Michael Ross, Roger Sennert, Jens Wagner

Putting Itinerant Cinemas on the Map

Introduction

Itinerant cinema was the predominant form of film exhibition in the first dec-
ade of cinema culture in Europe. Information on a large number of occur-
rences of itinerant cinemas on fairs in Germany and neighbouring countries
can be found in *Der Komet*, a contemporary trade paper. To make an analysis of
the available data feasible, the source data was collected in a relational database
and complemented by external data, e.g. geographical coordinates and popula-
tion figures for the places visited by itinerant cinemas. A number of problems
arose during this first stage, especially in respect to identifications of showmen
and places. This had major consequences for the design of the final database,
which can now be accessed and searched through a web-based interface. Since
a major strength of the data collection is related to geographical aspects like
regional distribution and routes of itinerant cinemas, in the second stage a tool
for geographical visualization was developed. This not only helps to facilitate
the analysis of the data, but also allows for a quicker and safer validation of the
sometimes inconsistent source material. The final product is the result of a
close collaboration between a film history project and an information technol-
ogy project, both being part of a transdisciplinary centre for media research.

The Phenomenon of Itinerant Cinema

When the new medium of film was invented and emerged as a new form of
public entertainment, it was a matter of more than ten years until stationary
cinemas – i.e. fixed establishments primarily devoted to showing films to a
paying audience – became the norm for film exhibition. Before the so-called
"cinema boom" of 1907, the predominant form of showing films to broad au-
diences was the itinerant cinema.[1] Throughout Europe, itinerant showmen
travelled from fair to fair to show their ever-changing audiences a varied reper-
toire of films.

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1   Other places for film exhibition were music halls, where films were only one num-
    ber among many different acts, and assembly halls in hotels, public buildings etc.,
    where travelling cinematographers performed for a limited time. For a detailed his-
    tory of the emergence of cinema in Germany, see Garncarz 2008.

From today's perspective, it is easy to underestimate the phenomenon of itinerant cinema both in quantity and scope. At the beginning of the 20th century, the majority of fairs were attended by at least one itinerant cinema. Even though we lack empirical data for a representative evaluation, we know for certain that some of these cinemas were more reminiscent of huge cinema palaces with hundreds of seats than of the small shabby tents we tend to associate with fairground attractions. From the range of entrance fees one can conclude that itinerant cinemas aimed at broad audiences, from people of the lower classes to well-off citizens.

For a study of the emergence and establishment of cinema in Germany up to 1914, which is at the heart of the project "Industrialization of Perception" within the University of Siegen's Research Centre "Media Upheavals", itinerant cinemas are of particular interest. Here we have the first institutionalized form of film exhibition, which very much helped to popularize the new medium as a form of entertainment and to shape the way in which films were shown and watched for many years to come. To the film historian, information on the spreading of itinerant cinemas is of particular interest: Which regions were regularly visited by itinerant cinemas, and which were not? Does the size of a place have influence on the frequency of visits? What changes can be observed within the period in question? Who were the showmen travelling with cinemas? Did they operate in particular regions, or did they cover larger areas or even cross state boundaries?

Luckily, there is a single source that allows us to answer many of these questions. *Der Komet* was – and still is – a trade paper for itinerant showmen and other carnies. In this weekly publication, there is a column called "Fest-, Markt- und Messberichte" (Reports on festivals, markets and fairs) which reports on many, if not all the fairs and similar events in Germany, and even some of them in neighbouring countries, and gives information on the carnies present at the fair, and the attractions they presented. A typical entry for a fair roughly translates thus:

> In *Lörrach* (county of Baden) were present for the traditional shooting fair:
> Leilich, cinematograph,
> Bausch, "Planet Ride" and "chairoplane",
> Buri, "chairoplane" and shooting gallery,
> Schiefer, illusion and shooting gallery,
> Lämli, shooting gallery and high striker,
> Walter, photography,
> Surber, ball throwing gallery and high striker,
> Spindler, public player (?).
>
> (*Der Komet* 1168, 10 August 1907)

Digital Tools – Step 1: Digitalizing the Source

With dozens of entries like this for every week of most of the year (there were practically no fairs in winter), the task of finding and collecting all the relevant entries was enormous, not to mention the task of analyzing the information. Work on this started several years ago, when a number of MA students under supervision of Joseph Garncarz at the University of Cologne each evaluated a particular span of years, collecting all cinema-related entries from *Der Komet* and entering these into a simple Microsoft Excel table. With single columns for the carny's name, the particular name of his attraction (e.g. "Biograph" or "Kinematograph"), the type of event (e.g. parish fair or fun fair), the town visited and the pertinent issue number of *Der Komet*, all the relevant information was now available electronically for simple search routines and some statistical analysis.

