

**Non-boundary Jurisdictional Data in Historical GIS:
Examples from the Atlas of Historical County Boundaries**

A Presentation to the International Workshop on Historical GIS
Fudan University, Shanghai, China, 24 August 2001

by

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I represent the Atlas of Historical County Boundaries Project, a historical research project designed to compile, map, and disseminate all changes in the jurisdiction of every county in the United States of America, from the early 1600s to the present. As the name of the project implies, we spend most of our time working on alterations in boundary lines, but our interest extends beyond boundaries to include extinct counties, unsuccessful proposals for new counties, changes in state boundaries and their effect on counties, non-county areas, organization of county governments, and attachments of unorganized counties and non-county areas to fully operational counties.

Even though they can be important and interesting in their own right, boundary changes seldom are the direct object of a researcher's inquiry. Nevertheless, they can exert a powerful influence. Most often they interfere with the analysis of historical statistics, like census returns, or a search for such essential records as certificates of births and deaths. We convert those obstacles into aids by collecting all the relevant information and presenting it in useful and authoritative ways. Our goal is to produce a long-lasting resource for future research.

In the United States there have been thousands of jurisdictional changes at the state and county levels. In the United States today there are about 3,100 counties or equivalents, and each one has changed approximately 5 times. Most changes occurred before the twentieth century. The state and county networks that now cover nearly every square inch of the nation were instituted by, and for the benefit of, the European immigrants who, over the course of about four centuries, displaced the native Indian inhabitants and spread themselves westward across the North American continent. The

high rate of change in states and counties is the natural consequence of the advance of white settlement and the attendant need to organize the territory. Fortunately, those people left detailed, authoritative records of nearly every county creation and change.

[Slide 1 – Portage Co., Wis.]

Let me show you how dramatic these changes can be. Here is Portage County, in the state of Wisconsin. At the top of the map you can see the population of Portage as reported in the national censuses of 1840 and 1850. The map itself uses the outlines of modern Wisconsin's counties (including today's Portage) as background for its depiction of Portage's historical location, shape, and size at the time of each of those censuses.

What conclusions might we expect from a scholar or student who looks only at the statistics and knows nothing about the geography underlying those censuses? When we see changes in population in late twentieth-century censuses we normally assume that the base unit is constant, so we can concentrate on the numbers alone, but that is hardly a valid approach to Portage in the middle of the nineteenth century. To read these statistics and map as indicating a simple 23% decline in total population misses the important point entirely. Clearly, it is reasonable to conclude that few, if any, of the people counted in 1840 were part of the 1850 population.

Of course, as an institution, Portage County did not change. It has kept its records intact as an organic whole, regardless of the locations of some of the events recorded in them. Marriages, births, and deaths that occurred in the southern part of the county in 1840 were recorded in the same books that rested in the courthouse of 1850, the same ones that rest now a little farther east in the courthouse of 2001.

I concede that Portage County, Wisconsin, is one of the most extreme examples I can find, but it is hardly unique. Imagine how this map could help demographers understand and appreciate the true significance of the historical statistics. Imagine how this map could help an archivist, historian, geographer, genealogist, or attorney searching for birth certificates, land deeds, or other records. Imagine having to cope with either the statistical analysis or record searching without the benefit of a map like this.

Today, I should like to focus on features of historical county jurisdiction that are not traditionally associated with quantitative analysis, particularly attachments, non-county areas, and precursors of the states. By thinking of counties as more than mere statistical unit areas, we make it easier to broaden the application of GIS to the study of history.

Products

Our original plan was to disseminate our information both in printed books and as cartographic data files. When we commenced in 1988, computer cartography was both too costly and too immature, so we decided to defer the computer files until we had finished compilation for the entire country and to publish our data in books one state at a time as we progressed with the research. To date we have published the information on 24 states in 19 volumes, including more than 7,000 maps, and another four states are ready for the publisher.

Now, thanks to the remarkable speed with which computer hardware and software have evolved in the last decade, we no longer have to defer cartographic data files. We do not want to abandon books, but in the future our primary products will be electronic: graphic images (electronic versions of the books) and GIS-compatible cartographic data files. We plan to disseminate both kinds of digital material via the Internet.

