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“Slovenia June 2007”

John Davies and others

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The Charles Close Society was founded in 1980 to bring together all those with an interest in the maps and history of the Ordnance Survey of Great Britain and its counterparts in the island of Ireland. The Society takes its name from Colonel Sir Charles Arden-Close, OS Director General from 1911 to 1922, and initiator of many of the maps now sought after by collectors.

The Society publishes a wide range of books and booklets on historic OS map series and its journal, *Sheetlines*, is recognised internationally for its specialist articles on Ordnance Survey-related topics.

Slovenia, June 2007

Slovenia, once part of the former Yugoslavia, and previously of the Austro-Hungarian empire, joined the eurozone in January this year. We found a small, forward-looking country with high quality infrastructure, wonderful scenery and very friendly population. The efficiency of the services and the helpfulness of the people were proved when one of our group sustained an injury on a mountainside and was very satisfied by the procedures and treatment at the local A&E department.

Our group of twelve visited three localities: Ljubljana, the capital city; Piran, ancient Venetian port on the Adriatic coast, and the Bohinj valley, an Alpine winter and summer resort nestling below Triglav, the country's highest peak. The contrast between the Italianate architecture of the coast and the Austrian-style chalets in the Alps was particularly striking.

Our objectives were to investigate Slovenian mapping, new and old, and to learn something of the history and geography of the country. Our hosts were most forthcoming in helping us to achieve both.

Ljubljana is a delightful city presided over by its castle towering high above the centre. Here we visited four venues: the Surveying and Mapping Agency, the government agency responsible for topographic and cadastral surveys; the National and University Library, where a display of historic mapping was laid out for us; GZS, the country's leading commercial map publisher, and the Geodetic Institute, a state-owned research body who co-operate closely with SMA. Reports of these visits appear below.

Slovenia has a very short coastline, some 46 kilometres on the Adriatic. The land to the north, around Trieste was ceded to Italy after World War 2, whilst the sea border to the south, adjoining Croatia is currently the topic of dispute between the two countries, because in Yugoslavian times this border was not legally delineated. Our glimpse of this coast, at Piran, was to see the Maritime Museum, overlooking the ancient port. This is a treasure trove of archaeological remains, model ships, pictures, charts and related items. On the way back we broke the journey to view the magnificent Skocjan caves, a UNESCO world heritage site in the midst of the original Karst country.

Our final excursion was to the Julian Alps, north-west of the capital, for a brief exploration of the head of the Bohinj valley. Although a minor accident and bad weather curtailed our intended expedition, we did enjoy the magnificent mountain scenery and Alpine wildflower meadows the region offers.

John Davies



JD

The Charles Close Society party with (front row) our hosts at SMA, Božena Lipej and Marjana Duhovnik, to the right of visits organiser John Davies

The Surveying and Mapping Authority of Slovenia (SMA)

The headquarters of SMA are located in a multi-storey office block in a mixed residential/commercial area of Ljubljana. We walked from the hotel to the offices and took the opportunity to look at different parts of the city especially the large open air market and riverside buildings. The SMA building identifies itself by two plaques, one with its name and another giving its latitude, longitude and altitude.

We were welcomed by Dr Božena Lipej, Deputy Director General of the SMA and Marjana Duhovnik, a head of department. Dr Lipej began her presentation by stating that the SMA was part of the Ministry of Environment, Spatial Planning and Energy. In addition to the Head Office there were twelve regional offices and together these employed over 500 staff about half of whom were surveyors. The SMA was under pressure to reduce staff and since Slovenian independence some work and staff had been transferred to over 200 private sector companies. In the public sector the Geodetic Institute and Ministry of Defence shared some responsibilities with the SMA. The SMA was organised into five sectors, Geodesy, Real Estate, IT and Data Issuing, Legal, and Financial.

