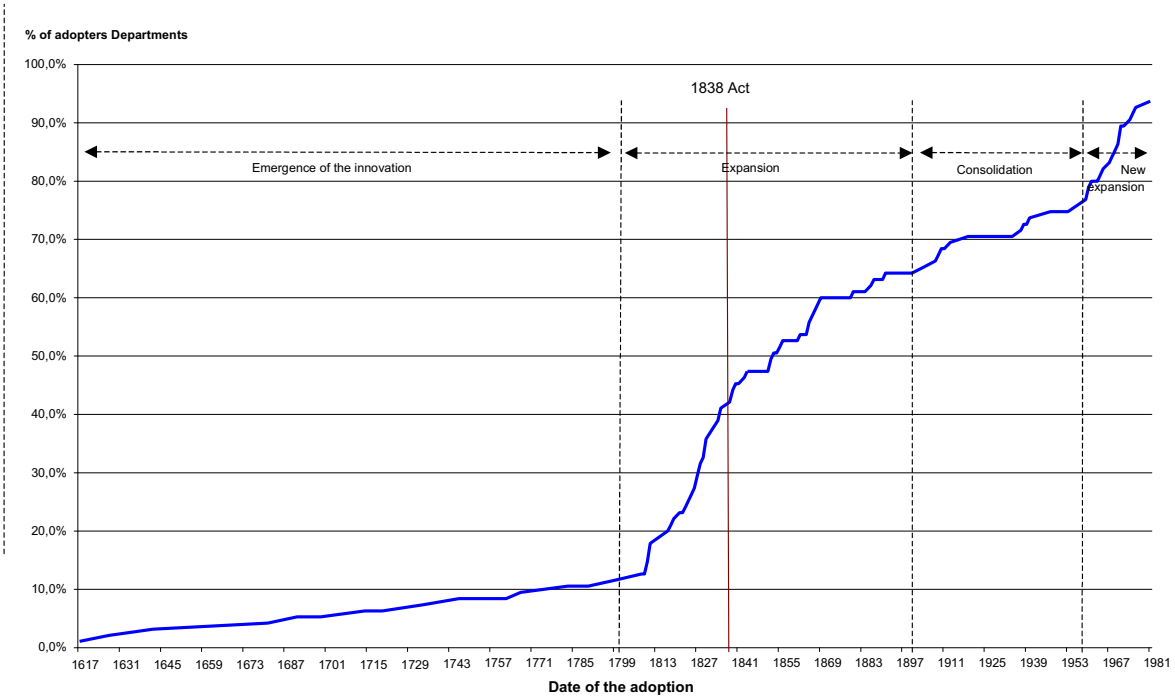

Fig. 1. Time trend in asylum adoption by French *départements*.

