

The research-analytic part of preparation of a cartographic work: a case study of an analysis of historical atlases as the basis for creating the Czech Historical Atlas

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ABSTRACT

A new large historical atlas on the Czech and Czechoslovak history of the 20th century is currently being prepared under the project of the Czech Historical Atlas. In this article, the authors introduce the basic research-analytic part of preparation of this cartographic work. It is based on the extensive research and subsequent analysis of the already published and similarly focused Czech (Czechoslovak) and foreign historical atlases, which gave the team sources of inspiration for processing the concept of the new atlas. The choice, the subsequent description and the analysis were achieved by the application of predetermined criteria. The result is a large database of selected historical atlases produced in the whole world after 1950, which contains more than 400 items. In addition to the standard bibliographic description, it contains a series of further characteristics (methods of thematic cartography, applied scale series, etc.) and references to the excerpts. The authors have decided to make the database freely available on a web portal, because they assume that it can be broadly used for research leading to development in the area of atlas cartography.

KEYWORDS

historical atlas; analysis of atlases; conception of atlas; Czech Historical Atlas

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1. Introduction

In the wake of the successful project of the *Academic Atlas of Czech History* (Semotanová, Cajthaml et al. 2014) and the publication *Frontiers, massacres and replacement of populations in cartographic representation* (Semotanová et al. 2015), in 2015 the project of the *Czech Historical Atlas* was successfully submitted.¹

The Academic Atlas of Czech History sought to introduce a collection of selected, hierarchically arranged findings on the modern Czech historical science after the year 1989, which covered the Czech and Czechoslovak history with links to the European, but mainly the Central European space on maps, cartographic models, illustrations, charts and choropleth maps. There were three main topics mingling in the project – the man, the space and the time. In contrast with the traditional conception of historical cartography, the atlas contains new insights into the already researched or only just addressed issue of historical research and new methods of interdisciplinary nature. In the context of historical science, this approach appears to be extremely useful, since a great many available historical atlases on the market are only of a popularizing nature. As a work based on basic research, the Academic Atlas of Czech History can be compared with numerous British Times atlases, namely for example *The Times Atlas of the Second World War* (Keegan 1989).

The main goal of a joint project of the Czech Technical University in Prague and the Czech Academy of Sciences entitled the “*Czech Historical Atlas*” and carried out in 2016–2020 is picking up the threads on the mentioned atlas, which could not cover a number of hitherto unexplored historically significant and attractive themes. Another goal is opening these topics to the public via specialized maps with textual and pictorial comments using modern methods and approaches on the planned electronic portal “*Český historický atlas – Czech Historical Atlas*” in a Czech and English version. It becomes evident that electronic historical atlases accessible on the Internet are highly demanded in Czechia. Digital historical maps and atlases on the national, world and European history are available on foreign websites, mostly in English, but also in German, French and Spanish. The successful works worth mentioning include projects of the Marburg Herder-Institute the *Digital Atlas of Political Images of Space in East Central Europe in the 20th Century* (Herder Institute 2015) and *Historical-Topographical Atlas of Silesian Towns* (Herder Institute 2009). However, the Czech Lands and the Central European space in general are, as usual, depicted only very superficially, frequently with errors in drawing of the borders, the terminology and toponyms. As

a matter of fact, the Czech and Czechoslovak history works with many special terms, which are unknown to the foreign authors of digital maps or cannot be translated. This leads to shifts and confusion of terms or even mistakes, usually when referring to the names of historical lands, states and other territorial units (principality, duchy, etc.). In many cases, the data on historical events, the territorial scope of the lands and states, their historical borders, historical terminology, etc. are incorrectly indicated. For example, on the Internet portal *Atlas of World History* (Lodge 2017) or on the portal *Euratlas* (Euratlas 2017), namely on the map *Europe in Year 1100*, the Czech Lands are not included at all.

The first phase of research on the mentioned project involves *detailed preparation of the concept of the historical cartographic work* with view to the specific features of its printed and digital form. Based on the team’s rich experience, the preparation of the concept takes place on the platform of research and subsequent analysis of the already issued similarly focused cartographic works resulting in a draft of the concept, as indicated by a chart in Figure 1. When compiling an atlas, the already issued atlases of a similar focus as well as the nature of the atlas should be acknowledged (e.g. Keates 1989; Leszczycki 1977; Voženílek 2015).



Fig. 1 Scheme of the research-analytic part of preparation of the cartographic work.

In the Czech cartographic milieu, analyses of the already published cartographic works are usually performed for their subsequent evaluation (Bláha 2010; Voženílek, Kaňok et al. 2011). However, in addition to the standard research, the analysis can also become a source of inspiration for authors of the newly emerging cartographic work.

In the article, the authors introduce the basic research works – the Czech (Czechoslovak) historical atlases and their development (Chapter 2) as well as the principle of the unique database of historical atlases and a large amount of foreign works (Chapter 3) as well as their excerpts (Chapter 4). The existing outcomes of the research in combination with the potentialities of analyses of the atlases are provided in the chapter 5 of this article.

The main focus of the article is introduction of the process of the research and analysis of selected historical atlases and creation of their database. Among other things, the output is the mentioned database of historical atlases, which allows their selection

1 Programme for support of applied research and experimental development of national and cultural identity for the period of 2016–2022 (NAKI II).

according to various characteristics. This gives the user an opportunity to make further analyses over the database, which are not presented in this article in detail due to its scope.

With regard to the broadness of the theme, this article is mainly dedicated to the part of the concept on which the printed version of this work will be implemented.