Attachments

[Slide 2 – McHenry Co., Ill.]

Please recall that the creation of new states and counties in America depended upon the growth and movement of population. Some state authorities preferred not to establish new counties in response to population shifts. They tried to promote development by creating counties ahead of settlement. Such counties attracted settlers with the promise of familiar local government as soon as the population was large enough to support a full complement of county officers. At that point the state legislature would “organize” the county, authorizing elections and directing the establishment of offices. Until organization occurred, early settlers could find themselves in a kind of limbo with no sheriff or other official. In such cases the state usually provided a temporary arrangement that would give the residents some of the protection and services they anticipated. That temporary arrangement was to “attach” the unorganized county to a nearby, fully operational county. If a resident of an attached county needed to record a birth, death, or land sale, or do any other kind of business normally handled by county government, he would travel to the seat of the host county and transact his official business there.

Attachments were extremely important to the state and county governments and to their citizens. Except for Shannon County, South Dakota, there are no unorganized counties today. Sadly, there also is little record of the arrangements of temporary attachment in the past. That makes it difficult for us to appreciate how widespread the practice was and how important it was to the people at the time. One group that appreciates some of the ramifications of the practice consists of people searching for records of past events. Records of a marriage or a land transfer that had to be registered at a host county can be very difficult to find if the temporary attachment is not known. Let me demonstrate how complex attachments could be.

[Slides 3 and 4 – Orleans Co., Vermont]

When Orleans County, Vermont, was created in 1792, it was not organized. The state legislature tried to compensate the few residents for that inconvenience by setting up temporary associations with neighboring counties, attaching the western portion of Orleans to Chittenden County and the remaining eastern part to Caledonia County. Note that Caledonia was not fully organized at that time and was itself attached to Orange. Presumably, people from eastern Orleans had to travel to the Orange courthouse to transact official business as long as that arrangement was in effect. Subsequent changes to that divided attachment include the replacement of Chittenden as the western host by Franklin County (organized on the same date as the shift in Orleans attachment) and the successful efforts of two western towns to have their attachments shifted to the east. We do not know why those towns wanted the change, but the towns' decisions and the state legislature's acceptance of those choices are clear evidence that attachment was a serious and important matter for everyone concerned.

[Slide 5 – Boone County, Ia.]

In the County Boundary Project, we include attachments as regular features of a county's jurisdictional history. In the books we usually depicted the relationship between the host and its dependencies by arrows leading from the unorganized counties to their host, as you have seen. We expect to continue that technique for the graphic maps we will post to our web site. For GIS we will not abandon attachments, but there probably will be no arrows. We have not yet completed an experiment on this problem, but we are looking forward to adding one or two fields to the relational database or to the GIS attribute tables for the counties, depending on how we structure our data. The output could be a chronology of a host and its attachments or a map. One symbolization scheme for mapping attachments might be to outline the host county with a distinctive line or color and use a variation for

the attached counties (see Boone Co.). It will be most desirable to store the data in a GIS data file and let the user choose among several options for a display;

Non-county areas

[Slide 6 – Indiana at Census 1830]

Another important feature of the jurisdictional landscape before states and counties filled the land was non-county area. From the seventeenth century into the 1800s it was fairly common for a colony or state to leave unorganized those areas that were “empty” of white people. As pioneers moved into unorganized territory and fugitives sought safety outside the jurisdiction of existing courts, some authorities sought to eliminate all non-county areas by creating super counties that extended far beyond white settlement. Other authorities were satisfied with simply attaching a non-county area to a nearby operational county. Overall, the spread of white settlement assured that no land would long exist outside the county system.

[Slide 7 – Texas]

Despite such efforts, some non-county areas persisted. Frequently these appear to have been the accidental results of creating adjacent counties that did not fit together well. Non-county areas were common in the nineteenth century. The small, irregular area circled on the printout of Texas in 1846 is an example of such accidentally unassigned bits of territory. Non-county areas were common into the late nineteenth century.

Because non-county areas no longer exist, users of modern GIS software have no experience with them, but, as common historical manifestations of the legal system and as products of the effort to organize and control territory, they cannot be ignored. In the County Boundary Project we try to deal

with non-county areas as analogues of counties. This requires us to name, or at least identify, them so that we can track each non-county polygon.

