ETHNOGRAPHICAL ATLAS OF BOHEMIA, MORAVIA AND SILESIA IN THE NEW MILLENNIUM: USING HISTORICAL SOURCES AND GIS[1]

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Abstract: In the paper the overview of the content and methodological background of the recently published and currently prepared volumes of Ethnological atlas of Bohemia, Moravia and Silesia is given. The main aim of the paper is to show, how written sources from the early modern period could help with the preparation of ethnological maps in the country, where field research of the folk culture hardly can be done at present. Secondly the very successful application of GIS (geographic information system) in the ethnological research is stressed. The very best example of fruitful utilization of both the mentioned aspects is the 5th volume of the Ethnological atlas of Bohemia, Moravia and Silesia, which deals with spatial differentiation of the Jewish settlements and professions in Bohemia.

Keywords: Ethnological atlas of Bohemia, Moravia and Silesia – geographic information system (GIS) – ethnocartography – methodology – research overview – Jewish settlements

INTRODUCTION

The beginnings of ethnocartographic research in Europe were related to the linguistic geography that had developed since the turn of the nineteenth and twentieth century. The first systematic ethnocartographic research took place in Germany already at the end of the 1920s. The German Ethnographic Atlas (ADV 1937–40) was composed rather broadly from the territorial point of view (on the basis of ethnical principle) and also included the German regions of the then Czechoslovak Republic. The questionnaires were being sent to Czechoslovakia in the years 1929–1935. However, this method had one serious deficiency, noted by H. L. Cox (1982). On the ethnically mixed territory it mapped the selected phenomena only for one that is German, part of the inhabitants.

After the World War II ethnocartographic research and the work on atlas directly con-

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nected to it were developing promisingly and intensely, especially in Scandinavia and also in Central Europe and parts of Eastern Europe. The Germans, in succession with the atlas of the inter-war period, started to publish its new series (ADV–NF 1958–1984). In the Czech lands, however, unlike in Slovakia, the systematic work on the complex ethnographic atlas had never really started, due to many reasons, among them also ideological ones. There had not been any general surveys and the researches via questionnaire were of markedly random character. Only the personal activities of distinguished personalities (initially D. Stránská, then among others V. Frolec, J. Kramařík, V. Scheufler and J. Vařeka) possibilitated the cartographic processing of selected themes (Stránská 1956; Frolec 1966; Frolec 1973a; Frolec 1973b; Kramařík 1963; Kramařík 1968; Kramařík 1978; Vařeka 1975a; Vařeka 1975b; Vařeka 1978; Vařeka 1996) and to start the preparations for the ethnographic atlas in general (Kovačevičová – Frolec – Vařeka 1978). However, most of these initiatives had faded away during the 1970s.

After the fundamental political and social changes took place at the turn of the 1980s and 1990s, the ethnocartographic work in the Czech Republic commenced to develop on qualitatively different basis. Given the fact that all neighboring states had already had their own ethnographic atlases (EAS 1990; ÖVA 1959–1980; PAE 1954–2010) or these were being worked out considerably, the making of ethnographic atlas of Bohemia, Moravia and Silesia seemed a necessity. At the same time, however, the substantial delay made possible the concentration on those aspects of traditional culture that should be studied not only within the national framework, but in European and comparative perspective. Foreign ethnographic atlases offer a broad comparative platform for such approach.

METHODOLOGICAL BASE

The work on the atlas was rather demanding from the point of view of time and organization. In the 1990s the work took place in the Ethnological Institute of the Czech Academy of Sciences under the methodological direction of J. Vařeka and L. Petráňová, later F. Bahenský and J. Woitsch. Given the personal and financial limits (the work on the ethnographic atlas had been financed largely by three-year programs of grant agencies) and also the specific heuristic base the ethnographic atlas of Bohemia, Moravia and Silesia is being published in several thematically homogeneous volumes that accentuate the development of traditional culture, especially the material culture. In the last decades volumes were published focusing on the home production in the second half of the nineteenth century (Scheufler 1991), handicraft production and trade in the years 1752–1756 (Martínek 2000), ethnographic regionalisation of Bohemia, Moravia and Silesia in the Early Modern Era (Jeřábek et al. 2004) and the Jewish settlements in Bohemia in the second half of the eighteenth century (Ebelová et al. 2007) and many other thematic areas were developed considerably.