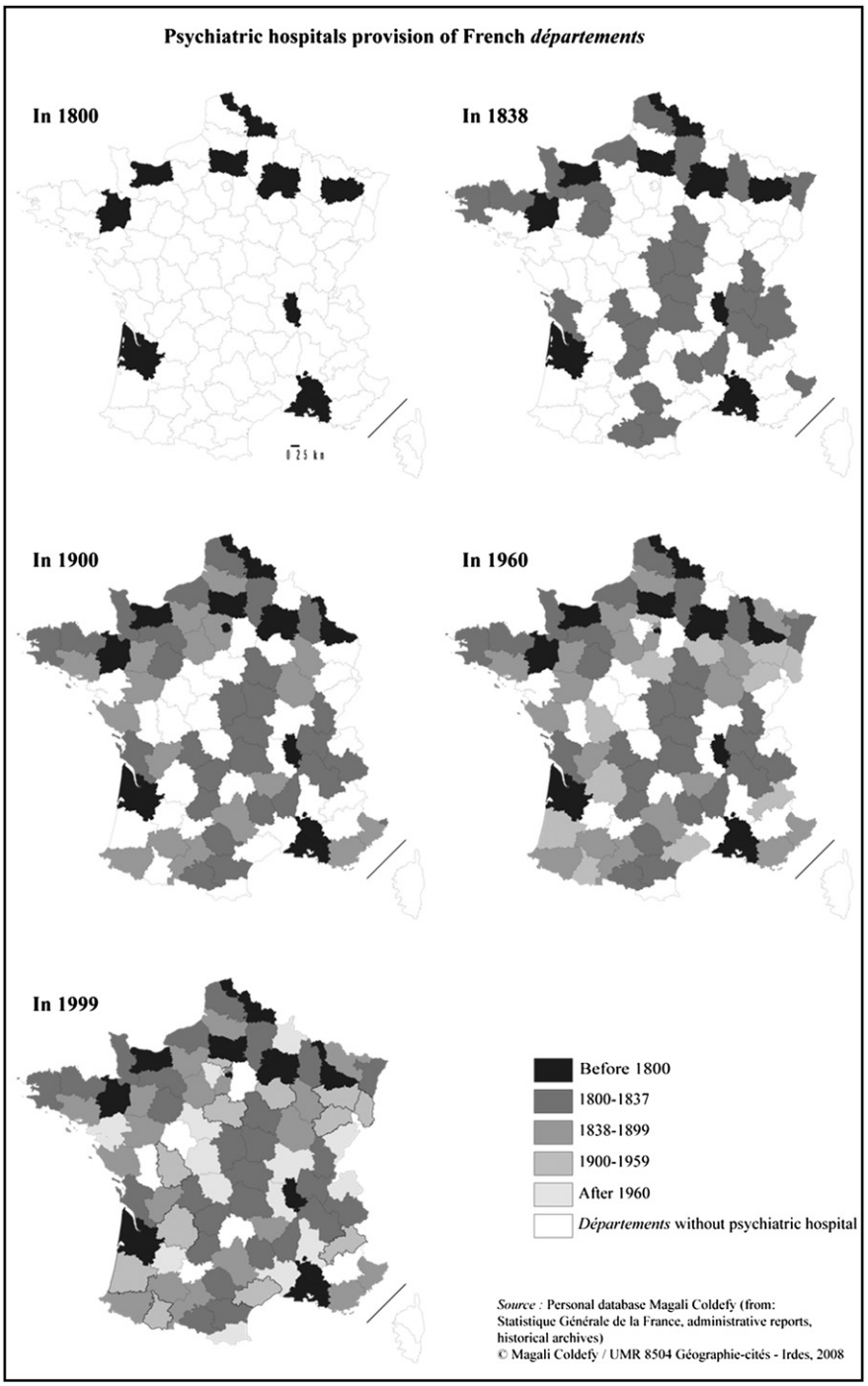

Fig. 2. Spatial diffusion of psychiatric hospitals within French *département*s during the 19th and 20th Centuries.

Table 2
Distribution of asylum locations by type of area within *département*s for each phase of diffusion.

Type of area of asylum locations (%)						% of locations initially located in areas over 50,000 inhabitants
Phase of diffusion	Urban centre	Suburban area	Isolated town	Rural area	Total	
Before 1800 (15)	80	0	0	20	100	33
1800–1837 (34)	62	0	9	29	100	12
1838–1899 (47)	51	2	9	38	100	15
1900–1959 (19)	26	11	16	47	100	5
After 1960 (29)	24	10	24	41	100	21
Total ($N = 144$)	48	4	12	36	100	16

country (in some *départements* in the north and west of France and in dispersed locations in the south and west – see Fig. 2). In 1800, only 10 out of the 86 existing *départements* at that time had a public or voluntary lunatic asylum. The voluntary sector, rather than the state, was the predominant early adopter (59% of the new establishments). As shown in Fig. 2, earlier adopters of the innovation appeared in diverse regions of France. Most of the earliest adopters (before 1800) were *départements* located in Northern France. In the 18th and 19th centuries, the north of France had higher level of education and industrialisation than the south (Furet & Ozouf, 1977; Pumain, Saint Julien, & Ferras, 1990). These wealthier northern *départements* were also privileged areas for exchange and production (Pumain et al., 1990).