The Geodesy section was responsible for developing the cartographic system and topographic databases, the basic geodetic system, which included a network of GPS stations, links with systems of other countries and the register of geographic names. However it was in the field of real estate where the SMA had placed increasing emphasis. The ownership and exchange of land and property was becoming increasingly important in the Slovenian economy and in 2000 the Real Estate Registration Modernisation project was begun with financial aid from the World Bank and Slovenian government. It was recognised that existing real estate data was out of date, unlinked and incomplete, and that the three fundamental records, the Land Cadastre, Building Cadastre and Land Register, had to be computerised. Existing paper records and maps were scanned, aerial surveys

undertaken and digital orthophoto maps made for all Slovenia, leading to digital cadastral maps for about five million land parcels. The Building Cadastre records details of ownership and use of each floor and, while some information could be obtained from Land Registry records, it was necessary to employ temporary staff to interview owners and send out questionnaires to obtain further information. In response to questions Dr Lipej said it was often difficult to contact owners, especially those who lived overseas or owned property which was derelict or rarely used, but she thought that by the end of 2007 the survey would have been completed. The Land Registry paper records were being digitised and the delays in land registration had been greatly reduced. The SMA was confident that the new real estate systems would ensure that all changes were recorded quickly and accurately and that much detail would be available through the Internet. Property rights would be protected, investment in real estate encouraged and an efficient and fair system of real estate taxation established. The information would be of major importance to authorities engaged in such areas as housing and spatial planning.

Marjana Duhovnik then gave a presentation on developments in mapping and cartographic databases. Basic topographical maps at scales of 1:5000 and 1:10,000 existed but after about 1996 these were no longer updated because of cost. Information is now obtained from the High Accuracy Topographic Database derived from aerial photographs. In the 1990s the SMA began to produce National Topographic Maps at 1:25,000 and 1:50,000 scales in co-operation with the Ministry of Defence. The project was completed in 2005 with each sheet having a military and civilian version. It is intended to revise the maps in four to five year cycles. National General Maps exist at four scales from 1:250,000 to 1:1,000,000 but they are being revised to a uniform system. A new 1:250,000 sheet was produced in 2005 and the data conforms to the requirements of the EuroRegional Map. Slovenia began aerial surveying in 1971 and now the whole country has been surveyed in colour by digital techniques. It was explained that two of the scales of aerial photographs, 1:17,500 and 1:28,000 were chosen because one photograph sheet covered one sheet of the topographic scales of 1:5000 and 1:25,000 respectively. The SMA also produced digital elevation models and a digital relief model.

Finally there was a brief reference to three further databases, of geographical names, spatial units, e.g. house numbers, and public infrastructure, e.g. transmission lines. At the end of the meeting the group was given maps, brochures and a CD about the SMA. We expressed our thanks for a very interesting morning which had shown how an organisation similar to Ordnance Survey was responding to many of the same pressures and opportunities.

Frank Prest



CJH

The plaque outside the SMA building leaves you in no doubt as to your exact location



GZ

Renata Šolar shows the riches of the National and University Library to an eager audience

National and University Library

Our second visit was to the National and University Library – Narodna in Univerzitetna Knjižnica to see the map librarian, Renata Šolar. The building was

designed by Jose Plečnik (1872-1957) and is seen as a bastion of Slovenian culture. We saw the disappearing karst lake, Cerknica, in the epic 3,532 page *Glory of the Duchy of Carniola*, 1687, by Janez Vajkard Valvasor (1641-1693), which is now seen as the key early Slovenian work, though he wrote in German. His map of Carniola was produced in 1681. The weird lake is three to four times bigger than the surface of Lake Bohinj, the biggest permanent lake in Slovenia, yet you go to see it and bang, it's gone.

The first map with Slovenian names, by Peter Kozler, only appeared in 1853. We were entranced by the castle views in *Topographia Ducatus Carnioline* of 1679, and now available in a modern reprint. Jonathan and Jacqueline Roberts found a print there of the castle in which they were married. The first measured map of what is now Slovenia was produced after ten years work by a Cistercian monk, Florjančič, in 1744, and he was the first to say Triglav was the highest mountain in the country.