The long-term concept of the ethnographic atlas represents, therefore, a reaction to the given possibilities of research and the general scientific policy, but at the same time – and to a much greater degree – reflects the specific circumstances of the development of popular culture in Central Europe, as well as the development of the ways of its research.

In contrast to the majority of neighboring countries where the work on the atlases had made considerable progress, or where the ethnographical atlases were published decades ago, the majority of the phenomena of traditional culture in the Czech lands could not be studied through field research as the principal method of data collecting. In the 1990s, when the work on the atlas was revitalized in the Czech lands, it would be mistaken and, indeed, impossible to try to realize field research or even research via questionnaire, focused on those themes from the areas of material and spiritual culture that are covered in "classical" ethnographical atlases. Already at the end of the nineteenth century the traditional folk culture in the Czech lands had entered the phase of rapid nivelization and even extinction, due to the hasty urbanization and industrialization. Its study through common methods used for collecting ethnocartographic data a hundred years later is simply impossible.

To this we should add the already mentioned inadequate attention devoted to ethnocartography in the Czech lands after the World War II. With the exception of some valuable, but regionally and thematically unbalanced collections of questionnaires of Ethnographic Society, there were no uniformly prepared and realized researches covering the whole territory of the Czech Republic that could be easily projected to ethnographic maps. Also the covering of the Czech lands by regional monographs offering comparable and cartographically analyzable data is also rather patchy. Neither the museum funds offer considerable help. Their collections were mostly created at random, many of the items are not paspor-tized adequately and acquired according to aesthetic and sometimes ethnic criteria.

How are we, then, to prepare ethnographic atlas in these conditions? What themes should be covered, what methodology should be chosen? The authors and editors of the volumes of the ethnographic atlas of Bohemia, Moravia and Silesia have faced these questions for almost 20 years. Only after the year 2000, however, these problems have begun to be reflected in a systematic way. In the new millennium several basic principles were established for the elaboration of ethnographic maps.

a) The atlas is composed consistently on the basis of so called regional principle, without regard to the past or present ethnical composition of concrete regions. But this does not mean that we avoid detecting cartographically the same problems that arose especially from the long-term interaction of Czechs and Germans in Central Europe (for example, the language borders).

b) The mapped phenomena are being presented in chronological perspective that is slightly different from the standard composition of ethnographic atlases. Traditional folk culture in its static and dynamic aspects had been followed approximately from the second half of the eighteenth century to the beginning of the twentieth century, but the concrete time delineation of course depends on the character of the analyzed aspects. At the same time, the commensurability and coherence of the analyzed data is strictly required, that is, the material should come from the same time period and comparable social setting. The limitations of excessive stress laid on the synchronic perception of the problem that might lead to the construction to the "ideal type" of folk culture of concrete period, is being equilibrated through mapping of the selected phenomena in various time levels. We are well aware of the fact that the folk culture, in spite of the tending towards conservation of time-tested patterns of behavior and acting, was and is a phenomenon that changes through time. Thus, the ethnographical atlas focuses on the period of the highest advancement of

the so-called traditional culture of the Czech lands, before the beginning of modern industrial era. In our opinion this approach is very productive, because it enables the recording of many aspects of traditional culture in clearly delineated and coherent time level. And the concrete themes can at any time be "opened" again and through their study in different time periods, the diachronic, developmental aspects can be illuminated.

c) Given the character of the analyzed phenomena that, as was explained, cannot be studied through field research (thus the ethnographic field research will carry the role of supplement and control component), the heuristic basis of the ethnographic atlas of Bohemia, Moravia and Silesia is radically different from many other ethnographical atlases, including those of the neighboring countries. The use of specific sources can be considered as the most important methodical–methodological feature of the elaboration of ethnographical maps in the Czech Republic.