2. Historical atlases and their development, situation on the territory of Czechia

The first part of the research-analytic preparation of the work's concept involved detailed research into the historical atlases especially in the Czech (Czechoslovak) geographical space, because the newly emerging *Czech Historical Atlas* picks up on this tradition.

Historical atlases represent a very specific and interesting type of historical cartographic works, which, however, stood somewhat aside a more serious research interest for a relatively long time. The importance of this type of atlas and its study is not only in its reflection on the development of the historical discourse and cartographic methods illustrating the historical events and phenomena. We must also realize that these works had (especially thanks to the school education) the potential to penetrate into the broad layers of the society and shape its perception of the course of history and its evaluation. This fact was frequently used by the ruling powers. Although it may not seem so at first glance, many atlas works reflect the contemporary tendencies and moods of the society. Especially at the time of totalitarianism, they reveal a very clear political propaganda. Since the form and the resulting shape of today's atlases were strongly affected and steered by their predecessors, it is suitable to outline their history with emphasis on their development in Czechia.

Historical atlases have very deep roots especially in European countries with long cartographic traditions (France, Germany, Britain, etc.). Certain onset can be traced back to *Ortelius' Parergon* (Antwerp 1579), a collection of maps dedicated to ancient history. Works of this type started to flourish in the 18th century, when their chronological coverage gradually started to extend to the Middle Ages and the modern age. Modern historical atlases, which fundamentally affected (not only) the European historical cartography, emerged in the 19th century mainly thanks to the German cartographers (e.g. Christian Kruse, Karl von Spruner, Heinrich Kiepert, etc.). In the 20th century, advance of the modern historical atlas in Europe and in the world continued. There was a great boom especially after World War II, when larger numbers of this type of atlas started to appear, the amounts of the processed topics broadened, the narrowly focused works started to emerge in larger numbers, etc. The technological progress and the use of digital technology

including GIS in the cartographic creations over the past decades are strongly reflected in the shape of historical atlases from the most recent period (for the development of historical atlases see e.g. Black 1994; Black 1997; Dörflinger 1995 and Goffart 2003).

In the Czech production framework, the historical atlases emerged in the middle of the 19th century. The first pioneering work written by Václav Merklas, the *Atlas starého světa*, was published in the Czech language in 1853. It was followed by several atlas works issued by the Bedřich Tempský Publishers – first a thin German work with six pages, the *Atlas zu Höfler's Welt-Geschichte* (1857), which was published two more times over several years and even bilingually in Czech and German in the second edition.

All of the listed atlases were compilations of works mainly by German cartographers (Spruner, Kiepert, Kruse, etc.). The Czech market had to wait for its first original historical atlas until the end of the 1860s. The important Bohemian teacher and patriot Jan Lepař created a two-volume Czech atlas as a complement to his three-volume history textbook for the Gymnasiums. The first volume, *Politický Atlas k všeobecným dějinám středního a nového věku*, was published in 1869 and followed by *Politický Atlas k všeobecným dějinám starého věku* one year later. Another primacy of this work is processing of the medieval and modern-age history; up to then, the atlases had only been concerned with the ancient times. Both volumes experienced a second edition over several years.

For the period of the 1880s and 90s, we must mention two other small works of an atlas form, which also have their irreplaceable position in the development of historical atlases – *Tři historické mapy k dějinám českým* (1885) by Josef Kalousek, an important person of the Czech historiography, which were for the first time concerned only with Czech history, and *Karten zur Geschichte des heutigen Österreichisch-ungarischen Reichs-Territoriums während des Ersten christlichen Jahrtausends* by another important Czech historian Hermenegild Jireček (1897). A specific group of Czech historical cartographic production of the late 19th century was represented by biblical atlases, which were unique in the Austro-Hungarian Monarchy – *Malý atlas biblický* by František Xaver Blanda (1895) and *Fünf und zwanzig Karten von Palästina enthaltend alle in den vier heiligen Evangelien angedeutete Wege Unseres Herrn Jesu Christi* (1898), an originally conceived work by Max Wellner.

The most important group of historical atlases published in Bohemia by World War I and the First Czechoslovak Republic (1918–1938) were publications for school education. Initially, successful German school atlases translated to Czech and supplemented with maps representing selected periods of Czech (eventually also Slavonic) history were published, namely works by Friedrich W. Schubert and Wilhelm Schmidt and probably the best-known author of historical atlases in general – Friedrich W. Putzger. The

Schubert-Schmidt atlas was gradually issued by the Eduard Hölzel Publishers (1887–1898). In 1898, a summarizing work combining all three parts (the ancient times, the Middle Ages and the modern age) was published in a single volume – *F. Schuberta a V. Schmidta historicko-zeměpisný atlas školní starého, středního a nového věku*. By the collapse of the Habsburg Monarchy, the atlas had been published several times in versions for the Gymnasium and the Realschule.

The most famous historical atlas of all times – the Putzger atlas – was also published in a Czech version. It was enabled by the Pichler Publishers in Vienna, where it was published for the first time in 1898 as *F. W. Putzgerův historický školní atlas k starým, středním a novým dějinám o 35 hlavních a 64 vedlejších mapách pro vyšší a střední školy rakousko-uherské*. By 1918, it had been published seven times and, much like the Schubert-Schmidt atlas, it enjoyed great popularity (Močíčková 2016a; Mucha 1961).