However, with nearly 7,000 entries for the years of 1896 to 1926, a simple table was far too unwieldy for more complex analysis, especially if it required the introduction of additional external information: If you want to know the role of town sizes for itinerant cinemas, you need to add such data, and if a town figures more than once in the table (and most towns do), in effect you have to add this information for each occurrence of the town. To avoid this extra work, which is also a common source of errors, it was decided to turn the single table into a relational database with separate tables for different kinds of data. By the way the data is stored in a relational database and information is interconnected, changes made to a single entity are immediately effective for all occurrences of this entity throughout the database.

The mechanical conversion of the table into a relational database brought to light a typical problem of non-relational data collections: Because of typing errors and different spelling versions of names, identical persons or places could not be automatically matched. In fact, there were so many inconsistencies in the original data collections that it was decided to conduct a full revision of the material, correcting any typing errors and omissions – both of which are obviously unavoidable when working on a project of this scale.

A problem not easily resolved by proof-reading lies in the source itself. On the one hand, the source data can be ambiguous, e.g. place names which can refer to more than one place, or carnies' names which are so common that they might easily refer to more than one actual carny (especially when the first name is not stated). On the other hand, the source itself is far from free of spelling inconsistencies. From the available data one must assume that the information was passed on sometimes in writing, sometimes orally – which accounts for all sorts of reading and hearing mistakes that found their way into print. But then again, some presumable "mistakes" might be correct after all,

or two variants of a name coexist without any indication which of the two is correct.

Digital Tools – Step 2: Identifications in the Database

To avoid any premature conclusions, those entering the data had been instructed to stick completely to the source, copying the information exactly as given in *Der Komet*, even if a mistake was more than likely. During the proof-reading phase, this strategy was retained. As mentioned before, the inconsistencies resulting out of this make it difficult to analyze the data statistically. Therefore, a second layer of identification was introduced into the database, linking the copied source data to actual persons, places etc. The identification feature includes the possibility to make more than one identification for any element of the source data, and to grade identifications according to their probability.

For example, if the source gives the place of a fair as "Lichtenstein", this is ambiguous since there are at least eight places in Germany of that name, and that is not counting the Duchy of Liechtenstein situated between Austria and Switzerland. With the database's identification feature, it is possible to 'identify' the Lichtenstein of the source with all of these places. If other factors, especially the region in which the itinerant cinema in question usually operates, make any place more or less likely than the others, the identifications can be graded accordingly, by choosing one of five categories, in descending order of likelihood:

- Definite (100%)

- Highly probable (81-99 %)

- Probable (51-80%)

- Possible (21-50%)

- Perhaps (1-20%)

Percentage figures behind each entry serve only as an indicator for the "meaning" of each category. For example, they suggest that you usually don't have more than one identification for a single source that is "probable" or higher. If two or more identifications are on the same level of probability, they will be considered "possible". If one identification is "definite", there usually won't be any others. If there is a "highly probable" candidate, you usually won't have "possible" entries. If there is an identification which is rather unlikely but cannot be ruled out completely, it will be considered "not impossible". That said,

the aim is not to get to a sum of 100% by adding the values of each identifica-tion, but to give a rough idea of the probability of each individual identifica-tion.

The identification feature and especially the grading system is the place where the film historian's expertise and intuition are needed. In many cases, there is simply no mathematical way to judge identification. Assigning the probability of an identification depends – among other things – on a knowl-edge of existing persons and places, on typical spelling errors and variants of the time (especially with the black-letter typeface used in the source), and on a good idea of the typical operating area of a particular carny. Especially this last aspect poses some difficulties as long as the geographical information is only available in textual form. With the visualization of the data on a dynamical map, it is much easier to recognize operating areas and other geographical pat-terns which are important for grading identifications as well as analyzing the complete data.

