

# **CARTOGRAPHIC ACTIVITIES IN HUNGARY IN 1991-1995**

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## **1. GOVERNMENT MAPPING**

### **1.1. Cartographic Activities of the Department of Lands and Mapping, Ministry of Agriculture**

The Department of Lands and Mapping of the Ministry of Agriculture continues to be the top governmental body for civil mapping purposes in Hungary.

The Department's staff of 22 is divided into 3 sections:

- *Division of Surveying and Informatics*
- *Division of Real Property Registration*
- *Division of Land Use and Land Protection*

During the past few years proportionally less money was available for mapping purposes. The reason behind it is that the Department - being responsible also for national cadastre and land registration - had to concentrate its efforts to keep pace with the recent land reform (land privatization).

The real value of government orders has dropped by almost 25 % over the past 5 years. About two thirds of these funds served the development of cadastral mapping and the control network, some one quarter of them helped the production of new sheets of the 1:10.000 topographic series. Small amounts have continued to be earmarked for geographic mapping - chiefly to the development of a database-form gazetteer.

#### **Major developments since 1991:**

- The 1:10.000 topographic series is making slow progress with 83 % of sheets printed or ready to cartographic originals.
- The 1:100.000 series, completed in the mid-'80s, is undergoing modernization. In 1994 its fair draught layers (planimetry, orography, hydrography) and the coloured map itself were scanned to produce rastered databases. The vectorised database of the orography of this series has also been prepared enabling DTM, DEM applications.
- A digital database of the administrative boundaries of Hungary (down to settlements, at scale 1:500.000) has also been completed within the activities of the MEGRIN (Multipurpose Ground-Related Information Network) Group.

- The Gazetteer-Database of Hungary, with about 80,000 records is also being maintained expanded.

More on these projects are contained in the chapter on the Institute of Geodesy, Cartography and Remote Sensing (FÖMI).

*Béla POKOLY*  
*Department of Lands and Mapping,*  
*Ministry of Agriculture, Budapest*

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### **1.1.1. The Institute of Geodesy, Cartography & Remote Sensing (FÖMI)**

The Institute is the national body in Hungary that performs, by its staff of 175, central operational as well as R+D duties of civil mapping. Its activities are directly supervised by the Dept. of Lands & Mapping of the Ministry of Agriculture and are financed to some 30-40% by a budget allocated by the Ministry. The rest of the funds come from successful R+D competition awards and special revenues of the Institute (sale of GI products and services).

#### **Major operative duties of the Institute include the following:**

- Contracts government orders of mapping and control point development and performs official control and acceptance of the end products of these works. Government basic data thus obtained are collected in the central data and map archive of the Institute. Sale of data is done based on a ministerial regulation.
- Coordinates aerial photography over the country; stores as well as supplies the photographs on demand.
- Preprocesses and distributes in Hungary satellite image data received on contract from primary space image producers.
- Maintains the central land records database and develops software modules for the EU PHARE-supported programme of computerizing the Hungarian land office network; supervises the surveying activities of the land offices.
- Performs surveying and mapping works of the national boundaries.

#### **Major R+D projects on remote sensing and GIS, primarily financed by successful competition awards from the National Committee for Technological Development (OMFB):**

##### ***REMOTE SENSING:***

FÖMI is one of the major support institutions of the Hungarian Space Office. As such activities on this field are considered rather important. Major works in the considered period:

- The development of an experimental RS based crop monitoring system at different levels: locally, at counties or for the whole country. Crop monitoring, identification and mapping, area estimation, crop stage and development assessment.
- Providing enhanced, geometrically corrected satellite photoproducts, using panchromatic SPOT and Landsat TM satellite images, for the updating of 1:25,000 - 1:100,000 scale topographic map sheets.

- CORINE Land Cover Project of the European Communities aiming at the creation of an up-to-date database of the land surface of Europe at scale 1:100,000, using satellite imagery as basic data source.
- Monitoring the major parameters of privatization in Hungary. EOSAT GRANT PROJECT 1944.
- Use of ERS-1 SAR data for agricultural, forestry and environmental applications in East Central Europe. Assessment of the potential of optical and microwave satellite remote sensing techniques for land surface monitoring of the impact of land reform.

### ***GIS research projects***

GIS technology has made considerable headway in the control and supervisory systems of the authorities of both the central government and the municipalities. The national map series and databases produced from them provide the infrastructural basis for these systems.

- Comprehensive geodetic control point database
- Digital geoid of Hungary
- Descriptive catalogue of Hungarian geodetic reference and projection systems
- Conceptual model of the digital basic survey (cadastral) map (draft standard)
- Suggestions connected with the authentication technology and the preparation of the standards of the digital basic survey map in view of the legal measures and official regulations in force, and of the applied practical processes
- Elaborating the data quality for the standards of the digital basic survey map
- Guidelines on data quality for spatial datasets
- Technologies of digitizing and archiving for topographic maps
- Gazetteer-database
- Information system for the land management administration
- Database of the Hungarian administrative boundaries
- Raster and vector based databases of the 1:100.000 topographic series of Hungary
- Database of the National Digital Terrain Model
- Experiments in computerized printing plate production for topographic maps.

More details may be obtained by directly contacting the Institute  
(address: H-1373 Budapest, Pf.546, Fax: +36 1 269 4560.)

*Géza APAGYI*  
*Director of the Institute FÖMI,*  
*Dr. Pál Divényi, Dr. Éva Csató*  
*Senior staff, FÖMI, Budapest*

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## **1.2. Activities of Hungarian Military Mapping between 1990-1995**

In the period 1990-95 the organization of the Hungarian military mapping underwent significant changes in line with those in politics and the transformation of the defence policy of the country. At present the Hungarian Defence Mapping Directorate is performing its duties directly subordinated to the Defence General Staff. Of its two institutions the Tóth Ágoston Hungarian Defence Mapping Institute (MH TÁTI) is primarily responsible for military mapping and connected research in army cartography, surveying and photogrammetry in order to satisfy the demands of national defence. The other military mapping institution is the Hungarian Defence Cartographic Centre (MH KARTÜ), separated

from MH TÁTI on 1 January 1994, that prepares military topographic maps, publishes maps not only for defence use and carries out R+D activities connected with its programme of preparing various digital cartographic products.

Besides outright defence cartography one of the main activities of Hungarian military mapping is the updating and publication of the topographic series of the country in scales between 1:25,000 - 1:200,000. These so called ordnance topographic series are prepared in Gauss-Krüger conformal cylindrical projection, with international sheet lines. Updating works, that have started in 1985, were completed in 1992 in all scales. With the termination of the Warsaw Pact military topographic maps, formerly treated as secret, have become available for the public, and are sold openly since 1993.

The Hungarian Defence Cartographic Centre also produces and publishes tourist maps using the updated 1:50,000 topographic series, with the effective participation of the Hungarian Touristic Association. By 1995 tourist maps of the Kőszeg Mountains, Őrség, Gödöllő Hills, Cserehát, Kemeneshát, the Zala Hills, a road map of Hungary in scale 1:550,000, and a general map of Hungary in scale 1:500,000 were published.

The Centre has also published various city maps, among others, the first map of Budapest on (homogeneously correct) scale 1:30.000. Traditional products of MH KARTÜ include plastic relief maps; that of Budapest at scale 1:50,000 and of the Carpathian Basin at scale 1:1,250,000 are the most notable ones. A relief map of Hungary at scale 1:200,000 in 35 parts and in small copy number has also been completed.