Although the emergence of the independent Czechoslovak state (1918) brought fresh wind even into the area of historical cartography, some proven works from the time of the Monarchy were still published. This particularly concerns the Schubert-Schmidt atlas whose potential was used by the publisher Václav Neubert who got it newly reviewed by Bohuslav Horák, a significant historical geographer. It was probably first issued in 1921 as *Historicko-zeměpisný atlas školní starého, středního a nového věku*. This atlas completely dominated the historical school atlas market and was subsequently published in many editions. Its reviewed version originated in 1933 was supplemented with another section dedicated to Slavic history. The last reprint was released in 1940. After World War II, the atlas was still to be issued, but it never reached the booksellers' shelves again.

The Putzger atlas failed to use its potential for further publication. There was only a single shortened edition entitled *F. W. Putzgerův historický školní atlas k starým, středním a novým dějinám o 6 mapách pro vyšší a střední školy československé republiky*, which was issued shortly after the establishment of Czechoslovakia and publication of this atlas in Czechia was terminated.

Regarding the newly processed works, we must mention the map collection *Čtyři historické mapy k dějinám národa československého* by Jan Hocke (issued in 1922 and again in 1931) and particularly the works by Otakar Dorazil, which were published by the Czechoslovak Red Cross as a separate addition to Dorazil's successful Historical Pocket Guide. The first atlas was released as *Malý atlas historický* (1935) and, for great success, it was supplemented and issued twice again under the name *Dějepisný atlas* (1935). It also had a Slovak linguistic version (1935) and other releases (1937 and 1938).

The last two historical atlases were produced at the end of the First Republic. In 1937, the German

Geschichtsatlas für die deutschen Schulen in der Tschechoslovakischen [sic!] Republik by Anton Altrichter was issued by the Rohrer Publishers in Brno. The Czech version was prepared for publication only one year later by Jaroslav Lameš, the vice-chairman of the Historical Club, with whose support he issued the work under the name *Historický atlas pro střední a odborné školy* (1938). In the war period, most of the publications were destroyed upon an order from the German authorities and Lameš's effort to publish a revised edition of the atlas after the war was not successful (Mucha 1961).

The period following World War II became critical also in the area of historical atlases. New approaches to processing of historical events, advance in the field of cartography and a fundamental change of the political regime strongly affected the form of the newly emerging historical cartographic works. Historical atlases produced at the time of communism found the greatest source of inspiration in similar works from the Soviet Union and later the other countries of the Eastern Bloc. At that time, many maps focused on the hitherto cartographically unprocessed themes from the Czech and Czechoslovak history were produced. Much attention was paid to the working-class movement and economic and social development of Czechoslovakia. All of these atlases must be treated extremely critically, because we can trace larger or smaller elements of political propaganda in them.

The first large atlas was a very sharply propagandist work entitled *Historický atlas revolučního hnutí* (1956, supplements 1959) – (Močíčková 2016b). It was followed by historical atlases for school education – *Školní atlas československých dějin* (1959) and *Školní atlas světových dějin* (1962), which were published in many other editions and large circulations until the fall of the communist regime in Czechoslovakia. It is the very first Czech (Czechoslovak) school atlas, which has individual volumes for the Czech (Czechoslovak) and world history. The “relaxed” period of the 1960s brought two of the most important atlas works of the communist era, i.e. the still highly regarded academic work *Atlas československých dějin* (1965) and *Československý vojenský atlas* (1965), which contains a large section dedicated to military history.

One of the interesting phenomena in the series of relatively “standard” Czechoslovak atlases is the work by Jan Bouzek et al. from the end of the 1970s, which is focused on prehistoric and early mediaeval archaeology in Czechoslovakia and the whole of Europe. It was issued under the name *Archeologický atlas Evropy a Československa* (1979) as a university textbook.

A collection of historical atlases for the junior high schools was produced in the 1980s. These slim volumes distinguished by different colours were repeatedly published under the names *Dějepisný atlas pro 5. ročník* (1980), *Dějepisný atlas pro 6. ročník* (1982), *Dějepisný atlas pro 7. ročník* (1983) and *Dějepisný atlas*

pro 8. ročník (1984) until the beginning of the 1990s. The last atlas of this type in Czechoslovakia before 1989 was a two-volume *Kapesní atlas světových dějin* by Petr Cafourek et al., which was in publication from 1977 until 1989.

The fall of the communist regime in Czechoslovakia (1989) and the new orientation to the West were also reflected in the amount of the produced historical atlases. Since 1990 and in particular since the establishment of the independent Czech Republic in 1993, many foreign works of differing quality translated into Czech have been pouring to the domestic market. There were no new Czech historical atlases of the Czech origin issued until the mid-1990s. Following the 1990s, the situation thus became rather unclear and a complete list of works loses sense for the purposes of this article. The following lines will thus briefly introduce only some of the most important types of Czech historical atlases and some of their representatives.

Narrowly focused atlases started to emerge on a larger scale. The most important work that needs to be mentioned is the project *Historický atlas měst ČR* (twenty-eight volumes have been issued since 1995), *Atlas církevních dějin českých zemí 1918–1999* by Zdeněk Boháč (1999), the multi-volume *Etnografický atlas Čech, Moravy a Slezska* (2000–2015) and the large *Atlas krajiny České republiky* (2009).

A significant proportion of historical atlases published in the last quarter century, much like the previous period, consists of works for school education – e.g. the five-volume set *Dějepisné atlasy pro základní školy a víceletá gymnázia* (1995–2001) by Helena Mandelová et al., which covers the period from primeval times to the present or the two-volume *Atlas českých dějin* (1998 and 2003) by Eva Semotanová et al.

The next work worth mentioning is the two-volume *Ottův historický atlas* by Eva Semotanová (the Czechia volume – 2007, the Praha volume – 2016) and above all the mentioned large *Akademický atlas českých dějin* (2014, second edition 2016), which the Czech historiography had long been missing.