Such approach would not be able without radical reconsideration of the rigid image of ethnography as a discipline of field research. This image had so far greatly limited the study of historical forms of the folk culture in the Czech lands. The basis of cartographic work would then rest on the ethnographic–historical study. Its heuristic basis consists in written sources, archival as well as published.

Of special importance for the complex study of folk culture in the studied period are especially the sources of general statistical, or protostatical character. These sources offer, on a homogeneous chronological cross-section, but at the same time in continual sequences, voluminous aggregates of comparable data for folk culture for the whole territory or at least considerable portions of the Czech lands. Briefly, these sources can be divided into three groups: documents that arose for fiscal and administrative purposes (especially the land registers and censuses), sources that arose from the activities of specialized economic institutions (for example the economic questionnaires) or were elaborated for the use of these institutions, and finally the statistics that resulted from private activities of individuals (historical–geographical and topographical works). Through combination of these types of sources and their detailed analyses a relatively complex data can be reached on the forms of Early Modern and Modern village culture. It is obvious that these sources focus mostly on the so called material culture (housing, architecture, agriculture, handicraft production, transportation, clothing), but some statistical and protostatistical sources bring also numerous information on the so called spiritual culture, as well as social structure – for example, the demographical data on family forms (Woitschová – Woitsch 2006), the mobility of village inhabitants. Some topographical works and questionnaires even contain detailed reports on folklore or dance culture.

d) Of great importance for the general focus and further development of ethnocartography in the Czech lands is the application of newest computer technologies. The use of so-called geographic information systems represents, besides the use of historical sources, the second main feature of the contemporary approach of Czech ethnocartography (Woitsch – Horálek 2008).

Of course, the cartographic elaboration of any map reflects its time period. Ten years ago it was still common – in the Czech lands as well as in other countries – to make maps by the use of tracing paper, coloured inks etc. Today such techniques would be, of course, obsolete. Dynamic development of information technologies renders possible not only the

making of maps without ink, but to realize much more complicated operations. For example, to analyze the spatial relations of traced phenomena in such a way that would have been be impossible in the past (Konečný – Voženílek 1999; Tuček 1998).

Most of the objects and phenomena of the real world including those that are of interest for cartographers finds itself on some place of the earthly surface (for example, river) or is connected to some place (certain handicraft is being practiced in certain locality). At the same time, these objects and phenomena exist in given area together with many other objects and mutually influence each other. Graphical depiction of these phenomena and relations we call the map that must indispensably be complemented with commentary that specifies the concrete pieces of information. When we work with such data in computer, we must digitalize both, not only the information on the object, but also on its location. This type of data is called geographical (or spatial) data and the computer system that enables us to preserve and use them is called Geographic Information System (GIS).

Simple spatial data can be processed also by some of the widely used computer programs, like databases, table processors, statistical programs or programs for designing (CAD). Common users also often come into contact with commercial map databases. But GIS differs considerably from all these programs. It can not only present data and classify them according to simple criteria (alphabet, mathematical values), but it can deal with questions on characteristics of objects, their location and their relation to other objects. In other words, it combines the qualitative data with topological data. Besides, the resulting output (answer to our questions) is a map that can be further adjusted and elaborated at will.

GIS had been designed approximately from the second half of the 1960s. Nowadays, they represent globally used computer platform that helps to process and analyze geographical data and to make maps (Handbook 2000). Of course, they find the broadest use in natural sciences and technical disciplines, as well as in state administration, territorial planning and in military. The humanities had discovered the advantages of GIS somewhat later. Of greatest use are at the moment in archaeology, in the research of historical landscapes and in historical geography. In ethnography, on the other hand, still reigns rather mistaken and limited image of the GIS as "drawing" program. This is the case of ethnocartography all over Europe (Schippers 1997).