Following long preparatory works the first colour town map based on digital ortophoto has also been prepared in international co-operation (map of Kiskunfélegyháza). Further such photomaps are planned for publication.

An 8-piece folio of facsimile maps has also been published for map collectors. More are planned to follow.

**Military cartography has been busy since the early '80s with research on digital cartographic processes and connected developments. Most notable results of MH TÁTI and MH KARTÜ in this field are those below:**

- **DTA-200 Digital Cartographic Database**  
Completed in 1990 by manually digitizing the 1:200,000 scale military topographic series, the database covers the entire territory of Hungary. Its updating is under way. The database, prepared in AutoCAD environment, is also available in Intergraph PC environment and in either EOVI (Hungarian Uniform) or Gauss Krüger projection.
- **DDM-10 and DDM-50 Digital Relief Models**  
Digital relief (elevation) models of the area of Hungary named DDM-10 and DDM-50 were prepared on IBM-PCs and DEC VAX workstations in 1993 by scanning the contour fair draughts of the 1:50,000 military topographic series. Both databases are available with sheet lines in either EOVI or Gauss-Krüger projection.
- **DTA-50 Digital Cartographic Database**  
The aim of its establishing is to change over to computer-assisted military topographic map production and updating on the one hand, but also to create the digital cartographic basis for GI systems of both military and civil (government and business) uses.  
The fair draughts (separated by colour) of the 1:50,000 scale updated military

topographic series forms the basis of DTA-50. Data acquisition is being carried on since 1993 by interactive vectorized processing - in MSFC/GEOVEC environment, on Intergraph workstations - of the raster database (in turn obtained by scanning the quoted fair draughts). Content, structure, descriptive data of the frame series with sheet lines have been defined according to standard prescriptions. The dataset contains close to 700 types of objects in 12+1 thematic categories. Inclusion of the categories "Relief" and "control points" has been performed by inserting (and completing) DDM-50 and GAB (geodetic database) into the database. Planned completion is set by the end of 1995.

- **BP 15 Digital City Map of Budapest** The creation of the digital version of the city map compiled on the 1:15,000 scale military city and town map series on DEC VAX workstations began in 1994. The digital dataset includes the residential, industrial blocks, non-built-in areas, forest and other vegetation covers, cultural, administrative and social facilities, features of urban traffic, district and city boundaries, and selected data of house numbering. Completion by symbols as well as by lettering began in 1995.
- **R+D Connected with the DTA-50 Database** Originally the digital processing technology for the 1:50,000 scale military series had been worked out for two systems. Experimental works of processing and preparation of standards were done on DEC-VAX workstations. According to the set technology preprocessing began on these workstations in LaserScan environment. Final processing and control was planned on the Intergraph net acquired and commissioned in 1993. In order to accelerate work the full technology was worked out for the Intergraph platform. According to standard prescriptions feature and category tables were established, and digital conventional signs were compiled. Transfer of the existing digital datasets (GAB, DDM-50) and their incorporation into the Intergraph environment are under development. Research works are being carried on into the applicability in various fields of the completed DTA-50 database. Preparation of the correction technology of the completed database is under way based on experimental works done on Intergraph Image Station. The aim of the experiments is to obtain comparisons and record the differences between the orthophotographs and the digital topographic database prepared by ortho- and stereophotogrammetric processing and application of DDM-50.

Creation of the standards for the digital topographic map is considered as the most important result of all research efforts.

A condition for creating digital maps and databases, is the definition of their requirements and parameters, and by facilitating their efficient use. In view of this logic the standard "Requirements of Military Digital Topographic Maps (MDTM)" was prepared in 1994. Considering that this standard is the first of its kind in Hungary, it will have prime importance for the preparation of such documents later on.

The standard covers the following subjects:

- geodetic and sheet line system of MDTM,
- content of the conceptual data model of MDTM, where features, connected attributes, grouping and coding of features and relations between them are defined through tables of features and attributes. During the compilation of feature tables efforts were made for easy compatibility with DIGEST recommendations. The entire structure is built up hierarchically by subjects enabling further enlargement,

- graphic, digital, textual and numerical base materials considered for use,
- accuracy of digital topographic maps,
- control of digital topographic maps,
- applied projection systems,
- the possibility of connection between the computer systems.

As supplement to the standard the following are included:

- table of features of MDTM,
- attribute tables,
- glossary of terms with Hungarian and English indices.

Experts of military mapping have put considerable efforts into the study of problems of professional history, the recording of topographic surveys, aerial photography and scientific activities in general. Some 15 articles in general have dealt with the history of the Institute, its different fields of activities and its products. This aim was also served by the published volumes: History of the Hungarian Military Mapping I-II., The Tóth Ágoston Mapping Institute of the Hungarian Army Between 1919-1994. The publication of 'Bibliography of Military Mapping', listing the titles of works published in the subject during the past 75 years should also be mentioned in this context.

The collection of objects of professional history also dates back several decades. Relics of the Institute's 75 years of work are displayed in a small museum. During the past few years the collection, first displayed in 1981, was enlarged by memorial rooms for topography, aerial photogrammetric mapping, and a set of memorial objects dating back to the years 1919-1945 was also added. The museum is mainly visited by students of surveying and mapping, as well as by interested groups of different professional societies.

Hungarian Defence and especially its Mapping Service Directorate place high priority on both standard and postgraduate training of cartographic professionals. The Surveying Section of the Kossuth Lajos Military Academy was set up in 1991 enabling the training of artillery-surveying students. This means that the Army Mapping Service will have a safe supply of specialists trained in both military and mapping disciplines. The Artillery Department of the Academy has 40 first-grade students, while 12, 19 and 11 undergraduates in its 2nd, 3rd and 4th grades respectively.

In order to improve the cartographic and geographic knowledge of Hungarian army officers the Department of Mapping and Military Geography was established in 1995 at the Zrínyi Miklós Military Academy.

Within the frame of scientific training the MH TÁTI is a designated place of research of the Hungarian Academy of Sciences. During the past few years two persons obtained their academic doctor's degree, and three others achieved or are about to achieve their PhD's.

The Mapping Service Directorate and its subordinate organs place great emphasis on maintaining and increasing both its domestic and foreign professional contacts. Relations are intensive with institutions of the Ministry of Agriculture (Institute of Geodesy, Cartography and Remote Sensing (FÖMI), Satellite Geodetic Observatory), with cartographic chairs of Budapest universities, and with other institutions of R+D.

Foreign contacts are also given high priority. Besides the good relations with military services of neighbouring countries co-operation with the US Defence Mapping Agency, covering practically all aspects of cartography, should be mentioned.

*László Buga  
Hungarian Defence Cartographic Centre  
(MH KARTÚ), Budapest*

## **2. PRIVATE MAPPING**

### **2.1. Activities of Cartographia Ltd.**

Before 1990 practically the only map publisher of the country was the state-owned Cartographia Company founded in 1954.

The scope of activities of the firm, which was originally set up with the purpose of producing maps for schools, had gradually been completed by surveying. At the time of the transition year of 1990 it was also producing large-scale maps (cadastral maps, utility maps) as well as topographic maps (from surveying to printing). Besides these surveying maps the company was supplying primary and secondary education and the general public with various maps and atlases.

Following the transition from command to market economy the Ministry of Agriculture, representing the proprietor, has formulated the objective of privatizing the company. However this big firm of about 1,000 staff, similar in its activities to the geographical institutes of several western European countries (e.g. IGN of France and Spain, Ordnance Survey of Great Britain), but no longer obtaining any government contracts, was unfit for sale.