3. Database of Czech and foreign historical atlases

The main part of the research-analytic preparation of the concept involving the *Czech Historical Atlas* project lies in creation of a database on the Czech and foreign historical atlases. In pursuit of the highest possible quality of the new historical atlas focused on the Czech (and Czechoslovak) history of the 20th century, it is necessary to acknowledge the works that were issued and processed on the theme in the past not only in the Czech (or Czechoslovak) cartographic production. Older historical atlases can serve as an interesting source of inspiration, allow a glimpse into the history of Czechia in a new

light and complete a mosaic of potential approaches to the cartographic processing of the historical matter (e.g. the applied means of map representation, methods of thematic cartography, scale series or the level of the maps' complexity). In this respect, the domestic works are certainly crucial, but the foreign works can become no less interesting and inspirational, because they provide a view of the Czech issues from the outside and, moreover, their form and processing can greatly differ from the domestic atlases.

Because of the large amount of the already published historical atlases, the authors selected two basic criteria for the planned research (database). Most importantly (a) *the lower limit of the produced atlases is the year 1950*. The main reasons for this decision, which were briefly indicated in the previous chapter, are the following:

1. The planned atlas will be most concerned with the history of the 20th century and processing of events from this period is what will be primarily researched in the formerly published atlases. Atlas works originating before 1950 can offer only a limited amount of themes on this period and can reflect only events that had occurred before creation of the given atlas. Moreover, historical atlases did not commonly dedicate much space to the most recent history at that time. Many of them thus end with events of World War I or the political division of the world after World War I.
2. In the second half of the 20th century, the number of variously focused atlases gradually started to grow. Unlike the common atlases that dealt mostly with political history and reflected the most significant historical events and stages, these atlases have a potential to take a closer look into the more marginal events and phenomena. This period also experienced strong "emancipation" of the states in which the tradition of publishing historical atlases was not deeply rooted. Therefore, a series of national historical atlases covering many yet unprocessed cartographic events from the history of these states appeared on the historical cartographic market.
3. Last but not least, we can observe a strong shift of means of map representation in illustrations of the historical matters in the cartographic works since the mid-20th century. In this respect, we need to point out that Czech and Czechoslovak atlases originating before World War II usually include analytic maps with very simple map content, which contain only sporadic attempts to illustrate the dynamic events (the course of a campaign, the war events, voyages of exploration, etc.). It is therefore apparent that the older works cannot offer strong inspiration to today's cartographers.

As it is practically impossible and not even important for the purpose of the research to follow the

world-wide production of historical atlases, the second basic selection criterion was (b) *geographical delimitation*, i.e. determination of the individual states whose historical cartographic production will be monitored. In addition to research into atlases of the Czech (and Czechoslovak) origin, it has been decided to search for historical atlases of the other

Visegrad Group member states (Poland, Slovakia, Hungary) and German-speaking countries bordering on Czechia (Germany and Austria). The history of these states immediately affected the history of the Czech state in (not only) the last century and where the greatest interest in their reflection can thus be expected.

Tab. 1 Structure of the Level 1 database with the general principle of values.

Attribute long (English)	Attribute in DB	Data format	Values
Title	NAZEV	Text	title in the main language of the work
Variant title	NAZEV_2	Text	separated by a semicolon in case of more variant languages
Year of publication	ROK	Number	if not indicated, remains blank
1st author	AUTOR_1	Text	in the "Surname, First Name" form
2nd author	AUTOR_2	Text	dtto
3rd author	AUTOR_3	Text	dtto
Country of origin 1	STAT_1	Text	CZ, GB, ... according to ISO 3166-1
Country of origin 2	STAT_2	Text	dtto
Country of origin 3	STAT_3	Text	dtto
1st language	JAZYK_1	Text	CS, EN, DE, IT, FR, SK... according to ISO 639-1
2nd language	JAZYK_2	Text	dtto
3rd language	JAZYK_3	Text	dtto
1st publisher	VYDAV_1	Text	name of the publisher without abbreviations such as a.s., s.r.o., etc. (for example "Karolinum")
2nd publisher	VYDAV_2	Text	dtto
3rd publisher	VYDAV_3	Text	dtto
Place of issue 1	MISTO_1	Text	name of the town (if the exonym is available, it is used; otherwise the endonym is used)
Place of issue 2	MISTO_2	Text	dtto
Place of issue 3	MISTO_3	Text	dtto
Total number of editions	VYDANI	Number	blank in case of a single edition
Other found editions	DALSI_VYD	Text	2nd, year; 3rd, year; ... (inserted hyperlink to other editions)
Dimension A, width (in mm)	ROZMER_A	Number	only whole-number values; if not indicated, the number 0 is blank
Dimension B, height (in mm)	ROZMER_B	Number	dtto
Number of pages (Arabic)	STRANY_1	Number	dtto
Number of pages (Roman)	STRANY_2	Number	transferred to the Arabic numerals (e.g. xix corresponds to 19); remains blank unless indicated
Price (if indicated)	CENA	Number	only whole-number values in CZK (for exchange from another currency 1 EUR = 27 CZK, 1 USD = 24 CZK, 1 GBP = 35 CZK, 1 PLN = 6 CZK, 1 AUD, CAD = 18 CZK)
ISBN	ISBN	Text	ISBN in the customary format; for new applications ISBN-13 (13-digit code: e.g. 978-...), for older in the ISBN-10 format (10-digit code); remains blank unless indicated
Library – the number of libraries	KNIH_POC	Number	
Library sigla/code (town, the state code)	KNIH_KOD	Text	sigla according to the NK (National Library of the Czech Republic), the code of the state according to ISO (see above); for Czech libraries only the town is indicated – e.g. "Prague"
Focus category of the atlas	KAT_1	Text	category; in case of more categories, separated by semi-colon; G = general, without focus; N = national atlases/atlas of landscapes, etc.; E = educational historical; R = religious, the church, faith; V = military issues; K = cultural and social; L = landscape restoration, change of land use; A = archaeological; D = demographical, population; P = politics, administration; J = other
Link to a web record	WEB	Text	if available, there is a hyperlink to a record on the atlas
Note	POZNAM	Text	

The choice of the other states covers other European countries with a significant historical cartographic market where at least an elementary interest in the history of the Czech state can be anticipated (Britain, France, Belgium, Switzerland); the non-European countries include the United States of America as one of the world-wide greatest producer of this type of atlas.