At the moment, probably the most widely used desktop program represents the software ArcGIS, brought out in the year 1990 by the American company ESRI, dedicated to the development of GIS since the beginning of the 1970s. And precisely the ArcView GIS 3.2 became in the year 1999 the core for the building of ethnocartographic workplace within the Department of historical ethnology of the Ethnological Institute of the Czech Academy of Sciences. At present we are working with more advanced version of GIS software – ArcGIS / ArcMap 9.0. The program works under OS Windows, it renders possible the making of maps with the use of symbols, the choice of colors, various types of classification of data, drawing of various types of graphs, definitive versions of maps in form of so called drawings that can be directly printed, inserted into other applications (Word) or exported in form of pictures (TIFF, JPEG). And, of course, the software offers innumerable possibilities for analysis. It can realize spatial analyses – overlays and intersections of surfaces – as well as search for elements according to given criteria, merge them etc. Last but

not least, through ArcGIS the spatial data can be related to databases, the program directly uses numerous vector and grid formats of data. Therefore, data from various sources can be used without the need for converting, including the three-dimensional data.

Therefore, software represents an important tool and help for the making of ethnographic maps. But in order to depict and analyze the selected phenomena of traditional folk culture, these must be first entered into the system. The core of the information system consists of so called vector data. To polygons, lines and points that represent objects and phenomena (including those ascertained through ethnographic research) can be added wide spectrum of attributes. The connection of graphic and tabular data and the use of the GIS software render possible the visual representation of these data, enclosure of further statistical information or user tables, and also a wide spectrum of spatial analyses.

Geographical data used by us can be divided into two groups, according to their origin. First, there are purchased data – in other words, digital vector geographic databases of the Czech Republic, Europe and the world. Therefore, we are currently able to analyze and present ethnographic phenomena also in wide European context. The purchased data depict the basic geographical elements (hydrography, contours, settlements, roads, forests etc.), administrative units with their attributes (states, regions, counties) and finally the so-called supplementary information (f. e. parallels and lines of longitude). The already processed, commercial geographical databases can be supplemented by partial collections of data that are provided for free for example by state institutions, scientific departments etc. Numerous data can also be obtained via Internet and also by GPS surveying in terrain.

All of the abovementioned sources represent the basic frame and necessary tool for the realization of ethnocartographic outputs. We can use it for geographic referencing and vectorization of data obtained by our proper research, for making spatial analyses etc. Of importance is also the possibility of using the geographical data for high quality presentation of maps. However, the core of our work in the future should consist in the making of new aggregates of data that can be elaborated, with the use of GIS software, into ethnographic maps. One of the great advantages of the work with GIS is, of course, the possibility of never-ending emendations and corrections of maps, the continuous supplementing of running projects with new pieces of information. In simple terms, with the map and the data analysis we can work in ways similar to the work with text in text editor. And the results can be extraordinary. None of the maps, even those published in a printed form, can be considered complete. All of them can be complemented at any time, connected with other maps; new ethnographical phenomena can be included into them.

JEWISH INHABITANTS IN BOHEMIA – MODEL EXAMPLE OF ETHNOGRAPHIC–HISTORICAL MAPS MADE IN GIS

As model example of the use of historical sources of the second half of the 18th century and their elaboration and analysis with the use of GIS can serve the volume of the ethnographic atlas of Bohemia, Moravia and Silesia, dedicated to the Jewish religious minority (Ebelová et al. 2007). The volume consists of two main parts – text and maps. Even though it is called "atlas", it corresponds to our concept of ethnographic atlas that are more

detailed textual analyses of historical sources complemented by graphic and map supplements.

The fifth volume of the ethnographic atlas was composed on the basis of the unique series of detailed register of Jewish inhabitants in Bohemia that arose in the period of the so-called bureaucratic anti-Semitism in the eighteenth century. In January 1714 started the work of the so-called Jewish commission in Bohemia. Its task was to evaluate the growth of Jewish community in Bohemia. In the years 1723–1724, precisely this commission instigated the first census of the Jews. After the year 1781, the listing of the Jews (later principally on the ground of their taxing) became the task of the Czech Goubernium. Other censuses were preserved in the documentation of this institution: concretely from the years 1783, 1786, 1793–1794, 1799 and 1811. Even though this collection of sources is extremely valuable and unique, by now it had been used only sparsely and not systematically. Its cartographical use – even though this possibility is obvious – had never been even considered in the past decades.