It is interesting that Paris, as the governmental and cultural centre of France, was not among the first to establish asylum facilities. Although two hospitals with psychiatric wards and one private asylum existed during the 19th century, no state lunatic asylum was established in Paris during the first part of the period. It was not until 1867 that it opened its first lunatic asylum 'Sainte-Anne'. Asylums for the curable and incurable would be built outside the city at a later date (Lamarche-Vadel & Préli, 1978). This may have been because of rigidities in the system of institutional provision that already existed in Paris, where the *Hôpital Général* had become firmly established. It would also be consistent with the preference for locating 'lunatic asylum' facilities in less urban settings. Although Pinel developed the 'lunatic asylum' concept through his observation and critique of conditions in the *Hôpital Général* setting, his ideas were initially concretised in new institutional facilities elsewhere in the country.

With the exception of two *départements*, the early adopters were also generally more populated than non-adopters (398,000 inhabitants on average for this group of early adopters vs. 302,000 on average for non-adopters). Apart from the striking absence of the Parisian Capital at the emergent phase of the process, this gives the impression of a hierarchical diffusion process, with the innovation spreading initially in the more populated and economically advanced areas and later reaching the more sparsely populated and economically 'backward' regions (Saint Julien, 1985). This may have been a simple effect of the pressure of potential demand (which would be greatest in populated areas). However there may have been qualitative differences in the propensity for innovation and the availability of resources for new developments so that areas that were socially and economically more dynamic (Pumain, 2006) led the way in adopting the new style of asylum. This was a period of very rapid industrial and economic growth in the north associated with the exploitation of coal and the industrial revolution, so that the region saw rapid urbanization and population growth and was relatively wealthy at this time with sufficient community resources for new health care development.

Phase 2: expansion of asylum institutions (19th century)

The diffusion process advanced rapidly throughout most of the 19th century. An increasing rhythm of change is observed after 1808–1810, and well before the 1838 Lunacy Act. This may have been due to state intervention preceding legislation, and was probably also strongly influenced by the alienist network of reformists. During the years preceding the Act, the question of care for the 'insane' was on the government agenda. The French alienists Pinel and Esquirol, both Parisian doctors, were disseminating their ideas about treatment for the insane. The influence of Pinel's report entitled *Medico-Psychological Treatise for Mental Alienation* published in 1801 and reprinted in 1809, reached beyond the medical and bureaucratic fields (Goldstein, 1997). It is very likely that this original paradigm shift in psychiatry provoked by Pinel (and by his colleagues in other countries such as William Battie and William Tuke in England) initiated the lunatic asylum diffusion process rather than national government policy (see Philo, 2004, and Foucauld, 1988). With his theory on mental alienation and moral treatment, Pinel laid the foundations of French psychiatry through the diffusion of his ideas. On the eve of the 1838 Act, 38 *départements* out of 86 had already developed asylums to implement the innovations he proposed. Voluntary initiatives remained numerous during this phase. If there was a 'tipping point' at which innovation started to escalate, it occurred prior to 1838. The legislation appears to have simply taken up and officially endorsed a previously established movement by encouraging the diffusion of the innovation throughout the national space.

The political and economic context may also have played a role in these developments. The French government, under the Imperial regime (1804–1814) and the following Restoration (of monarchical sovereignty) until the 1830s, brought a degree of political stability and economic expansion favouring hospital development (Longin, 1999).

Psychiatric establishments created by the state became predominant after the 1838 Act. Between 1838 and 1899, 67% of the new asylums were the result of public initiatives (as opposed to institutions set up by voluntary bodies and recognized by the state after their inception). At the eve of the 20th century, 61 out of the 86 *départements* in existence by that time had adopted the innovation by constructing an asylum facility. The maps for 1838 and 1900 in Fig. 2 show that more central and southern parts of the country had begun to establish asylums.