The actual research, i.e. creation of the database, was conducted by two students of the Czech Technical University in Prague under professional supervision, who searched for the atlas works in electronic catalogues of the Czech and foreign libraries. Not only the catalogues of the individual libraries, but also union catalogues of the mentioned states were used – e.g. Souborný katalog České republiky (CZ), Catalogue Colectif de France (FR), COPAC (GB), Library of Congress Online Catalog (US), Gemeinsamer Verbundkatalog (DE), Katalog der Deutschen Nationalbibliothek (DE), Główny katalog komputerowy Biblioteki Narodowej (PL), etc.

With view to the time demands of the research and the potential exploitability of the atlases, the information on the individual atlases was detected on several selection levels, conditioned by the ability to enquire from all of the levels. This situation demands the presence of a relational database model (Teorey, Lightstone et al. 2009), although Microsoft Excel was used in collection of the data because of easy operation and data sharing.

The basic *1st level of the database structure* (Table 1) is based on a common bibliographic record; it means that the atlases need not be physically available and only data from the above-mentioned catalogues in the individual libraries are sufficient. Besides the standard information (e.g. the title, the authors, the country of origin, the language, the size, number of pages, availability in the libraries), the individual atlases were provided with information on the expected focus category – mostly on the basis of an expert estimate from the content, annotation or other information available in the catalogue.

The result of the first phase of research into historical atlases of Czech (Czechoslovak) and foreign origin since 1950 is the 1st level database with more than 400 items (415 atlases). The register is not complete, because not all of the atlases have been recorded in the libraries' electronic catalogues and not all works, especially foreign, have been found in such demanding research. Nonetheless, this database represents a very large and representative illustration of the world production of historical atlases published over the researched period.

About one quarter of this number (106) are atlases of domestic production, but it should be noted that the research also included historical atlases of towns, which were not registered in the other countries and a large amount of foreign works translated into Czech. The remaining three quarters are foreign atlases from

selected states with the largest representation of works from Germany (97), France (65), Britain (47) and Poland (30).

4. Selection of atlases in the database and acquisition of their excerpts

Accomplishment of the large research into the Czech (Czechoslovak) and foreign atlases from selected states and filling the prepared database with detailed information on them enabled processing of the second stage of the research (creation of the *2nd level database*). The second phase of the research seeks to describe and analyse certain selected works in a detail and partially digitalize them by scanning, which would give rise to an interesting digital collection of historical atlas works. The total of 84 works out of which 11 are Czech and Czechoslovak and 73 foreign were selected from the above-mentioned 415 items (found historical atlases) on the basis of a deeper analysis of the structure of the content, further available information on the atlases and specific properties of the atlas (see below).

Three most important works from the Czechoslovak production in the communist period (1950–1989) were selected. The first work is *Historický atlas revolučního hnutí* (1956), which can serve as a unique document of a propagandistic work from the 1950s – undoubtedly the hardest period of communist dictatorship in this country. The other two works are academic atlases from the 1960s – *Atlas československých dějin* (1965) and *Československý vojenský atlas* (1965). All of the three atlases are characterized by a large amount of newly processed themes from the national history and a high quality of cartographic processing by relatively advanced means of map representation of that period.

From the Czech production after 1993 four very thematically diverse works focusing on the history of the 20th century were selected for a detailed analysis: *Atlas církevních dějin českých zemí 1918–1999* (1999), *Atlas mezinárodních vztahů. Prostor a politika po skončení studené války* by Šárka Cabadová Weissová (2007), the translated work *Historický atlas 2. světové války* by Alexander and Malcolm Swanston (2008) and *Atlas krajiny České republiky* (2009). These works are supplemented by selected parts of the very specific *Etnografický atlas Čech, Moravy a Slezska* (2000–2015), which is mostly concerned with the later period, but whose processing and thematic scope have been evaluated as potential sources of inspiration from the historical and cartographic view.

Foreign atlases selected for a detailed analysis are mainly works that deal with the history of Europe in the 20th century or a particular event or period of this century (many historical atlases are dedicated for example only to the events of World War II) as well

as works focused on Central Europe or its individual regions. From the cartographic perspective, we need to point out the significance of the French atlas production, which is characterized by a very interesting graphic design and application of graphic invention within the map language (e.g. large cumulation of historical events on a topographic basis including overlapping map symbols, colourful associations and connotations, and inventive vector line symbols). Among the most interesting works as regards the content, historical and cartographic aspects, the following historical atlases can be named (arranged according to the country and the date of issue):