The maps that present the residential and socio-professional structure of Jewish inhabitants of Bohemia in the years 1792–1794 were prepared on the basis of the most detailed and best preserved census of the Jews ever realized in Bohemia (situation in Moravia was, in this sense, somewhat different, as such censuses were either not realized or were not preserved completely, therefore the maps depict only Bohemia within its contemporary borders). This census was initiated by the command of the land goubernium of January 4, 1793. To guarantee the comparability of concrete censuses, a model questionnaire was prepared, together with instructions for filling up. The questionnaire should include, besides the name of the region and the heading, numerous sections to which names of the Jews were filled up, as well as the structure of their families, age, place of current residence and the place where they found themselves "under protection" (that is, the community of their "permanent residence"). There were also detailed notes about the wealth of the Jews and the professions to which they dedicated themselves.

This survey was completed in June 1794. It resulted in several thousand pages of manuscripts that had to be analyzed by the authors of the ethnographic atlas long before than they commenced its elaboration in GIS (Kučerová – Woitsch 2005). After a database was created, the census of the Jews was statistically evaluated, mistaken entries were corrected etc. For the cartographic elaboration were selected the data on residential and socio-professional practices of the Jews in Bohemia, due to their completeness and their importance for historical and ethnographical research. These data were then adjusted to the form that can be used in GIS.

In the first place it was necessary to find the clue for transformation of the original data into new classificatory frame. Most of the analyses focused on the specific Jewish socio-professional structure. Therefore, the Jewish professions were divided into three basic areas –productive occupations (in other words, handicraft productions like wine making, butchery, potash making), non-productive occupations (especially various forms of services) and finally trades (peddlers, sellers of tobacco, cloth etc.). All of the three areas are further divided into seven partial activities.

The source contains information on approximately 47,000 Jews in Bohemia. Of these, 9000 lived in Prague. Due to the specific situation of this city, as well as the high concentration

of inhabitants, Prague was omitted of the analysis and the maps, and the situation in the city was commented separately. The remaining approximately 38 000 Jews lived in the year 1829 in Bohemia in localities that are unequivocally localizable (on the basis of historical sources, topographies and lexicons). For all these localities we had to ascertain the coordinates, including for communities disappeared long ago, renamed or incorporated into other entities.

Great problem for modern cartographic work on history represents the inexistence of any digital map groundwork for past time periods; the more so for the eighteenth century. Besides, in the eighteenth century there were considerable changes of the borders of states or smaller administrative units. On the basis of preserved maps from this period and maps from historical atlases, we vectorized in GIS the majority of state borders that in 70% of cases correspond to the situation in the studied period (1792–1794). The rest of the borders corresponds to the situation in the second half of the eighteenth century. As the final map covered the whole territory of Bohemia, the possible divergences are in this scale insignificant. The borders of 16 historical regions, used during the processing of the data, but not in the final atlas, correspond to the situation in the 1750s.

The river system of Bohemia was used as landmarks in these maps. However, certain problems arose with the contemporary fluvial network. After the year 1794, many waterworks were created or disappeared and this would lead to inappropriate depictions (for example, due to the building of artificial lakes, many villages would be situated on their "bottom"). Even though these differences would not be visible, we decided to adjust the rivers according to the established localizations of villages and on the basis of historical maps. Also, all of the rivers were reduced to simple lines (this does not hold, for example, for ponds that existed already at the end of the eighteenth century).

The greatest amount of time during the works on atlas was needed for the work with the sources, their critical evaluation and interpretation. The maps as such were, thanks to the ArcGIS software, prepared within six months. During this period we prepared, besides the verification of the input data (on the whole we entered into the GIS more than 60,000 pieces of information, in addition to the localization data), more than four hundred partial maps. Some of them will be published later, after being supplemented from other sources. These partial maps became the basis for the spatial characteristics of socio-professional structure of Jewish inhabitants of Bohemia. Of the digitally processed partial maps we selected for print 42 that in the best way demonstrated the regional diversity of professional structure. Of these, 16 maps show the socioprofessional structure in the individual regions, the remaining 26 the spatial distribution of concrete profession, their structure and the structure of Jewish inhabitants on the territory of whole Bohemia.