[Slide 8 – Prototype of Texas Attribute Table]

The system we have set up for Texas is not completely satisfactory, but the problem seems to lie in the identification coding system, not in the approach of treating non-county areas as counties.

Precursors of States

Social science historians aim to illuminate the past and to gain insight into historical events through the analysis of historical statistics. To that end they seek to compare data over the longest possible period, which puts great value on geographic units that do not change from one enumeration or sample to the next. Some researchers push so hard to minimize geographic variation that they try to deny the conditions of the past. For example, in Richard Forstall's compilation, *Population of States and Counties of the United States: 1790-1990* (1996), an official publication of the Bureau of the Census, the historical evolution of the states sometimes was purposely ignored. As Forstall said, "Throughout this report, to facilitate comparisons over time, each State is shown as closely as possible in its present-day boundaries, as far back as separate census data are available for counties now included in that State." (p. vii) That appears to be exactly the approach adopted over a decade ago in Carville Earle's "Historical United States County (HUSCO) Boundary Files" (1991) at the Geography Department of Louisiana State University. These are the only digital files of historical U.S. counties in GIS-compatible format, although our project and others are working towards the creation of rival products.

[Slide 9 – Michigan 1834]

Forcing the jurisdictional arrangements of the past into the jurisdictional network of the present can yield only limited value. First, reducing colonies, territories, and states to constant, unvarying geographic units at the state level does nothing to overcome the more serious problem of changing boundaries at the next lower level in the hierarchy, the county level. If the case of Portage County, Wisconsin, does nothing else, it testifies powerfully to the difficulty of achieving comparability at the county level. Second, trying to force the jurisdictional arrangements of the past into the boundary network of the present obscures and distorts the past. It is an ahistorical technique. Any advantage gained for the statisticians from this approach is outweighed by the need to deny the geo-administrative reality of the past.

In our work on the County Boundary Project we try to deal with this problem through a two-part definition of our subject areas. The states are the natural and obvious large units for the organization of our material on counties, just as they are for the organization of statistics. First, we compile all the county-related events that occurred within the boundaries of a state, regardless of which government or other agency was the prime mover. Second, we compile all the boundary activity of the state, whether it happened inside the present bounds or elsewhere. This approach has a certain amount of built-in redundancy, of course. For example, the creation of the modern county of Des Moines, Iowa, obviously must appear in the data set or book for Iowa, but that is not all. Des Moines was created by the authority of Michigan, which had jurisdiction over a large region west of the Mississippi River in the last years of its pre-state status as a federal territory, so Des Moines must be included with the Michigan material. When Michigan became a state, Wisconsin Territory took over the region between the Missouri and the Mississippi rivers and exercised jurisdiction over Des Moines County from 1836 through 1838, so Des Moines must appear in the Wisconsin volume as well. In each state's printed volume we include all the events and data that fall within our double definition, and we should do no less in a GIS.

As we move to electronic products on the Internet, we will continue to show the states in their various sizes and shapes according to their history. In the plain graphics presentation this will be the same as in a book. In the GIS it will be more complicated, but the problem probably can be solved with coding. We can promote maximum comparability at the county level by using the modern identification code of a county for all its historical incarnations and without regard for its association with a particular state. At the same time, we will attempt to list the counties and equivalent areas in a state at the time, even if one or more of the counties carries a modern code that links it to another state. For example, there would be but one code number (the current one) for Des Moines County, Iowa, so it could be found in each of its configurations, including the few years when it was part of Michigan and Wisconsin. The tables of counties in those two territories would include Des Moines, even though Des Moines' prefix identifies it with modern Iowa. Such a solution may require some work on the codes, but I think it can work. It is well worth extra effort to be able to follow Des Moines County from its creation to the present without having to cast away the information about the pre-statehood extensions of Michigan and Wisconsin.

Close

I have tried to point out some aspects of change in county jurisdiction that have little or nothing to do with historical statistics. Geographic information systems permit us to ask every manner of question about the relationships between geographical data. Quantitative analysis may be leading the way in the application of GIS in history, but we will not have realized the potential of this powerful, sophisticated technology until we are able to harness it also for the analysis of important qualitative historical phenomena.

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