- AT – Wilhelm Schier – Herbert Hasenmayer, *Atlas zur allgemeinen und österreichischen Geschichte* (1982); Wilhelm J. Wagner, *Neuer großer Bildatlas der deutschen Geschichte* (2002),
- DE – Wilfried Krallert – Walter Kuhn, *Atlas zur Geschichte der deutschen Ostsiedlung* (1958); Pierre Kovalevski – Alois Schmaus – Erwin Wedel, *Bildatlas der Kultur und Geschichte der slawischen Welt* (1964); Grzegorz Hryciuk, *Atlas zur Geschichte Ostmitteleuropas. Umsiedlungen, Vertreibungen und Fluchtbewegungen 1939–1959* (2012),
- FR – Marc Nouschi – Nelly Jacques – Jean-Pierre Magnier, *Petit atlas historique du XXe siècle* (1997),
- GB – Richard Crampton, *Atlas of Eastern Europe in the twentieth century* (1996),
- US – Iwo C. Pogonowski, *Poland. Historical Atlas* (1987); Paul Robert Magocsi, *Historical Atlas of Central Europe* (2002); John Swift, *The Palgrave concise historical atlas of the Cold War* (2003).

For creation of the 2nd level database (Table 2), it was necessary to have the selected atlases physically available. The process involved searching for further information (e.g. the amount, the chronological and

geographical specification of the maps), analyses of the applied method of thematic cartography, the scale series and map categories (Table 3). Most importantly, it was digitalisation of the basic features (the wrapper, the front page or the content of the publication if it was not available in the library catalogues) as well as map excerpts (from several excerpts to digitalisation of almost the entire atlas). The applied methods of thematic cartography and the map categories were determined on the basis of relevant specialized literature (e.g. Čapek et al. 1992; Slocum et al. 2008; Voženilek, Kaňok et al. 2011). The coding (Table 3) is original and its aim is to provide a universal tool for differentiation between the described characteristics of the atlases or the individual maps.

The basic procedure in identification of the methods of thematic cartography, or the map categories, was as follows:

1. Creation of a universal etalon of methods in thematic cartography/map categories (see Table 3) in order to ensure their complete list and all of their potential combinations (e.g. The Choropleth map composite with location related diagram map = Kn + KDb).
2. In the actual identification of the methods of thematic cartography, the assessor marks only the dominating methods of thematic cartography, i.e. only those that appear in the atlas at least in one fifth of the maps. The others are considered unusual for the atlas and can be mentioned in an annotation. However, they do not appear in the resulting categorization of the methods, because they would distort the results of the analysis. Regarding a detailed analysis of the methods, but also scales (e.g. in a very small number of atlases), it would be useful to indicate the concrete numbers

Tab. 2 Structure of the Level 2 database with a general principle of values for one atlas.

Attribute long (English)	Attribute in DB	Data format	Values
Colouring	BARVY	Text	1 (BW), 4 (in colour), 2 (colours in CMY schema), etc.
Cover	OBALKA	Text	001_cover (link to file)
Title page	TITUL	Text	001_titel (link to file)
Content	OBSAH	Text	001_content (link to file)
Map key	KLIC	Text	001_key (link to file)
Number of maps	MAPY	Number	in case of large atlases, it will be an estimate (approximate number)
Chronological determination	OBDOBI	Text	from the oldest captured event to the most recent
Spatial determination	PROSTOR	Text	in case of individual states, the state's code according to ISO standard (see table 1), the world "S"
Methods of thematic cartography	METODY	Text	see Table 3
Scales	MERITKA	Text	e.g. 100T, 2M (1 : 100 000, 1 : 2 000 000)
Categories of maps	KAT_2	Text	see Table 3
Example 1	UKAZ_01	Text	001_01 (link to file)
Example 2, etc.	UKAZ_02	Text	001_02 (link to file)

Tab. 3 Coding of the methods of thematic cartography and map categories.

Localization of objects/phenomena		Specific, time- and composite methods	
Lb	Figural symbols	Sp	Specific methods => description in footnote
LI	Line symbols	... čas	Time methods
... Llv	Line vector (two-dimensional) symbols	Combination of methods	use "+" (e.g. Kp+KD, KDbčas)
Ar	Area-class maps		
Quantitative characteristics of objects/phenomena		Categories of maps	
Lbk	Figural symbols with quantitative data	AR	political/administrative map, technical compounds
KD	Diagram maps	C	journeys of the individuals or groups
... KDb	Location related diagram maps	K/KD	choropleth and diagram map
... KDI	Line related diagram maps	KS	communication networks
... KDlv	Vector related diagram maps	NO	new content over the old map
... KDa	Area related diagram maps	L	location of the point-objects
Kp	True choropleth maps	VT	battles and military campaigns
Kn	Choropleth maps	3D	visualization evoking 3D, pictorial relief maps
Iz	Isoline maps	ČAS	chronological sequence, development of the area in time
An	Cartograms	Combination of categories	use "+" (e.g. AR+ČAS)
Te	Dot (density) maps		
Da	Dasymetric maps		

of maps with the applied methods and scales (see also Chapter 5 and Figure 5).

- As regards identification of the map categories, the assessor indicates all categories including those that appear only once in the atlas. For further research activities and inspiration for creation of the atlas, it is useful to know the overall structure of the categories. A detailed analysis could also include quantification in the form of proportion of the categories.
- When the method or the category was hard to identify, it was consulted with experts or included in the "Specific methods" category or "Other category".

The atlases were digitalised in selected Czech libraries, namely the National Library of the Czech Republic (Prague). Some atlases of foreign production are not located in collections of Czech libraries (27 atlas works), so they were obtained through international interlibrary loans (Národní knihovna 2017) from selected foreign libraries (e.g. Bibliothèque nationale de France – Paris, Universitätsbibliothek Leipzig, Staatsbibliothek zu Berlin).