The geographical pattern of asylum development also suggests that the 'contagion model' of diffusion is also relevant throughout the 19th century. This is confirmed by the finding that a *département* was more likely to be an adopter when a neighbouring area had already established asylum facilities. Among the neighbouring *départements* bordering earlier (pre-1838) adopters, 49% had adopted the innovation during the period 1838–1899 versus 17% of *départements* not neighbouring previous adopters. This contagious diffusion model seems to be more relevant in the north of France. This might be associated with the more advanced development of communication networks in the north of France at this time. In the south, the innovation seems to have been taken up more spontaneously and randomly in space (Fig. 2).

Phase 3: consolidation of asylum institutions (1900–1959)

The rate of the new establishment of asylum facilities slowed in the 20th century, as most *départements* that had not already done so adopted this type of mental health care facility. The apparent acceleration in 1940 is the result of a bias in the data, noted above; some psychiatric hospitals established by 1940 could not be precisely attributed to the preceding years. Then we see a period of relative stabilisation until the 1960s when most of the 'late adopters' made some provision of this type. During the first part of the 20th century, the drive to expand provision seemed to focus particularly on rural and less populated *départements*. The North-East and South-West of France constitute areas with high levels of adoption during this period (see Fig. 2). Classic models of the diffusion of innovations would predict a slowing down in the third phase of a diffusion process, but Longin (1999) suggests a further explanation of this relative stabilisation at the beginning of the 20th century, linked with the development of secularism. The 1905 Act on separation of Church and State prevented any denominational private enterprise. Furthermore, damage during the First World War strongly affected some asylums. Closures and transformations were considered in some cases. This is a period of rehabilitation and repair rather than of new construction of asylums. The Second World War resulted in less destruction of hospitals but more than 40,000 patients died in French psychiatric hospitals during this period.

Concern over conditions in asylum facilities, the discovery of neuroleptics, together with changes in the economic and political situation after WWII, subsequently led to a new mental health strategy: the 'sectorisation' policy. Sectorisation interrupted the classical diffusion process proposed by Hagerstrand, so that the final phase of complete saturation predicted by his model did not occur. Instead, sectorisation introduces a new paradigm in psychiatric care, with a shift from large residential institutions to community-based services. In France, this process of deinstitutionalisation was initially planned on the basis of a territorial strategic framework. The 'psychiatric sector' was defined as a geo-demographic area of around 70,000 inhabitants, for which a specialised team and a range of community-based services were dedicated. At this point the incentive to provide psychiatric hospital facilities was no longer driven by the aim of providing institutions for long term care, but by the need to convert and redevelop the service infrastructure to provide acute inpatient services as part of a deinstitutionalised model of care. To be able to implement this new policy, *département*s who had not yet followed the trend to build asylums had to create such acute facilities. The last *départements* to build inpatient psychiatric services often set up psychiatric hospitals or psychiatric wards in the multi-specialty hospitals serving the area, resulting in a more rapid period of growth in the number of psychiatric facilities after the 1960s. Arguably, these were part of a new phase of innovation in psychiatric care, rather than the last stages of the diffusion of asylums. However, they can also be seen as a continuation of psychiatric service infrastructure development that had been set in motion though the asylum development process, since in the French case the original asylums have often been retained and converted to the community care model.

Choice of location within départements: distancing the 'mad' from the city

By shifting the scale of analysis to a more local one, one can also discern what seem to be the effects of changing ideas about what constituted both a therapeutic setting and an appropriate location for a 'lunatic asylum'. The communes where new asylums were located were examined in terms of their population size, their general position relative to urban areas and their distance from the administrative centre for the *département* where the *Prefecture* (government headquarters for the *département*) was located. As discussed above, the Lunacy Act gave *départements* no precise guidelines as to the ideal setting for such facilities but alienist theories suggested that a rural location was preferable to an urban setting.