The company had to get rid of its surveying units and be transformed into a smaller map publisher. The state enterprise, with a staff of 186 and with its own printing facilities, was transformed into a limited liability company named Cartographia Ltd. on 1 January 1993. It is presently the largest cartographic publisher in the Hungarian map market. Its privatization has however, not been completed, due to changing government privatization strategies and to changing legislation in the subject.

Besides the earlier traditional manual techniques since 1993 Cartographia has increasingly turned to computerization. Map production in this respect is primarily done on PC equipment with AutoCAD softwares, although Intergraph microstations and programmes, as well as other graphic programmes (Freehand, Corel) are also used.

The company continues to publish school maps: three types of geographical and two historical atlases are available at present. In 1994 new atlases for both geography and history in secondary schools was published. The geographical atlas is the one produced by Westermann of Germany and adjusted for Hungarian use.

A total of 1,5 million copies of road, tourist or city maps and atlases are published each year for the general public.

Cartographia exports some 20-25 % of its total production value both as direct map sales and as map production by order. Major publishers on whose orders the firm regularly produces maps include Falk, Ravenstein, Neumann and Göbel (Germany), Freytag und Berndt (Austria), Bartholomew (UK), Altair (Spain) and Folia (Denmark).

The company did not do business with guidebooks until 1992. Since then it has adopted and translated for use in Hungary 18 volumes of the Automobile Association of the United Kingdom.

After 39 years the publishing of the journal *Cart Actual* came to a halt in 1994. The termination of the world's only major professional periodical regularly informing on changes in the content of maps (new geographical names, administrative boundaries, roads, reservoirs etc.) in four languages was greatly regretted by the cartographic community, as was reflected by the large number of letters sent to the publisher. There was no possibility however, for Cartographia to make up for the increasing losses of this publication.



## **2.2. Activities of new cartographic formations**

As we already reported in Bournemouth the big social and political changes in Hungary resulted also stormy changes in all fields of cartography. We have now more than 100 organizations actively working in different directions: production, publishing and selling of maps. Also the "old" (state owned) institutions, companies and firms have developed brand new activities and branches, but in this part of our report we try to give some information about the new formations.

As we mentioned earlier we have a lot of cartographical organizations in all parts of the country and apart from them nearly all traditional book publishers, surveyors and advertising agencies are now producing and publishing maps and other map-related products. That is why we can not characterize each organization, but only try to describe the most important lines in their products and the technical trends to be observed. The financing of these new cartographical organizations and the ownership might also be interesting for the international public, that is why we light out some important things also in this field.

Some of the new cartographic firms are owned (50 % or more) by well known foreign firms and we can observe two very different directions. There are companies owned by foreigners, which have the main goal to distribute in Hungary their internationally accepted products. E.g. Officina Nova (Bertelsmann) has published (among others) the biggest scale maps and atlas of Budapest and Hungary based on RV originals. Also the Hungarian lettered World Atlas and different encyclopaedia of RV can be mentioned.

The same way Stiefel Ltd. has been distributing in Hungary for more than 3 years already the laminating services, the wall maps and charts, which have brought them the success in Germany and in other German speaking countries.

To tell the truth all we have awaited after the social changes a massive invasion of big foreign cartographic firms into the Hungarian market (like all international petrol companies have done it). But none of the well known firms (like Hallwag, Kümmerly, Michelin, Bartholomew etc.) have built up an own distribution organizations. The only thing we can report about is the foundation of Cartographia-Navigator Ltd, which is the sole agent in Hungary for Freytag, Ravenstein, Falk and Raethgloben.

Another part of foreign owned firms (the so called 'paid work enterprises') uses the skills and capacities of Hungarian cartographers to produce maps of their home country or for the international cartographic publishers. E. g. Katicom Ltd. (Huber Kartographie München) has produced a lot of all kind of maps (first of all many hundreds of German city maps, wall maps, advertisement maps) since its foundation in 1990.

There are some companies with foreign owners mixing the above described activities. They let produce maps in Hungary for export and the same time they are trying to spread their services in Hungary. Euroverlag and CartoStadt (Staedte Verlag) are the most characteristic representatives of this type of firms and both of them are producing and publishing city maps and regional maps with advertisements.

Exactly this type of product was most characteristic for the new cartographic firms in the whole period to be reported. Nearly all Hungarian owned private organisations started their life with such city and community maps, because there was a fully unsatisfied market and these maps could be produced the most quickly and simply regarding technology.

Some of these new companies are owned by former employees of the big state enterprises (e. g. DIMAP, SOLLUN, GEOMETRIA, INFO-GRAPH, KART & TEXT, NYÍR-KARTA etc.). Another big part of the map making and distributing firms were founded by (first of all very young) cartographers, engineers and other specialists coming from the most different industries (TOP-O-GRÁF, TECHNO-GLOBUS, PAULUS, KÓDEX, HISZI, WELL etc.) Thanks to the activity of these smaller and bigger cartographic firms we can report, that the market of city and town maps has become now like in any developed country: for several county seats we have up to 7 maps of different scale, content, quality and price.

Taking into consideration the "overcrowded market" of the city and community maps the new private cartographic firms (like the state owned ones) are changing their course to the tourist maps, county maps, regional maps and bigger scale road maps of the whole country. HISZI and DIMAP have developed a new series of all counties at scale 1:200.000. FRIGORIA has published a series of biking guides with detailed maps of Hungary and its parts. Maps for water sport and other thematic maps are also published (e.g. Postal area codes map of STIEFEL and TOP-O-GRÁF, facsimile reprints of N.L. publishing, Transylvania and Slovakia with old historical names by DIMAP etc.)

The best selling titles in Hungary are also the road maps and of atlases of Hungary of the Budapest. These cartographic publications need bigger financial efforts. That is why the new formations could start with these products only some years after their foundation. But now there are several firms working on road atlases of Hungary, larger scale maps and atlases of Budapest.

These new titles will be produced mainly by computers, although the traditional cartography using astralon and other foils has still firm positions (SOLLUN, CartoStadt, GiziMap etc.). Some new organisations are using computer aided cartography for all their products (like TOP-O-GRÁF or Zéta-Sport), but some others are at home in both fields (DIMAP, TÉRKÉP STUDIO, KART & TEXT etc.).

Besides printed maps more and more maps and map related products are made for PC-s. There not too much CD-drives in Hungary, that is why the first Hungarian lettered World map (or atlas) is a very simple one and it is produced on a disk, which can be used by all PC-s. Several years from now however, normal CD-maps will be also be used widely in Hungary.

There are a number of different digital maps available for the whole country and for a lot of cities. It is very characteristic, that these very expensive products have been produced in co-operation between private firms (like INFO-GRAPH, GEOMETRIA, TOPOLISZ etc.) and the state land surveying authorities or the military cartographic services.

Most of the private cartographic firms in Hungary produce and publish maps on Hungary, but GiziMap has specialized itself on the new countries in Eastern Europe (Estonia, Ukraine, Latvia, Macedonia, Caucasus, etc.).

The specialized map shops and map distributing firms are very important in our cartographic life. Formerly we had only two map shops and no special distributor for maps. During the period to be reported we have got map shops not only in Budapest, but also in some smaller cities. The big book shops, stationeries, filling stations have a wide range of Hungarian and imported maps all over the country thanks to the activity of the following distributors: Cartographia-Navigator, FAVORIT, HISZI, KÓDEX, NYÍR-KARTA, SA-SZI, TÉRKÉPKER AND TÉRKÉPSKÁLA.