Digital Tools – Step 3: Asking the Experts

The work as described so far was realised by members of the film history pro-ject only, from the conceptualization of the task to the programming of the MySQL database (including a web-based front end, which is now open for public access via www.fk615.uni-siegen.de/earlycinema/). However, the task of geographical visualization proved too much for the film scholars turned programmers – expert help was needed. Thanks to the construction of the transdisciplinary research centre "Media Upheavals" at Siegen University, this expert help was in effect just across the corridor, where the informatics project "Methods and Tools for Computer-Based Analysis in Media Studies" is work-ing within the same research centre.

The film history project presented the IT project with the following mate-rial to go on:

- a MySQL database containing all information from the sources and graded identifications for people (carnies) and places
- geographical coordinates for (nearly) all identified places, stored in decimal notation in two separate fields (latitude and longitude) in the place table

The following requirements were set down:

- A platform-independent, web-based solution was required, preferably without the need to install any additional programmes by the user.
- The existing MySQL database should be used as the source for the data.

- Functionality should include the possibility to select a particular carny and show the pertinent stations either completely or in a year-by-year mode.

- If possible, the route of a carny in a particular year should be visualized by lines connecting the places in the order of the carny's visit.

- An interface should allow a user of the database to visualize any search result with station lists by clicking on a button.

- If possible, the maps used should reflect the geopolitical situation of the research period (i.e. 1895-1914).

Required Technologies for the Visualisation Tool

The requirement to produce a platform-independent, web-based solution for the geographic visualisation of itinerant cinema data made it necessary to look for a web technology that is compatible with most Internet browsers while at the same time making the handling of maps (i.e. large graphic files) feasible. Apart from this, an easy-to-adapt web tool for working with maps was needed to be used in conjunction with the application technology.

AJAX

"Asynchronous JavaScript and XML" (AJAX) is a fairly recent technology, or rather a combination of technologies, for creating interactive web applications. It is of particular interest since it allows the user to change only part of a page rather than the whole page, as is usual with normal HTML websites. The handling of a web application becomes more natural, like the handling of a regular application installed locally. Thus, only small amounts of data are exchanged with the server, 'behind the scenes' as it were. This has impact on interactivity, speed, functionality and usability.

Technically, AJAX is based on open standards like JavaScript and XML. Via the Java Script XMLHttpRequest object of the browser, an 'asynchronous call' is made to the server. It is asynchronous in the sense that it does not interfere with normal page loading but loads only parts of the page at a time. The retrieved data is commonly formatted in XML again. Since JavaScript and XML are standards in most recent web browsers, AJAX is suited to cross-

platform web applications that do not need additional software on the client side.[2]

Web GIS

There are a number of terms to describe geographic information systems which are based on the Internet or an intranet, including GIS online, NetGIS, Distributed GIS, Internet Mapping, or Web GIS, which is the term we use here.[3] In contrast to a desktop GIS, where the complete functionality und data are supplied on the client, a Web GIS provides the data and functionality via a server. The client simply uses an ordinary web browser to access and display the data. Simple functions like zoom or movement of the map can be handled by the client.

Three major products currently dominate the market of presenting personalized maps on the Internet: Yahoo Maps, Google Maps, and Google Earth. Google Earth is different from the other two products by being able to show 3-dimensional objects; the user also needs to install a special programme or, since June 2008, at least a browser plugin to be able to use it. Programming with Google Earth requires KML, a special XML variant, whereas Google Maps und Yahoo Maps can be controlled via JavaScript and offer a wider range of possible interactions with other applications. At the time of realising this project in 2007, and perhaps even today, Google Maps was superior to the Yahoo product in terms of speed of processing and displaying data, especially with large amounts of data. Another point in favour of Google Maps was the fact that its API was much better documented than that of Yahoo Maps.

Realisation

The realised application is based on a standard LAMP system (Linux Apache MySQL PHP). The user interface of the application makes use of AJAX and includes the API of Google Maps. The film historical data is imported into our own Mediana database system. Its object data layer allows to access the data on object level without the limitations of a particular database.

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2   On the other hand, there are still great differences in the way that browsers interpret 'standards'. Therefore an AJAX framework was used that takes care of the application-dependent aspects.

3   For an early classification of different types of web-based GIS see Plewe (1997).

The user interface of the application consists of a single page which contains all relevant controls. On the left side the Google Maps plugin shows the currently selected data. On the right side, all search parameters can be modified to manipulate the map immediately.

The first parameter is the year to display data from. After choosing a year, all places visited by any carny in that year are displayed on the map. This function can be used to create animations to show the spread of itinerant cinemas within a particular time.