At present, more than half of the 144 public or integrated psychiatric hospitals created throughout the period are located in what are now urban centres; 16% in suburban areas, 17% in isolated towns and 14% in urban areas (French Population Census, 1999). However, it must be borne in mind that the urban geography of France has developed over time so that a third of the asylums that were initially established in rural settings were later absorbed by urban sprawl and are now suburban areas, while some previously rural settings have become urban centres or small towns. Table 2 thus shows that historically, 48% of the psychiatric hospitals were initially located in urban centres, 36% in rural areas, 12% in isolated towns, and 4% were initially located on the outskirts of cities. Table 2 also shows how, from the early 1800s to the first part of the 20th Century, the distribution of new asylum locations shifts over time from predominantly urban to more rural and semi-rural settings.

A different perspective on the geographical position of these asylum buildings is provided in Table 3, which shows their average distance from the administrative centre of the *département* and the proportion of the asylum buildings that were located within the city centre where the Prefecture (local seat of state government) was located. The pioneering asylum facilities set up before 1800 were on average located 7 km from the main city centre (60% were within the main administrative city centre). This is consistent with the theory that dominant centres in the urban hierarchy adopt the innovation before smaller centres. The mean distance to the *Prefecture* is greater for the asylums set up during the 19th and early 20th centuries (20–30 km from the main urban centre of the *département*). This may be a reflection of the diffusion of alienist ideas concerning the appropriate setting for an asylum.

Table 3
Mean distance of asylum locations from the city where the Prefecture (regional government office for the *département*), was located, according to phase of diffusion.

Phase of diffusion	Mean distance to the prefecture (in km)	% of locations within the main city of the department
Before 1800	6,8	60
1800–1837	29,4	56
1838–1899	27,3	40
1900–1959	23,7	11
After 1960	18,5	17
Total	23,4	38

After 1960 the average distance to the main city centre declined to 18 km indicating a growing proportion of more urban locations for more recently established facilities. However, by this phase the geographical pattern of diffusion became quite complex. Table 2 also shows that in the second part of the 20th century, the positions of new asylums were more widely distributed in suburban settings and in more isolated urban centres. While rural locations were still often selected, we can also observe a larger number of psychiatric hospitals being set up in large cities (Table 2). While urban areas with populations of over 50,000 adopting this innovation slowly decreased until the 1960s, the trend reversed in the last part of the 20th century. This should be considered in the 1960's context of deinstitutionalisation associated with a psychiatric paradigm shift. The aim in this most recent period was no longer to isolate and distance people with mental health problems, but to integrate them into the community and to bring the health care facilities closer to population centres.

Multiple correspondence analysis: relationships between different temporal-spatial trends

These trends are summarised in a multiple correspondence analysis (MCA) to explore the complex associations between the attributes of asylum facilities, listed in Table 1. A scree plot analysis of eigenvalues showed that the first four dimensions from the factorial analysis account for 37% of the variability. Fig. 3 presents the first two dimensions (which together explain about 22% of the variability) and the size of the data points indicate their influence on the pattern of correspondence between the different variables. The first dimension on the horizontal axis is strongly structured by characteristics of the places where hospitals were sited. It clearly opposes hospitals located in middle to large-sized urban centres or main administrative centres (to the left of the diagram) to sparsely populated rural areas or semi-rural settlements (less than 5000 inhabitants) more distant from the main cities (to the right).

By projecting the temporal dimension on this factorial component (the phase in the diffusion process when the hospital was established, marked as a jagged line in Fig. 3), a path emerges demonstrating a strong relationship between location and time. Thus middle to large-sized urban centres are more likely to be the settings of pioneer lunatic asylums, created before the Lunacy Act, while less central and more rural locations are more often sites