*András Szarvas,  
Szarvas Cartographic Agency  
Budapest*

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### **2.3. Cartographia-Navigator**

The Hungarian social and economic changes of 1989-90 have also caused violent transformations in the commercial distribution of cartographic products. The formation of new types of businesses have greatly been accelerated by the economic crisis of large state-owned chains of bookshops, that had performed practically all sales of maps in previous years. The fate of these companies were finally doomed by stockpiles of unmarketable supplies, and by the earlier financing of these stocks. With the unfolding of the market economy distributing enterprises have sprung up that were able to react sensitively and quickly to the new demands, further deepening the already grave crisis of large old distributors coping desperately with adjustment problems. Now, five years later this transformation process has still not been completed. the reason behind it is that the large distributors, regardless that they are deeply in crisis, still possess the majority of the existing bookshops that do book retailing and have several decades of experience. During the process of privatization no small efforts are needed to harmonize the concepts of market economy with long-standing demands of professional book retailing.

Cartographia, the largest Hungarian map publisher has been adversely affected by the crisis of book distributors on two accounts. On the one hand it became, along with other editors a forced creditor, but unlike other editors, the majority of the products supplied did not form unmarketable stockpiles. As a reaction to the new situation Cartographia set up in 1991 its own distributing unit, making notable results in a market of transition, yet falling short of expectations due to lack of experience.

A map distributing enterprise called RACE SERVICE, established in 1990, has by this time accumulated much experience in business, selling primarily foreign maps, but also those of the largest domestic publisher in growing numbers. The resources, experiences and market positions of the two companies were united on 1 September, 1992, when Cartographia and RACE SERVICE have jointly established a new enterprise called Cartographia-Navigator Ltd.

With the setting up of the new company the founders had the aim of making a commercial body appropriately selling the entire scale of products of Cartographia Ltd. through retailers and agents. Another objective was the definition of the company's marketing strategy: essentially for Cartographia-Navigator permanently seeking and finding all potential spots of retail and, by suitable advertising, increasing the reputation of the products of Cartographia and promoting its sales.

The new and broadening international relations unfolding with the general political and economic transition have increased the interest of both private citizens and businessmen in printed geographical information. Broadening international relations have been coupled with growing passenger traffic, something that absolutely requires maps and guidebooks. To meet these demands the company should be able to offer besides cartographic information on Hungary products covering foreign territories - produced both in Hungary and abroad. Among foreign publishers of great traditions Cartographia-Navigator is the exclusive agent in Hungary of the firms Freytag-Berndt, Ravenstein, Falk and R athgloben.

In 1994 the company sold a total of 1,200,000 copies of maps, atlases and guidebooks through its over 2,000 retailers. In addition it has, since its establishment, organized and carried out the distribution of the five different school atlases published by Cartographia in a total of almost 600,000 copies.

This high turnover has necessitated the introduction of computer technology into its commercial administration. The company installed in 1994 a business system operating in MS WINDOWS environment it had developed with consideration to the specialities of its own scale of products. The system suitable for reading universal product bar codes, has a unique product-search function. It allows search in geographical hierarchy on clients' requirements. The use of unbalanced tree structure enabling the operation of this feature is considered as a novelty among databases for commercial purposes.

It is not in Cartographia-Navigator's scope to sell the entire scale of maps produced by cartographers. Therefore it is not offering cadastral (surveying base) maps, large-scale topographic, special thematic or school wall maps. These products are sold by firms specialized in these activities.

Major future objectives of the company include the setting up of a distributing organization by territorial division through the selection of best local retailers, making Cartographia-Navigator more like a wholesale distributor.

*Ferenc NAGY*  
*Cartographia-Navigator*  
*Budapest*

## **3. TRAINING & RESEARCH**

### **3.1. Report of the Activities of the Department of Cartography, Roland Eötvös University of Budapest (ELTE), between 1991-1995**

#### **1. Introduction**

The three basic duties of the Department are as follows:

- university-level training of cartographers,
- training of cartographic knowledge to future teachers of geography,
- supplying of maps, aerial photographs, space images and professional advice for educational and scientific activities of the university's Faculty of Sciences.

The staff of the Department (full time, part-time and lecturers on contract) numbers 13.

Subjects of the cartography syllabus that require other professional qualification than that held by the Department staff are taught (entirely, by holding special courses, or by reading a few lectures) by noted Hungarian and foreign scholars. 17 Hungarian and 7 foreign experts have contributed to the training of cartography undergraduates between 1991-1995.

Training activities of the Department were expanded in the 1994-1995 schoolyear by the enrolment, within the Postgraduate Degree School of Earth Sciences, of 3 postgraduate students studying for their Master's Degree.

Within the past four years 5 students and 2 staff members took part in foreign training projects at German and British universities in the frame of TEMPUS co-operation.

#### **2. Training**

The first independent university department of cartography was established in 1953. The first training syllabus was prepared in 1955, and it formed the basis of the training of Hungarian cartography students until the early 1970s.

In 1973 cartography training was changed as part of the general reform of university training. Cartography training continued to be a 3-year course, but the earlier geography-directed basic training was replaced by a two-year basic course held for students of both cartography on the one hand, and geology and geophysics on the other. The six-semester (3-year) cartography professional training was a new option for students of higher classes of geology, geophysics, meteorology, geography (both teachers and specialists), lasting only up to 1982. The simple reason for discontinuing this form of training was overloaded timetable: weekly number of classes have reached 40-45, which was impossible to attend for students without overlaps. The Hungarian Act on Education of 1986 has made it possible that cartography training become a 5-year course. The first 10-semester course was launched in the 1988/89 schoolyear.

During a 5-year cartography course students attend a total number of 2670 classes in 32 subjects, completed by 6 weeks of field training.

Teaching of processes and methods of computer-assisted cartography (automated surveying methods, computer graphics, computer-controlled technologies, hypermedia) are secured by technical acquisitions of the Department (EDM, digital levels, GPS receiver, Intergraph-ArcInfo GIS equipment and software, Silicon Graphics workstation, Apple-McIntosh equipment, IBM PCs), by the group of departments (GIS workstation) and by the university (scanner, imagesetter).

### 3. Research

The Department has undertaken research in the following three fields of subjects:

#### 3.1. *Aspects of representation in thematic cartography (digital maps - electronic atlases)*

Major results:

- Electronic Atlases, ICA Seminar, Budapest 1993, 184 pp, 5 maps (published by assistance of Cartographia Ltd.),
- Atlas of Central Europe, 1945 (electronic facsimile), Püski Publisher, Saint Stephen's Society - ELTE, Budapest, 1993, 411 pp., 171 maps (with English text),
- Environmental Atlas of the Ráckeve Resort Area, KDKV - ELTE, Budapest, 1993,
- Political and Economic CD World Atlas, ELTE - Cartographia Ltd. - Rudas & Karig, Budapest, 1994.

#### 3.2. *Mathematics in Cartography (projections of optimum distortions - hypermedia of projection studies)*

Major results:

- Projection Optimization In Geographic Cartography, With Special Regard to Hemispheric or Larger Presentation of the Earth, MTA-ELTE, Budapest, 1993.
- Cartography and Hypermedia? New Trends In the Teaching of Cartography. In: Electronic Atlases, Budapest, 1993, pp 97- 102.