Only these maps unequivocally revealed or confirmed the characteristics of Jewish settlement in Early Modern Bohemia. The extent and density of Jewish settlement depended on the existence of important centers of Jewish economic and spiritual life. Also, there was the crucial role of concrete landlords and regional authorities. The maps clearly show the substantial differences in Jewish settlement structure, for example, between the western and southern Bohemia on the one hand, and central and eastern Bohemia on the other. It was proved that in the analyzed period there was a profuse Jewish settlement also in the country, but of extraordinary prominence was of course Prague, one of the most important Jewish settlements in the whole Europe.

With regard to the socioprofessional structure of Jewish inhabitants, at the end of the eighteenth century dominated the trade in various goods. But the map depiction of various professions and their groupings shows substantial regional differences in the structure of concrete Jewish businesses that depended on local demand for specific goods, the need to carry on long-distance as well as local trade, the size of specific Jewish settlements, but also the local everyday interaction of the Jews with the major population. Therefore, somewhere the Jews dedicated them almost exclusively to trade, somewhere small workshops predominated. Many questions on the concrete causes for the marked and specific regionalization of these subsistence activities remain without answer by now, as well as other aspects of the everyday life of the Jews. This should become the theme of subsequent research. However, at the moment it can be stated that the fifth volume of the ethnographic atlas represents a highly important contribution to our understanding of the problem of religious and ethnic differentiation of Early Modern Bohemia. It in a substantial way enlarged our cognizance of everyday interaction of village inhabitants, and in fact the whole complex of the so-called folk culture, with the second largest ethnic/religious minority that inhabited our territory in the past.

CONCLUSION

The work on the ethnographic atlas of Bohemia, Moravia and Silesia were commenced several decades later than had been the case of the majority of ethnographic atlases of European countries. They were started in the period that poses substantial limits to the ethnocartographic work, due to the loss of the living field of research, and forcibly reorients the researcher to the written historical sources containing the data on the forms of traditional folk culture of Central Europe. On the level of methodology, however, we hold on the basic premises of ethnocartography. We try to comprehend the mutual relations of the individual phenomena of the folk culture, including the connection of the specific phenomenon with its natural setting, to delineate the borders of cultural areas and give a true picture of regional differences in given time period. Given the early extinction of many phenomena of folk culture in Bohemia, all this can be studied for the period of the eighteenth to the beginning of the twentieth century. The cartographic method enables us to create typologies and systematize spatially the selected cultural fact, delineated morphologically, socially and functionally, existing in given time and on given territory.

On the level of technology, the development of computer technologies enabled after the year 2000 the preparations of the ethnographic atlas in fully digital form. The maps are made in graphically ideal form. But the main advantage of GIS consists of the possibility of continuous elaboration of the maps, of realization of spatial analyses that would not be possible in the past, as well as the possibility of making numerous specialized maps, of which only the most instructive and relevant for the scientific public could be chosen.

At present, the Department of historical ethnology of the Ethnological Institute of the Czech Academy of Sciences in cooperation with other partners and specialists from other institutions has been continuously working on next volumes of ethnographic atlas or partial ethnographic maps. Some of them are almost finished and prepared for printing. In

this last phase is the collection of maps to the folk architecture, folk art (for example the making of nativity scenes, glass painting), spiritual culture and folklore (here, for example, maps depicting the dance culture or forms of marriage customs). And the sixth volume of the ethnographic atlas was already published in the very end of the year 2009 (Holubová 2009) – a collection of maps is dedicated to the problem of pilgrimages in Bohemia in 17th and 18th century. This volume was – not surprisingly – composed on the basis of a wide spectrum of written archival sources and elaborated with the use of GIS. The further development of demanding ethnocartographic work appears to be highly important for the development of the theoretical basis of the whole discipline in the Czech Republic. It can be expected that this research remains also in the future one of highly productive projects of the Ethnological Institute of the Czech Academy of Sciences.