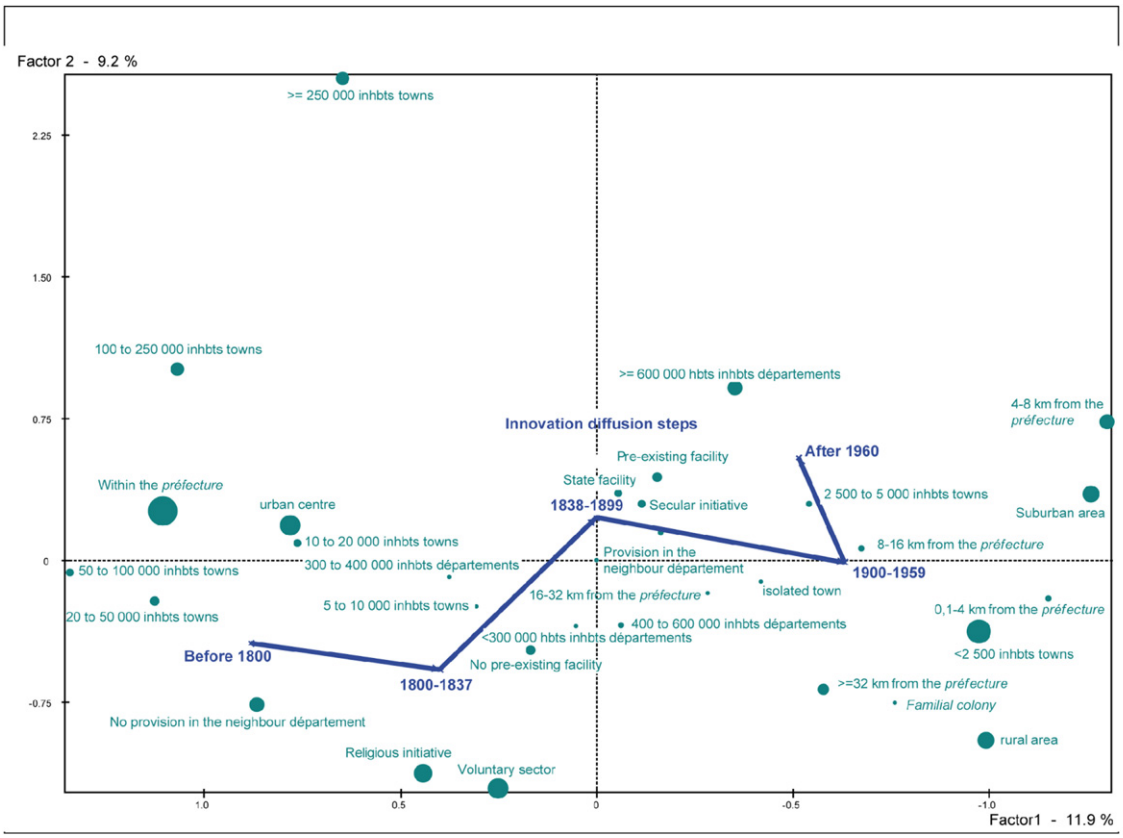

Fig. 3. Factorial plan (axes 1 and 2) from MCA depicting clustering of attributes of new aslym facilities (points proportional to the contribution of active items to the plan)*. * The 'jagged line' indicates periods at which asylum institutions were built. Variable categories are indicated with dots (with radius proportional to the strength of the association with other elements in the model.

for 20th century establishments before the 1950s. This seems consistent with the idea of a hierarchical diffusion trend, with early adoption of the asylum model in larger centres and later adoption in smaller settlements.

The second dimension, on the vertical axis, is essentially structured by the relationship between the locations of public sector institutions of special interest here and the presence of facilities provided by independent charitable organizations. This dimension opposes (at the bottom of the diagram) voluntary hospitals (frequently of religious origin, often located in places with no pre-existing provision) to places with existing, 'embryonic' provision in a public and secular hospital (at the top of the plan). This is consistent with a theory of path-dependency in service development, later hospital developments being associated with earlier patterns of development. The most densely populated *départements* also appear in the upper part of the diagram, suggesting a longer history of provision of public facilities in these *départements*.