#### 3.3. *Theoretical Cartography*

Major results:

- The Multi-lingual Gazetteer of the World Oceans:  
Gazetteer of the Arctic Ocean, Budapest, 1993.  
Gazetteer of the North Atlantic, Budapest, 1993.  
Gazetteer of the North Pacific, Budapest, 1993.  
Gazetteer of the South Atlantic, Budapest, 1994.  
Gazetteer of the South Pacific, Budapest, 1995.  
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*István KLINGHAMMER*  
*Professor and Head of Department,*

### **3.2. Report of the Activities of the College for Surveying and Land Management (FFFK) of the University of Forestry and Timber Industry, Székesfehérvár**

#### **1. Introduction**

FFFK is the only college in the country where engineers of both surveying and land management are trained.

The frames of training, content of Syllabi are determined by the programmes of the individual subjects. Basic training for regular students takes six semesters (3 years). Term time of the semesters lasts 13-14 weeks, while weekly number of classes averages 30.

Natural and social sciences, as well as part of the basics of surveying are taught in the 1st and 2nd semesters, professional surveying and land management training is held in the 3rd and 4th semesters together for students of both surveying and land management, while the two groups part in the 5th semester.

Compared to the '80s in 1995 professional (surveying & land management) subjects have more weight in the new syllabus, but the major proportions remained unchanged. More stress is given to practical training, as well as to the interpretation of research results.

Total number of classes in the 3-year period is 3228. The proportion of theoretical and practical classes are 35-36 vs. 64-65 % respectively.

Following the successful final examination graduates are given certificates of B.Sc. on land management or B.Sc. on land administration. They qualify them for surveying positions of various government or private jobs.

Training is overwhelmingly regular, with a very small number of corresponding students.

The College has the following departments:

- Natural and Social Sciences,
- Geodesy,
- Photogrammetry and Remote Sensing,
- Surveying and Land Management,
- GIS & LIS,
- Foreign Languages.

#### **2. Selected Research Activities**

*Department of Surveying and Land Management:*

- analysis and development of digital mapping of both earlier cadastral maps and new surveyings,
- partition of land by value (connected to the recent privatization of lands),
- textbooks on land management, history of land management in Hungary.

*Department of Photogrammetry and Remote Sensing:*

- New softwares based on recent technical acquisitions (Digital Analytical Plotter of ISM Corp.): plane-Anblock block adjustment,
- analytical evaluation of computer-assisted stereo-comparators etc.

*Department of Geodesy:*

- The 30-year study of recent vertical crustal movements of the Carpatho-Balkans Area have produced several maps of the region (1971, 1979, 1985) with the most recent being the deduction of horizontal gradients of velocities of recent vertical movements (1991). New studies include the monitoring of small fault lines with GPS technology.

*Department of GIS & LIS:*

- The department was established in 1994. Developments are based on ARC/INFO GI software. Tests were carried out on the application of pcTINArc system in connection with digital terrain modelling. Co-operation works with places of geographic research are intensive both in Hungary (G. Res. Institute of the Academy of Sc. Budapest; Szeged University) and abroad (Germany: University of Trier). The Core Curriculum of the National Centre for Geographic Information and Analysis (NCGIA, USA) have been translated into Hungarian. The 4-volume textbook forms the basic teaching material at the department.

### **3. Qualifying and other special courses**

Major effort was put into the training of surveying technicians (a secondary qualification obtainable in earlier times) for production engineers. Some 1,000 students have obtained their higher certificates in 4 years. Among other courses the one also for surveying technicians and qualifying as land management technicians is also popular.

*István JOÓ*  
*College for Surveying and Land Management,*  
*University of Forestry and Timber Industry,*  
*Székesfehérvár*

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### **3.3. Cartographic Activities at the Geographical Research Institute of the Hungarian Academy of Sciences (MTA FKI)**

MTA FKI is an important workshop of Hungarian thematic mapping. As such it is also a significant user of maps as it adds its thematic content to existing (topographic, geological) maps. The cartographic presentation of research results forms the most important responsibility of the Cartographic Department, although similar works are being done at other departments of the Institute, too. Other duties of the Cartographic Department include the edition of publications (like the cartographically well illustrated periodical of the Institute, the Geographical Bulletin, and other professional books).

Of the complex map works prepared by the Institute in earlier times the Geomorphologic Map of Hungary (1:500,000, 1972), the Loess Map (1:1,250,000, 1983), and among synthetic



maps, the Village Types of Hungary (1:2,500,000, 1982) should be mentioned. Research workers of the Institute took part in the scientific preparation and editing of maps of the 1st edition of the National Atlas of Hungary (1967), while - with similar editing works - MTA FKI co-ordinated the activities of the 2nd edition (1989). The database constructed for the affected area of the earlier planned Gabíkovo-Nagymaros barrage complex may be regarded as one of the first attempts at computer-assisted cartography. Participation in the works of the Atlas of Danubian Countries (sheets of geomorphology and hydrology, 1970-1989) was a good example of international co-operation.

Activities between 1991-94 were partly characterized by the continuation of earlier works by traditional techniques, but partly also by the emergence of new projects done by new methods.

Works on the National Atlas of Hungary have continued; several new sheets were published as a supplementary series. Editing and fair drawing of 8 double sheets were entirely done by computer at the Cartographic Department, scanning and printing were done by Cartographia Ltd. (a separate chapter of this volume is devoted entirely to the National Atlas).

Cartographic works of the project on cultivation potentials of major crop cultures, began in the early '80s, have been continuing, along with those of agroecologic zoning (mapping of the area of Transdanubia was completed in the early 1990s). The programme, initially running on Commodore computers, was later adapted for ARC/Info GIS and more recent agropotential studies (Pest and Bács-Kiskun counties) were done by this method.

As part of the project to monitor the vicinity of the Paks nuclear power plant the Geomorphologic Department has produced a map of geomorphologic and geoecologic facies.

The Department of Social and Economic Geography has concentrated its efforts in the past few years on the study of recent transition processes. Maps of demographic processes, international migration, new enterprises, the spread of unemployment were prepared by the unit. New subjects also include political cartography (results of 1990 and 1994 general elections), ethnic mapping (including the direct surroundings of Hungary). Investigations also bear witness on the special role of the City of Budapest: a thematic map series has been produced based on the database (a matrix containing the population and housing data of over 500 planning districts of the capital city) of the 1990 census. Some parts of the city (VIIth and VIIIth Districts) have also been mapped in GIS basis in larger scales from aspects of city ecology and environment.

In 1992 the Atlas of Paleoclimates and Paleoenvironments of the Northern Hemisphere /Late Pleistocene-Holocene/, (ed. by MTA FKI - Gustav Fischer Verlag) was published within a major international venture. All cartographic works of the atlas have been done by the Institute (from editing to printing).

Members of the Institute have also taken part in the editing of several maps (ethnic relations, environment, social and economic changes) of the series Atlas Ost- und Südosteuropa, published in Vienna.

### **Continued Work on the National Atlas of Hungary (1992-94)**

The second edition of the National Atlas of Hungary (MNA) published in 1989 has since lost much of its timeliness in several subjects, due to the socio-economic changes accelerating at the very time of its publishing. This aspect, along with the availability of the database of the 1990 census have prompted the editorial board of MNA to continue its work. Revenues from selling the 2nd edition (1989) formed a modest financial basis to start from.

In 1991 it was already clear that the limited financial possibilities, that were markedly smaller than they had been a few years earlier, restrict works to the updating of some sheets of the 1989 edition and the preparation of a few new maps with the most interesting themes. Activities were further constrained by the lack of adequate information (statistics) in some branches of the economy, while financial support was also limited by strict legal measures. Among financial institutions Budapest Bank was a major supporter of the project, and the National Bank of Hungary also contributed a smaller grant.