The second parameter is the selection of a single carny. After choosing one, you have the option to view only the stations visited in a specific year or all stations. The first option allows to display the route of a carny in the year chosen. This can be enhanced by an animation function, where a line is drawn from station to station in the order in which the places were visited originally. A list of stations provides further details like dates of a visit, and makes it possible for the user to choose between different places in case the identification of a particular place was ambiguous: by checking or unchecking the check boxes in question, different possible routes can be tested. The other option, to show all stations of a carny throughout the years covered by the database, is helpful for ascertaining a particular area in which the carny typically operated.

Further amenities like an AutoCentre function for centring the map around the calculated centre of the stations currently displayed, or an AutoZoom function that adjusts the zoom level so that all stations from the current search are within the visible section of the map, help the user to get a good visual idea of the data. Clicking on a station icon in the map provides further information on the particular place, including population figures from contemporary censuses. A search field for place names is also included which by default is limited to those places within the currently visible section of the map.

Finally, a small web service was added. This allows users of the original web interface of the database to submit any search result to the map application and view the result geographically.

Digital Tools – The Benefits

The successful geographical visualization of the stations of itinerant cinemas is of great importance for the ongoing research on itinerant cinema, within the Siegen project and beyond. First of all, the availability of visualization had the desired result of being a great aid in determining the probability of many of the identifications in the original data. In many cases, it was possible to rule out

places to far off the regular region of business of a particular carny, or to establish with some certainty the identity of two similarly-named carnies. Thus, the data which is available for further research has much gained in quality.

Apart form that, the analysis itself is made much easier with the visualization tool. It is now possible to easily recognize patterns of distribution, typical carnies' routes, dominant areas of film exhibition and developments of all these in time. Thanks to the web-based construction of both the database and the visualization tool, all historians of itinerant cinema will benefit from these advantages.

Future Work

From the perspective of the film history project, it would be worthwhile to work on a solution that makes use of contemporary (historical) maps. Even though it may sound more like a gimmick or toy than a necessity, we believe that the use of historical maps may well deepen our understanding of the phenomenon of itinerant cinema. For example, the international scope of itinerant cinema can only be correctly judged if we work with the national boundaries of the time. Furthermore, if we had access to historical railroad maps within our system, these would enhance our understanding of the travelling routes and the dependence (or independence) on railroads at the time (as opposed to the modern motorways we find in Google Maps). The main obstacle to realise this is the lack of available historical maps in digitised format. A series of test runs with self-digitised maps failed, since the projection of the historical maps was either erroneous or not compatible with the Google Maps projection.

Acknowledgements

Bibliography

Alameh, N. "Chaining geographic information Web services in Internet Computing." *IEEE* 7.5 (2003): 22-29.

Bernhardsen, Tor. *Geographic Information Systems: An Introduction.* Hoboken, NJ: Wiley, 2002.

Cha, Seung-Jun, Yun-Young Hwang, Yoon-Seop Chang, Kyung-Ok Kim and Kyu-Chul Lee. "Integrating Ajax into GIS Web Services for Performance Enhancement." *Lecture Notes in Computer Science* 4488 (2007): 562-568.

Garncarz, Joseph. *Maßlose Unterhaltung: Die Etablierung des Kinos in Deutschland, 1896-1914*. Frankfurt a.M./Basel: Stroemfeld, 2008 (in preparation).

Gottipati, Hari. *Hacking Maps with the Google Maps API*. 2005. www.xml.com/pub/a/2005/08/10/google-maps.html

Miller, Christopher C. "A Beast in the Field: The Google Maps Mashup as GIS/2." *Cartographica: The International Journal for Geographic Information and Geovisualization.* 41.3 (2006): 187-199.

Nod, Tom and Shawn Helwig. *Rich Internet Applications. Technical Comparison and Case Studies of AJAX, Flash, and Java based RIA.* Madison, WI: UW E-Business Institute, 2005. www.uwebi.org/docs/final_1.pdf

Paulson, Linda Dailey. "Building Rich Web Applications with Ajax." *Computer* 38.10 (2005): 14-17.

Plewe, Brandon. *GIS Online. Information retrieval, mapping and the Internet.* Santa Fe, NM: OnWord Press, 1997.

Sayar, Ahmet, Marlon Pierce, and Geoffrey Fox. "Integrating AJAX Approach into GIS Visualization Web Services." *Advanced International Conference on Telecommunications and International Conference on Internet and Web Applications and Services* 2006: 169.