The third and fourth axes are not illustrated. The third axis opposes suburban asylum locations, often close to the main urban centre of a *département,* to hospitals located in isolated places, further from the main cities. The former group was more likely to be in the voluntary sector, whereas the latter group was more often public sector facilities. The projection of the temporal dimension of the diffusion process provides a clear pattern; suburban locations (which were on the city fringes when the asylum was established) were more common for pioneer establishments while isolated locations were later developments. The fourth axis showed suburban locations were more common in rather sparsely populated *départements* while very rural locations were more often chosen in more populated *départements*. This may suggest that in rather urbanised and industrialised settings the move toward tranquil rural settings promoted by the alienist movement was particularly strong.

Discussion and conclusion

Our study was faced with several challenges, so that the conclusions are subject to several caveats. The first of these was the question of how to analyse a hierarchical diffusion hypothesis when the urban hierarchy was changing significantly through the period studied. The dramatic modification of the French national urban hierarchy during the 19th century due to the unprecedented urban growth biases the hierarchical diffusion model. The *départements*' mean population density increased by a factor of 1.8 during the 19th century with a good deal of local variability, which radically altered their demographic ranking. The urban hierarchy also became more differentiated: in 1801, for the least and the most populated *départements*, the population density ratio was around one to seven; by 1982, the ratio was one to 34. This unstable urban hierarchy makes the hierarchical hypothesis difficult to apply, even if we hypothesise that the greatest population growth was associated with a greater probability of adopting the lunatic asylum innovation. Similar challenges also face other studies of diffusion over extended time periods. We also note that percentages in the tables and the results of the MCA need to be interpreted with caution due to the relatively small numbers of data points. This makes it especially difficult to assess the later stages of the diffusion of the asylum model. It would be interesting to have more information on the capacity of the institutions and the numbers

of patients using them, in order to assess the extent to which provision was related to likely demand in *départements* of varying population size.

Bearing in mind these limitations, this analysis of spatial diffusion of asylum facilities as an innovation has shown the limits of the relevance of classical models of spatial diffusion.

The contagious diffusion model, arguing for diffusion governed by geographical proximity, does not seem very appropriate for our case study, except during the early expansion phase in the 19th century. In addition, its applicability remains limited to the northern part of France, perhaps because of the stronger economic, industrial and demographic development of this French region at that period. Elsewhere in France, it is difficult to distinguish the effect of contagious diffusion specific to psychiatric hospitals.

While the hierarchical diffusion model seems to be more relevant in our study, it nevertheless proves to be inadequate in explaining the whole process of diffusion and location of lunatic asylums. Some large urban centres, and namely the capital city, Paris, delayed in the construction of asylum facilities despite the fact that it had been the centre of emergence of the clinical and therapeutic ideas about the moral treatment and the need for such asylums. This delay in the creation of a lunatic asylum in Paris was criticized at the time and interpreted as an administrative failure. For example, Semelaigne wrote in 1860: '*In France, several large cities already have model establishments, and rival improvements are developing in foreign countries. In Paris, however, through a regrettable anomaly, the Bicetre and Salpetriere hospitals are not affected by this trend, as indicated by both their imperfections and gaps in their scientific progress and actual achievements. This immobility, in a centre from which fruitful initiatives usually emanate, cannot continue. The capital city is embarrassing itself. A special commission has been established to consider the changes required in this situation*'. (translated from a quote from Daumézon (1959)). This phenomenon reflects both the social rejection of people with mental illness and the facilities to treat them, and processes operating in landscapes of power as defined by Dear and Wolch (1987). While Paris was a centre of psychiatric knowledge, it may have been slow to establish asylums because of the effort required to reorganize the existing provision in '*Hôpital Général*' facilities, and there may also have been motives to distance people with mental illness from the capital by devolving provision for 'the insane' to the provincial *départements*.

This analysis therefore differentiates between the site of innovation in the sense of development of a new model of care (the alienist approach) and the diffusion of the concrete expression of this model: i.e., special purpose residential care facilities designed to deliver this psychiatric care. While diffusion of alienist ideas may have followed the classical hierarchical diffusion model from Paris to other large urban centres (and other countries), and then to smaller urban centres, the diffusion of asylum facilities was influenced by other factors which will have favoured or impeded their establishment. Among these we can include the local influence of organizations prepared to create unconventional facilities, (these were apparently often not-for-profit private associations or religious institutions), and the economic and social dynamism of communities within some *départements*.