In this situation the Institute, that had co-ordinated the earlier activities on MNA, has taken on itself the work on producing the supplementary sheets. The leadership of MTA FKI, an institute with ample experience on thematic mapping, has taken the decision to place map production entirely on computer (GIS) basis, and consequently make significant investments within its possible financial limits. Procurement of a workstation, PCs, and Arc/Info softwares, along with other expenditures (wages, contracts, printing works etc.) ran into several million Forints. As a result a new working system was received that comprises the entire process of map-making.

Eight double-page map sheets were published in four supplementary folio units in late 1994 and early 1995 in the following subjects (with explanatory text, complementary figures and tables on the back pages in both Hungarian and English):

- Ethnic Map of Hungary and Its Surroundings
- Administrative Division, 1994
- Population and Demographic Trends In Hungary, 1980-1989
- Parliamentary Elections, 1990 and 1994
- International Migration, 1988-1992
- Budapest, 1970-1990
- Personal Income Tax, 1991
- Local Taxes, 1992.

Scanning and printing of computerized fair draughts were done by Cartographia Ltd. In contrast to the earlier (1989) copy number of 6,000, the supplementary folios were printed in 2,000 copies.

Information on the timely objectives of MNA were presented on the Visegrád meeting of three ICA commissions (1993) and its proceedings.

*both chapters by  
László BASSA  
Geographical Research Institute of  
the Hungarian Academy of Sciences  
Budapest*

## 4. LIBRARIES, MAP ROOMS

### 4.1. The Map Department of the National Széchenyi Library

Although the Map Department only became an independent unit within the National Széchenyi Library in 1939, the core of its collection has been a part of the stock of the Library ever since its foundation. This is explained by the fact that at the time Count Ferenc Széchenyi donated his carefully collected library and other collections to the Hungarian nation in 1802, establishing the basis of a national library (and museum), there were several maps and atlases among the items of donation. Exact number of these relics cannot be ascertained today, but no less than 1,412 maps and 121 atlases bear the insignia "Ex Bibl. Com. F. Széchenyi". While most of the 212 manuscript maps of this collection covers Hungarian territory, the overwhelming part of the 1,198 printed maps are displaying various foreign lands. Széchenyi had obtained these latter pieces through agents. The bulk of the atlases date from the 18th century.

Growth of cartographic stock was slow during the initial years. In contrast to that, in the 1830s the Library had acquired, through both grants and purchases two superb private libraries, that included a significant and valuable collection of several hundred maps - a great number at that time. In addition to these a purchase in 1851 of a third large private collection again greatly increased the number of maps. Although most of them were 18th century sheets, they included some very early pieces of work from the 16th century.

An especially valuable set of cartography augmented the stock of the Library through expert selection in 1895, that included 12 manuscript and 167 printed maps, as well as 38 atlases. Worth noting from among these works is a 105-piece map series showing Hungary, with maps by almost all famous European cartographers of the 16th and 17th centuries. The atlases also include several that date from these centuries, that also marked the golden age of atlas cartography.

The most important acquisition from the interwar years (1926 and after) are considered a set of cadastral maps partly printed and partly in manuscript form, and manuscript property sketches (croquis) from the National Survey Map Archives.

No significant damage was caused to the maps during the 1944-45 siege of Budapest, although the building itself was hit by an aerial bomb.

A donation of 4,000 (partly manuscript maps) of the State Printing House in 1949, followed by a 500-unit set of the Ethnographic Museum consisting entirely of manuscript maps were of notable value. The latter maps were sheets of settlements showing the new property conditions at the time of abolishing the serf system. The Map Department's collection of manuscript maps were again significantly expanded by a 400-unit set of the Archives of Prince Festetics in 1950.

The largest growth these days comes from the deposit copies of printed materials. A royal edict regulated the supply of such copies from books as early as 1804, while for maps the corresponding act was only passed in 1922.

Maps were registered and kept in the library the same way as books for over a hundred years. Their different nature and shape have increasingly demanded a distinct handling from that of the books. This resulted in the creation in 1935 of the Library's Department of Prints and Maps from materials of single sheets, and paved the way for the establishment in 1939 of the Map Room as an independent department also caring for atlases.

The following objects are collected by the Map Dept: maps, atlases, relief maps, globes (terrestrial and celestial), landscape drawings or vedutes (up to 1800). As part of the national library it particularly seeks to preserve

- maps produced in Hungary (until 1918 considering the historical /larger/ Hungary),
- maps produced abroad but featuring Hungarian territory,
- cartographic works produced in part or entirely by Hungarian authors,
- works based partly or entirely on the Hungarian language.

Besides those above as priority it also collects major maps, atlases (national, world or thematic) published by neighbouring countries, cartographic products reflecting historical, economic or other relations with Hungary, or mirroring influence on cartographic development on this country, as well as maps that demonstrate the general state of cartography in the different ages (two copies per printed maps possibility permitting). On the other hand military maps, poster, outline maps, cartographic supplements of books, as well as cadastral maps since 1971 are not collected.

The Map Department's collection are completed by a 3,000-volume supplementary library of cartographic professional literature, handbooks, encyclopaedias etc., including 23 different Hungarian and foreign professional journals.

The maps of the Map Dept are subdivided into several groups, namely: manuscript maps, printed maps showing Hungary or parts of it (until 1918: historical Hungary), other printed maps, landscape drawings, wall maps, relief maps, atlases, manuscript and printed cadastral maps, property sketches, globes. Most of the manuscript maps cover Hungarian territory. They include topographic maps of several Hungarian counties from the 18th century, drawn by Samuel Mikoviny (1700-1750), pioneer of modern Hungarian cartography. Hydrographic maps from the late 18th and early 19th centuries showing river control and drainage works are also very important. The earliest pieces of this group include two portolan maps of Hessel Gerrits drawn on parchment in 1621 and 1623. The Department also keeps the first cave map of Europe featuring the Aggtelek Stalactite Cave from 1794.

Mention should also be made however of Gratius Benincasa's 7-sheet portolan atlas made in 1474, showing the Mediterranean and the eastern shores of the Atlantic Ocean from the North Sea to present day Liberia. Although this work is one of the most valuable pieces of the entire Library but, as a work predating 1500, it is kept not by the Map Dept but by the Manuscript Department. The Library - and not the Map Dept (because it is part of a one-time closed private collection) - also possesses the only surviving copy of the oldest known map of Hungary made by Lazarus, secretary of Tamás Bakócz, archbishop of Esztergom, and printed by Petrus Apianus in Ingolstadt (Germany) in 1528.

The Department does hold however the works of outstanding Hungarian cartographers besides those of almost all famous European mapmakers of the 16th - 18th centuries. Among those made by foreigners the recently discovered fragments of the German version of the Map of Hungary, drawn by Wolfgang Lazius of Vienna in 1556 (whose only copy in Latin language was the one kept in Basle) deserves mentioning.

Likewise among atlases works of major authors of the golden age of atlas cartography are also present, as is a masterpiece in 3 volumes of the dynasty of Willem Jansz. Blaeu from 1640. From among the globes of the Department an interesting manuscript one, 132 cm in diameter, made by the Hungarian László Perczel in 1862, as well as a real rarity, a combined terrestrial-

celestial globe with diameters of 21, 8 and 16 centimetres of the Czech Felkl Company may be mentioned.