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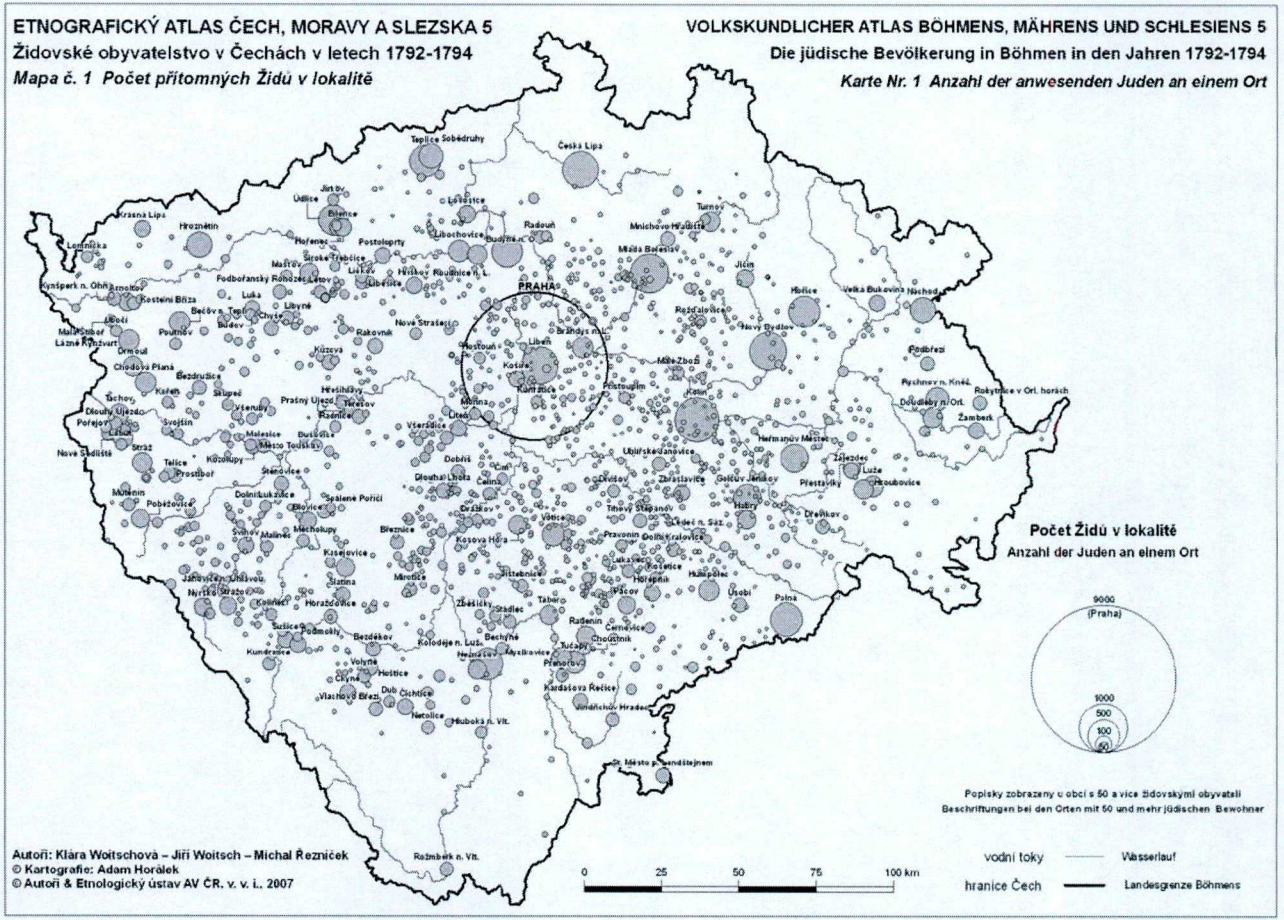
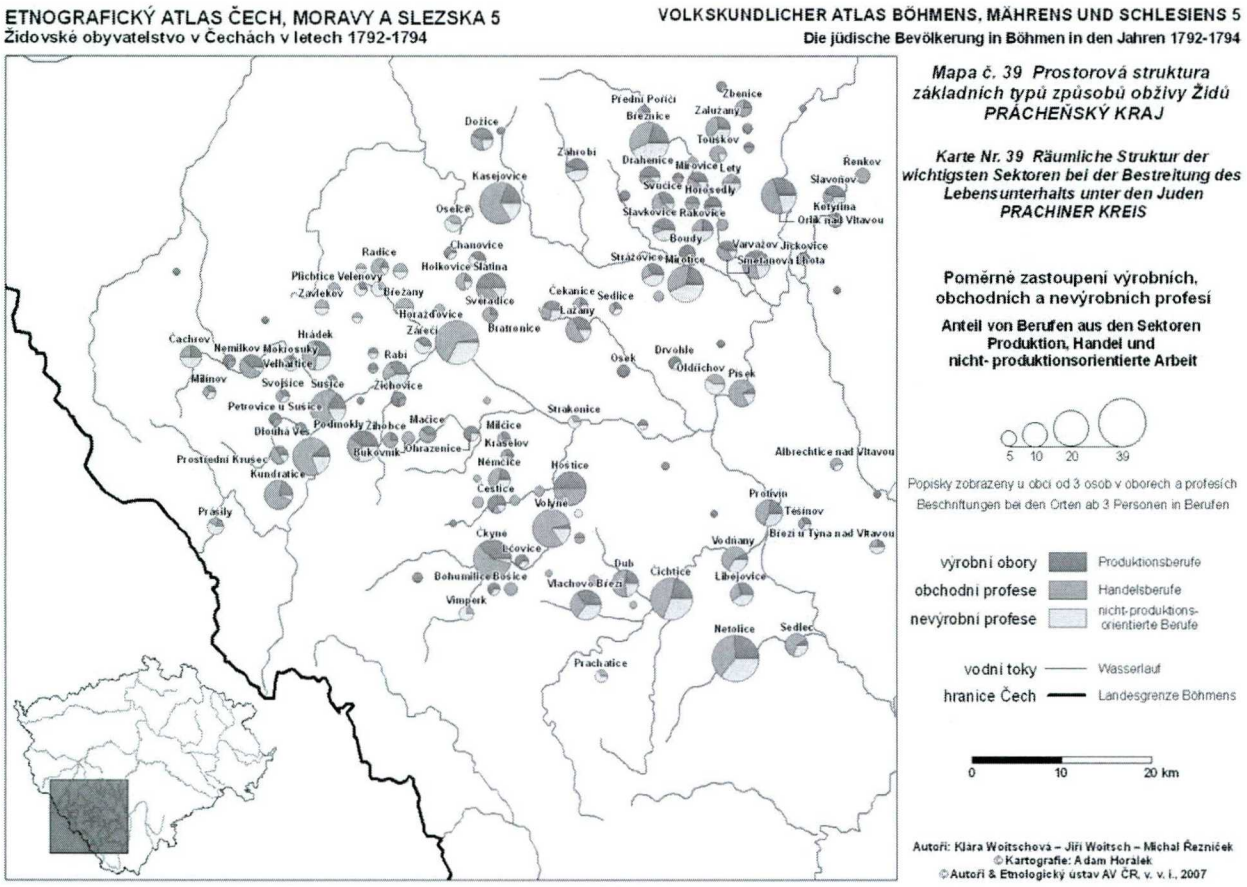


Picture 1: *Jewish settlements in Bohemia in the years 1792–1794.* (Ebelová et al. 2007, map 1).



Picture 2: *Regional specifics of Jewish professions (in the categories of productive, non-productive and trading professions) in the Prácheň region in the years 1792–1794.* (Ebelová et al. 2007, map 39).