The excerpts of the atlases were digitalized by a mobile hand-held scanner Media-Tech Scanline and A4 and A3 desktop scanners in the workplace. Although mobile scanners do not produce results as good as the desktop scanners, testing in the field (libraries during the interlibrary loans) proved their far better image with higher optical resolution (up to 900 dpi) than an average digital camera. Another

limitation in using a digital camera is the frequently bad light conditions in the library reading rooms (artificial yellow with lower colour fidelity). The digital camera was used only for acquiring excerpts of the composition design where the picture quality was not so important.

The activity coordination proceeded through regular meetings and online sharing of the acquired excerpts with subsequent regular reviews in the frequency of approximately 14 days. The acquired excerpts were also accessible to the other members of the research team who had an opportunity to specify their requirements (digitalisation of other excerpts, etc.) before sending the atlases back abroad.

Although the original intention did not involve opening the outcomes of the research (the atlas database) to the public, the authors assumed that its existence was usable for other research activities, so they decided to publish the database and selected excerpts on the individual web portal (HiÚ AV ČR, ČVUT 2017b, <http://maps.fsv.cvut.cz/atlas>). For this purpose, an interactive database was recently produced by one of the students involved within her thesis. In addition to classic selections based on the input criteria or characteristics, it also allows smart selection for example with a certain range of years, monitoring histograms of the creators' activities, the years, locations of the publication, etc.

For better illustration of the appearance and potentialities of the described database, a database entry of one particular atlas is shown in Figure 2.

1993 **Historical Atlas of East Central Europe**

PAUL ROBERT MAGOCSI
 Nakladatelství: Seattle: University of Washington Press
 Spojené státy americké - angličtina
 310 x 230 mm, 218 stran, 50 map
 ISBN: 0-295-97248-3
 Typ atlasu: obecný
 Období: 401 až 1992
 Prostorové vymezení: východní Evropa
 Měřítko: 1: 5 000 000 - 1: 9 000 000
 Barevné provedení: barevná
 Kartografické metody: Ar+Li+Lb+Llv, Ar+Lb+Li+KDb, Ar+Li+Lb+Lbčas, Li+Lb+Ličas, Ar+Lb+Li+Kp+KDb, Ar+Li+Lb+Arčas, Ar+Kdivčas
 Kategorie map: AR+L, AR+C+KD+ČAS, AR+KS+L+KD, AR+L+K+KD
 Knihovny: ABA001, ABB036, ABB083, ABD063, BOD001, OLD012, PND003, ABA004, ABB005, ABD001, ABD027, ABD107, CBD007
 Obsah:

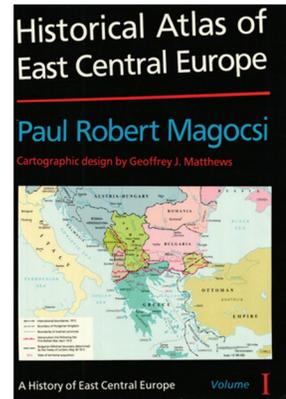


Fig. 2 Example of a database entry on the atlas P. R. Magocsi, *Historical Atlas of East Central Europe* (1993).

5. The potentials and partial outcomes of the research-analytic part of the preparation

After the actual research, i.e. creation of the database of atlases, a more or less detailed *analysis of the acquired records and excerpts in the database* comes forth (see Figure 1). The following text presents general potentials and examples (Figures 3–5) from a detailed analysis of the mentioned Academic Atlas of Czech History (Semotanová, Cajthaml et al. 2014), because the actual analysis of the database is the subject of a thesis by the second of the students involved, which is currently being created. In this context, the anticipated outputs in the course of the year 2018 will come particularly from an analysis

of the categories of atlases, categories of maps in the atlases and the methods applied in thematic cartography.

5.1 Structural analysis of the atlases

Because of the time demands, *structural analyses of the atlases* are usually performed on a smaller sample of atlases. Yet, they can be done on various levels of detail – from a simpler analysis of the content based on the content of the publication (see the acquired pages with the contents – Table 2), which allows capturing a sample of almost 100 atlases up to a sophisticated method of the map typology analysis – thematic focus of the maps (Figure 3), proportional representation of the maps, texts and the pictorial components (Figure 4) – (Wolodtschenko 2010).

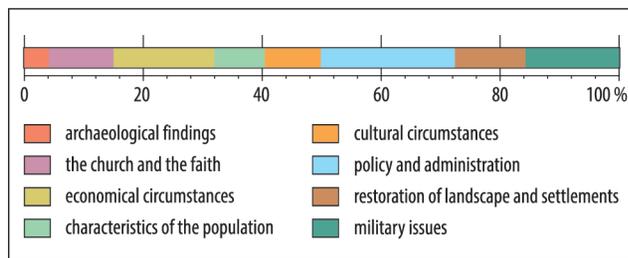


Fig. 3 Structure of the thematic focus of the maps in the atlas. Example of *Academic Atlas of Czech History*. Source: Bláha and Kučera 2014

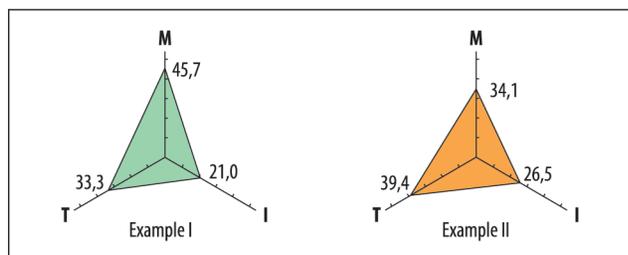


Fig. 4 Proportional representation of the maps (M), texts (T) and illustrations (I) in the atlas. Examples from *Academic Atlas of Czech History*, chapter Middle Ages (Example I) and atlas in total (Example II). Source: Bláha and Kučera 2014

5.2 Analysis of the atlases as regards cartography

The 2nd database level (Table 2) allows a *basic analysis of the applied methods of thematic cartography* (see an example in Figure 5) and an *analysis of the map scales* whose listing was acquired together with excerpts from the individual atlases. It is clear that unlike the presented examples, it will only involve their listing, not their proportional representation.