Total registered units of the Map Dept now number close to 220,000. This makes it one of the largest cartographic collections of the country. Considering works related to Hungary however, it is the most comprehensive and exceptionally rich map archives in this country.

Handling of maps of the Department are made easier by catalogues. They include: alphabetical (by author and address), professional (based on the universal decimal classification), by press and publisher. Besides these atlases have chronological, while manuscript maps have printed volume catalogues, too (see next chapter).

Due to lack of space the Department had been moved several times into different buildings at various locations of Budapest during the first 35 years of its existence before finding its final and fitting place in the west wing of the one-time royal palace of Buda in 1975.

### **Manuscript Maps in the Map Department of the National Széchenyi Library. (Volume I. Separate Manuscript Maps)**

The second largest manuscript map collection in Hungary is housed by the Map Department of the National Széchenyi Library. Its origins are identical with the Library itself, as the bequest (dating from 1802) of the library's founder Ferenc Széchenyi contained a number of maps, among them over 200 manuscript maps. Over the years the number of manuscript maps has gradually grown, but there were only three instances of considerable increase: the incorporation of the sets of the State Printing House between the two world wars, of the Museum of Ethnography, and of the Keszthely Archives of Prince Festetics following the second world war. As a result the Department was keeping a set of 2,081 units at the time of producing the register, apart from the cadastral manuscript maps and property sketches that preceded them in the mid-19th century. The volume being reviewed here is a catalogue of these works.

The majority of these manuscript maps were made during the 18th and 19th centuries and most of them are unique pieces of work. They contain a huge amount of data that only survived in these maps. As a result they are valuable source materials for various studies. Maps showing the hydrography provide especially good information on the former terrain conditions.

The backbone of the volume is formed by the description of titles of maps. Each unit is attributed a detailed and systematic description (annotation).

#### **The description of each map contains the following:**

<i>Author</i>	Provided that the map bears the name or it can be ascertained by some other way.
<i>Title</i>	If there originally was no title, or is missing due to damage, a title is given that fits the map's content and language.
<i>Scale</i>	When only linear scale is displayed on the map, unit length is given in mm. Units in other than metric system are converted.

<i>Place of production</i>	If not expressly given, but the geographical area of the author's activity is known, then this area is recorded.
<i>Time of production</i>	For maps without dates the author's period of activity serves as basis but, as a last resort, style of drawing can also give a clue.
<i>Draughtsman, copier</i>	If different from the author, or if the map is only a copy, then the person's name is always recorded provided it can be ascertained.
<i>Size</i>	Given with 0.5 cm accuracy within the neat lines, for maps without borders full size is given, for atlases: height of spine, for globes diameter.
<i>Insets</i>	In some cases it happens that a detail of the main map is enlarged next to it, or a graphic view is displayed with a title; they are recorded both at the end of the description and in the index of titles.

**The description of the map's content has the following information:**

<i>Geographical position of the represented area</i>	<p>For settlements or estates:</p> <ul style="list-style-type: none"> <li>• for those lying inside the present territory of Hungary: official administrative name of the represented locality, with the name of the present county.</li> <li>• for those lying outside modern Hungary but within its historical borders: last official Hungarian name (1913), present name and abbreviation of present country.</li> <li>• for those lying in other areas: generally familiar Hungarian name, present name of the locality, abbreviation of country.</li> </ul> <p>For maps of counties of historical Hungary: the old Hungarian name of the county.</p> <p>Names of rivers, lakes, mountains, hills are recorded only in their familiar Hungarian names.</p>
<i>Theme - e.g. fief (socage), hydrological, litigation etc. maps</i>	If hint on these subjects is expressly given in the title, then it will not be given in the description.
<i>Colouring, drawing technique</i>	e.g. pen-and-ink drawing etc.
<i>Relief representation</i>	e.g. hillocks, hachuring etc., lettering, height data.
<i>Forest representation</i>	recorded in graphic maps.
<i>Administrative boundaries</i>	
<i>Representation methods of settlements.</i>	

<i>Built-in and rural ("internal" and "external") areas</i>	representation of plot boundaries, buildings, land use in the settlements; other related features.
<i>Road and rail network.</i>	
<i>Ornaments</i>	cartouche, graphic events, features etc.
<i>Explanation of colours, symbols, texts</i>	
<i>Graticule</i>	
<i>Material of the map</i>	if other than paper (e.g. parchment, transparency etc.).
<i>Origin</i>	name of original collection, or person from which or whom it was transferred to the Department.

The items have been recorded alphabetically in the catalogue by the name of the author (or, if missing, by the title). Handling of the volume is facilitated by the following indices:

- index of authors, of other persons contributing to the production of the map, of the institutions,
- index of titles of works that have been recorded in the catalogue by their authors (in case of maps with more titles - all titles are given, and so are the titles of insets if the have one),
- index of content,
- index of geographical names,
- index of origin.

Works listed in the catalogue are - with a few exceptions - from the area of historical (pre-1918) Hungary. Their subjects are rather varied. The largest group is formed by the so-called fief maps, prepared in the middle of the last century after the abolition of serfdom, and serving the settlement of property conditions of the individual villages. They represent some one-third of the collection (796 items). The number of hydrographic, river control maps made in the late 18th and early 19th centuries are also considerable (148). In that time these two subjects formed the major works of Hungarian surveyors. Still important subjects are agriculture and forestry, boundary dispute (litigation), administrative (topographic) and transport. There is a surprisingly large set of ordnance maps and those of military history (159). There are many other subjects represented by a few maps each. Among works recorded there is an agricultural and a mining manuscript atlas, four relief maps and a globe of 132 cm in diameter.

It was already mentioned that the set of manuscript maps have been built up of 4 major groups. The collection of Ferenc Széchenyi, the founder of the library, most of which was bought by his agents, is a medley; it does not seem to be a result of purposeful collecting. Many of them show the Hungarian- Turkish frontier zone of the 18th century.

The collection acquired from the archives of the family of Prince Festetics is basically divided into two groups. One of them is a mixture, consisting chiefly of 18th century maps. They had been collected by György (Georg) Festetics (1755-1819), a member of the family who had a great impact on Hungarian cultural life. Of the maps the topographic maps of 9 Hungarian

counties made by Samuel Mikoviny (1700-1750), founder of modern Hungarian cartography, are considered by Hungarian scholars as especially valuable. Aspects of defence and military history are also numerous here, depicting 18th century Hungarian-Turkish frontier areas along the rivers Una, Sava and Danube. The other group of maps represent the latifundium of the Festetics family with its agricultural and forestry units totalling 100,000 hectares.

Most of the maps transferred from the Ethnographic Department of the Hungarian National Museum consist of fiefs of settlements in areas united with Austria and Czechoslovakia after the first world war. Among those from the State Printing House there are several administrative maps (e.g. of cadastral administration).

With the present volume activities of this kind have not been finished by the Map Department. Catalogues of other (e.g. cadastral) manuscript maps are also expected to be published in the future.

*both chapters by  
Dr. Klára PATAY  
Curator of the Map Department  
National Széchenyi Library  
Budapest*

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## **4.2. The Cartographic Collection of the Map Room of the Hungarian Institute and Museum of War History**

The Map Room of War History was founded in its present form in 1954. The backbone of its total collection was made up of two sets of earlier materials:

- a 50,000-piece collection rightfully belonging to Hungary was transferred from the War Archives (Kriegsarchiv) of Vienna to the Hungarian Royal Archives of War History (later: War Archives) after the first world war;
- a 60,000-piece set of objects of the Royal Hungarian Cartographic Institute (later: Defence Mapping Institute) was founded following the first world war.