Of course, there exist alternative interpretations of Pinel's ideas and taking them into consideration highlights how change in health care systems is multi-faceted and complex. Foucault, for example, interprets the diffusion of the therapeutic benefits of the asylum model in terms of the diffusion of growing power and discipline exerted by the medical profession in psychiatry (Foucault, 1961, 1975). Other authors have interpreted the development of psychiatric medicine less in terms of repression and punitive action towards mentally ill people and more in terms of innovative knowledge of the social and psychological determinants of mental illness progressively leading to a long term shift towards new models of care and risk governance (Gauchet & Swain, 1980; Quétel, 2009; Swain, 1977). Either interpretation is particularly interesting in the French context in that it is, arguably, rather unusual in France for professional associations, rather than the state, to determine national policies and welfare strategies.

Apart from the situation in Paris, the hierarchical diffusion model seems to apply to our case study quite well, particularly before the 1838 Act. Except for some rural *départements* where religious communities initiated asylum development, pioneer *départements* were usually densely populated and tended to be relatively advanced both socially and economically. The average size of new adopters (absolute and relative to the period) tended to decrease until 1838, which suggests that the innovation was filtering down the urban hierarchy. Having said this, there were some inconsistencies in the general trends; certain *départements* with small populations established asylums quite early, while some more populated areas were slower to set up asylums.

To some extent, the 1838 Act, requiring each French *département* to have an asylum, disrupted the hierarchical diffusion process, imposing a more universal diffusion of asylum development. Although the 1838 Act did not proactively initiate the trend to set up asylums, it nevertheless framed the later stages of the process and may have influenced its course of development. Likewise the 'sectorisation' policy introduced in 1960, in the wake of deinstitutionalisation of psychiatric care, also 'interrupted' the final stages of the diffusion process, as discussed above.

Our findings therefore raise questions concerning the relevance of classical diffusion models for the interpretation of this example of health system development and argue for an approach based on more complex models. A more relevant conceptual framework might be political ecology, involving the exploration of large-scale social, economic and political influences that shape the local context (e.g. described by Mayer (1996), Richmond,C., Elliott,S., Matthews,R., & Elliott,B. (2005)), as well as locally specific factors that influence the trajectory of development of health care systems. Such a perspective would also place more emphasis on mental health system development in its wider social, economic and political context, including the evolution of the social representations and medical knowledge of mental illness, the political management of the diffusion of these innovations, and also the profound changes in the urban hierarchy of the country through the 19th century. A conceptual framework based on political ecology would also make it possible to consider that decisions regarding the development of psychiatric care were being made simultaneously at different geographical scales, from local to national level. Furthermore, it would allow us to emphasize the importance of a historical perspective, stressing the path-dependency that helps us to understand how historical conditions influenced the dynamic processes of innovation considered here.

Ideas of path-dependency also continue to be particularly relevant for French mental health provision because of the continuity between past and present in the geography of the provision of services. Contemporary processes of French deinstitutionalisation are strongly structured by the past heritage of asylum institutions. Unlike the situation in the United Kingdom or the United States, French deinstitutionalisation has not led to the mass closure of psychiatric hospitals. To date in 2010, no psychiatric hospital closure has been registered in France following the deinstitutionalisation principles. The present psychiatric sectorisation policy therefore has to adapt to this pre-existing asylum geography. This creates issues of accessibility and problems of rehabilitation and transformation of parts of disused buildings, often costly to maintain and difficult to convert to other uses, especially when buildings are classified as Historical Monuments.

This paper also opens up a large field of research, since the geography of French mental health care has not been previously studied, despite the strong spatial dimensions of mental health care planning, as enshrined in the 1838 Act, in the 1960 policy for geographical division of the country into psychiatric sectors, and, more recently, in the 'Area Health Plans' (*projets médicaux de territoire*) aiming to facilitate and coordinate primary and hospital care, social and health services.

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