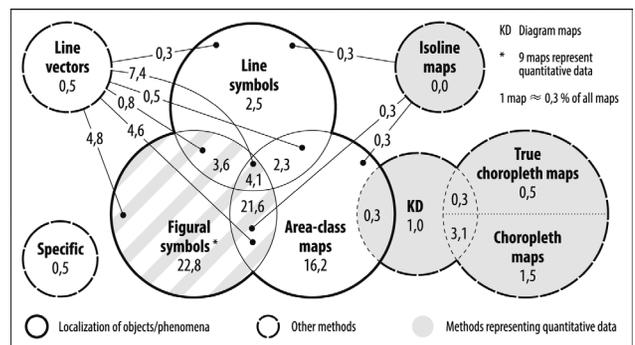


Fig. 5 Proportional representation of methods of thematic cartography in the atlas maps. Example of *Academic Atlas of Czech History*. Source: Bláha and Kučera 2014

This would require a detailed analysis of all atlas maps, which the authors do not consider purposeful. However, we can also monitor the level of the maps' complexity, which is very useful for preparation of the concept of the historical cartographic work.

5.3 Analysis of the atlases as regards the history

Another possible and very interesting subject of the *analysis* as regards the historical sciences is for example the *titles of the individual maps* together with their development in the various editions of the atlases. Naming of these maps in atlases that emerged over the researched, more than sixty-year period, enables a glimpse into the development of the Czech (Czechoslovak) and world historiography, which has not been researched in detail in the Czech production framework so far. Based on their analysis, it is possible to monitor short and long-term trends, which were reflected in the selection of the depicted themes. The titles of the maps can in some cases reflect the way the historical events and their significance were evaluated and presented to the public (e.g. atlases created in states with communist regime in the Cold War period (1947–1991) frequently contain very inflammatory names of maps containing activities of the West).

On the 2nd level databases of foreign atlases, it is possible to *analyse the amount of maps* that are concerned with the Czech (Czechoslovak) issues and *thematic focus of these maps*, i.e. what themes of the Czech (Czechoslovak) history are most frequently reflected in the foreign atlases, whether the interest in certain historical events can be geographically delimited in the foreign atlas production (e.g. the East vs. the West), etc.

All of the outlined analyses are relatively time consuming, require a detailed study of all of the researched atlases and it is expected that they will become the subject of future study.

6. Conclusion

The implemented research and the subsequent analysis clearly confirmed that the Czech (Czechoslovak) and foreign historical atlases have a rich tradition from which the current researchers can draw inspiration for their scientific work. The unique database, which originated as a product of this research, contains more than 400 entries of atlas works created after 1950. It is a very complex and rich source of data allowing further use for research purposes. In addition to the standard bibliographical data (the title, author, publisher, number of pages, size, other editions, etc.), the users will find information on availability of an atlas in the Czech and foreign libraries or the category of its focus. For 84 historical atlases, which were selected for detailed analysis (the 2nd level database), there is a relatively large amount of information that does not exist in standard library catalogues anymore and whose precondition is a physical contact with the

analysed work (e.g. the chronological and geographical delimitation of the data, the methods of thematic cartography, the scale series, etc.).

It is clear that the previous joint project of the team of authors (see Semotanová, Cajthaml et al. 2014 and Semotanová et al. 2015) will become one of the key sources of inspiration and some maps will be used in the newly emerging *Czech historical atlas*. Yet the authors calculate with utilization of the obtained findings in preparation of the concept and editorial instructions for the emerging digital and printed *Czech historical atlas* on the history of the 20th century based on the research and analysis of selected atlases. In the already published historical atlases, the team can find inspiration in the size and other physical properties, sectioning of the chapters, concretization of the depicted themes and the thematic content of the map, the page layout, composition of the individual maps and their location in the atlas and the choice of the scales, choice of the methods of thematic cartography, design of the map key, etc.

The historians and geographers from the team who are processing new themes from the Czech and Czechoslovak history of the 20th century for the purposes of the prepared atlas can also use the analysed atlases as further sources of data in addition to the mentioned Czech historical atlases from the most recent period (see Semotanová, Cajthaml et al. 2014 and Semotanová et al. 2015).

As the authors assume that the database of historical atlases can be used by the broad professional public (historians, geographers, cartographers, etc.) in further research, it is located on the individual web portal (HiÚ AV ČR, ČVUT 2017b) in an interactive form together with selected excerpts from the atlas works. It can thus significantly contribute to further extension of knowledge in the area of atlas cartography. As already mentioned, this article does not include detailed analyses of the database. Potentialities for further research utilisation of this feature were indicated in Chapter 5. For example, it is possible to make a structural analysis of the applied methods of thematic cartography, scales of the maps, but above all, monitor the correlation between the various features (ask questions such as *Is there any connection between the methods of thematic cartography and the age or origin of the atlas? Does the diversity of the categories of the historical maps in the atlases increase with the later date of issue? Which scales dominate in the atlases?*).

Last but not least, such extensive research of this type of atlases has not been executed in Czechia milieu so far and a detailed analysis of the Czech (Czechoslovak) atlases presented in Chapter 2 of this article can also be valuable for foreign researchers.

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