The collection of the Map Room grew steadily partly by old maps (heritages, materials of other discontinued collections), partly by new acquisitions (military map series, aerial photographs, other civil maps). The total collection now numbers nearly 400,000 items (maps, atlases, globes, relief maps, professional journals, books, aerial photographs), and by sheer size it constitutes the largest cartographic collection in Hungary.

### **Subdivision of the Cartographic Collection**

The majority of maps are grouped according to the following geographical-regional divisions:

- maps of the heavens, of the world/earth/;
- maps of the continents: of Europe (and within that its countries, country groups), Africa, the Americas, Asia, Australia).

Within the territorial divisions there are the following thematic classes:



- general political, administrative maps,
- physical (orographic-hydrographic, geologic etc.) maps,
- special thematic (road, postal, rail, military campaign, ethnographic, border etc.) maps.

Those below constitute distinct classes:

- geographical and historical atlases,
- maps of cities and their vicinities, travel guide books (within them the territorial division is again considered),
- maps of war history - they constitute one of the most important sets of materials of the Map Room, and one of the main focal activities concerning collection. Maps showing battles, campaigns, military events are further grouped according to chronological sequence, following the classification of major historical epochs.
- country descriptions; military and geographical descriptions of the countries, fortresses, rivers, river crossings of Europe, primarily from the 18th and 19th centuries.

One of the most important parts of the sphere of collection of the Map Room is made up of the military series based on detailed field surveys, showing both Hungarian and foreign territories. In Hungary only the Map Room possesses complete series of the so-called first (1772-1784), second (1806-1869) and third (1869-1884) military surveys in both basic and derived scales. The original coloured manuscript sheets of the first and second military surveys are kept in the Kriegsarchiv of Vienna. Until recently the Map Room has had black-and-white copies of the originals in the same size. At present the original maps are being photocopied in colour through the work of the Representative Office of the Hungarian Institute and Museum of War History. Usefulness, aesthetic value of these copied maps are all but identical with those of the original ones. Continued work on this project will enable Hungarian scholars to study these series of unprecedented value in much better quality.

The collection consisting of the military series published by the Royal Hungarian Cartographic Institute, the first independent military mapping body in Hungary, established after the first world war, can also be considered as complete, both for basic survey and derived scales.

The Map Room's collecting interests also cover military series of different scales and publishing years published after the second world war in a different mapping and projection (Gauss-Krüger) system. Given that restrictions on use of these maps ("secret") were lifted in 1992, they are now easily accessible to researchers.

The 80,000-piece collection of aerial photographs also has considerable value. A smaller part of them was made before the second world war, while most of them are copies of air photos made for mapping purposes during the 1950s, '60s and '70s.

Basic registration arrangement of materials of the Map Room has been put into effect. Better orientation among materials is assisted by a recording system, various study aid tools and index maps.

Computer processing of the collection has also started.

Lists of geographical names of most sheets have also been processed, alphabetically arranged and printed (close to 30,000 items). Further plans call for the computerization of the complete recording system.

The collection grows by some 4-5 thousand new items each year, a smaller part of them being old maps (purchase of bequests), new books and other publications, while most of them are deposit copies of the military series.

The Map Room is a public collection open to the research public from 9 a.m. to 3 p.m. on workdays.

The number of research people keeps growing (500 in 1994).

Black-and-white photo and xerox copies of maps are available on order.

Publications (limited circulation) of the Map Room in recent years include:

- Topographic map series of Hungary 1869-1950, 102 pp., with 25 index maps,
- Town maps, guide books of the Austro-Hungarian Monarchy and Hungary - a new catalogue,
- Catalogue books of maps of military operations of the first world war,
- Map series of the second world war:
  - The Balkan States
  - Poland
  - The Soviet Union (text and index maps)
- Catalogue of maps of the fortress system of Komárom,
- New catalogue of the administrative maps of the Austro- Hungarian Monarchy,
- Index maps of the military series after the second world war with years of surveying and publication,
- Catalogue of the archived "Country Descriptions".

*Dr. Annamária JANKÓ,  
Director of the Map Room Budapest*

## 5. LITERATURE, JOURNALS

### 5.1. Recent Publications on the History of Cartography in Hungary

The number of works published on the history of cartography in recent years has steadily kept growing.

Besides the articles in the professional journals several volumes have also been published.

They are:

1. The History of Hungarian Surveying and Mapping (editors-in-chief: I. Joó, F. Raum), printed in Székesfehérvár.
  - Vol. 1. Hungarian Surveying and Mapping in the Middle Ages (ed. P. Hrenkó, 126 pp., 1990),
  - Vol. 2. Hungarian Surveying and Mapping since Samuel Mikoviny to the Middle of the 19th Century (ed. F. Raum and Gy. Winkler, 216 pp., 1993),
  - Vol. 3. Hungarian Surveying and Mapping in the 2nd Half of the 19th Century (ed. L. Balázs, 200 pp., 1993),
  - Vol. 4. The Beginnings of Modern Surveying in Hungary (ed. D. Csatkai, 370 pp., 1993),
  - Vol. 5. Surveying and Mapping in Hungary after the Second World War (ed. F. Raum, 466 pp., 1993),
  - Vol. 6. The Modernization of Hungarian Control Networks (ed. I. Joó, cca. 180 pp., to be published in 1995),
  - Vol. 7. The Development of Cartography in Hungary Following the Foundation of the Hungarian Geographical Society (ed. . Papp-Váry, 136 pp., 1994),
  - Vol. 8. Tables, Lists of Names (ed. F. Raum, 62 pp., 1994);
2. Textbooks of the College of Surveying and Land Management, Székesfehérvár:
  - History of the Profession of Surveying and Mapping (F. Raum, 114 pp., 1991),
  - History of Surveying (F. Raum, 180 pp., 1994);
3. Maps of Hungary Prior to the Battle of Mohács (L. Stegena, 68 pp., 25 map supplements, Budapest, 1991);
4. Major Biographic and Professional Data of Hungarian Surveyors and Cartographers (F. Raum, 158 pp., Budapest, 1993);
5. Cartographica Hungarica. Series on Hungarian Cartographic History (ed. and published by T. Szathmáry, Budapest - Novafeltria (Italy), Volumes published: No. 1. and 2. in 1992, No. 3. in 1993, No. 4. in 1994).

*Frigyes RAUM  
Budapest*

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### 5.2. Hungarian Professional Journals

The only professional journal of Hungarian surveyors and cartographers, "**Geodézia és Kartográfia**", published since 1949 and at present by the Society of Surveying, Mapping and Remote Sensing and the Ministry of Agriculture continues its function in reduced page number and frequency since early 1995. The periodical, which used to appear six times a year on 80 pages, is now published 4 times annually on 64 pages. Reduction was necessitated by

financial constraints.

During the past four years some 20 % of major articles, and about 11 % of smaller writings (reviews, literature etc.) dealt with cartography (including its history) and remote sensing.

**"Térinformatika"** (Hungarian GIS) is published since 1992 by the HUNGIS Foundation (a non-profit body sponsored by organizations and private persons with the view of promoting GIS). Appearing on 24 pages 6 times a year, it is the only periodical dealing entirely with news on GIS development both in Hungary and abroad.

*Imre VÖRÖS,*  
*editor of Geodézia és Kartográfia*  
*Budapest*