Renata has the usual problems of map librarians: shortage of space, with locked cabinets located along corridors. After 2006 Slovenian copyright law changed, and digital maps were provided on paper only when printed. This means large scale maps at 1:5000 and 1:10,000 are not provided in the national library and no support is given to keep maps produced using older software available. The library would like the mapping agency to keep the old discs running, but this may not happen.

The Geodetic Institute of Slovenia has digitised 68 maps at 600 dpi under contract for the library. You can see them by going to <http://www.nuk.uni-lj.si/nukeng.asp> which gives the English version of the entry pages. Click on the fourth option down: *dLib.si – The digital library of Slovenia*, and in *basic search* type *zemljevidi* then click on *search*. Click on *maps* on the next page, scroll down and click on *link*. If no map appears, click on *Express viewbase* for the software, then on *link*. The maps can be magnified and moved, and saved as .tif files by right clicking on the map and then on *Save As ...*. The next maps to be digitised will be the Austro-Hungarian 1:74,000 military series produced around 1766.

Graham Steele

Geodetski Zavod Slovenije (GZS)

GZS occupy the same building as SMA, so this was a return visit to the place where we started yesterday. Our host was Andrej Šegula, adviser to Managing Director Rudi Zavrl. Mr Zavrl himself sent his apologies; he is a UEFA official and was required to attend an important match in Budapest (which we all agreed took precedence!). Mr Šegula introduced Radomir Vučkovič (business manager), Darko Tanko (technical manager) and Vili Kos (cartography manager), who between them presented three hours of information and displays.

GZS was founded in 1947 by the Slovenian Socialist Republic and was privatised in 1997. Current turnover is about seven million euros with about 120 employees. They are now the major commercial cartographers of Slovenia and other parts of former Yugoslavia and have recently opened an office in Macedonia. About 75% of the sales are domestic.

Main activities of GZS are cartographic products, aerial photography, photogrammetry, cadastral geodesy, surveying and production of geodetic software. The range of commercial cartographic products includes touring maps, nautical maps, mountain maps, topographic maps, town plans, road maps and school atlases. We were particularly impressed with the local maps having a large scale town plan on one side and 1:50,000 district map on the other. We were also interested to hear that the company owns its own light aircraft for aerial photography and that this is also used for the transportation of patients to hospital.

The company encounters some competition from the state-run Geodetic Institute, who produce some similar commercial products.

GZS also operates a well-stocked map and equipment shop in the city centre, Kod & Kam, whose manager, Jana Knific displayed a selection of their range for us to examine and purchase. The Kod & Kam website, from which GZS maps and others can be purchased, is at

http://www.gzs-dd.si/kod&kam/kod&kam_en/index.htm

Gerry Jarvis

Geodetski Inštitut Slovenije

In the afternoon, we made our way along the banks of the Ljubljanica River to the third institution in the national mapping trinity, the Geodetski Inštitut Slovenije (or Geodetic Institute of Slovenia), which is housed in the same building as the Faculty of Civil and Geodetic Engineering of Ljubljana University. We were warmly greeted by Dalibor Radovan (Head of Research), who had an information-packed presentation waiting for us.



GJ

Established in 1953, the Institute of Geodesy and Photogrammetry was reorganized in 2000 as the Geodetic Institute of Slovenia, which currently operates under

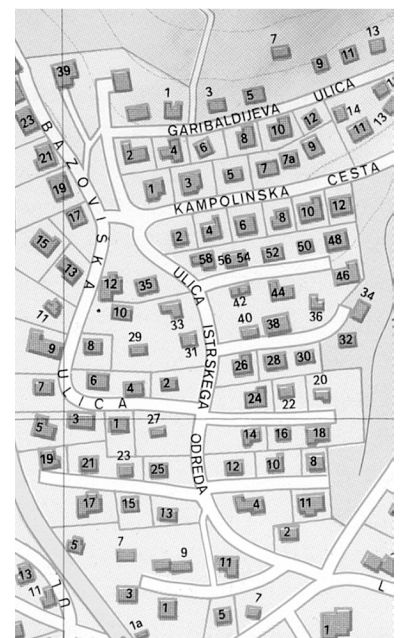
Jana Knific found ready buyers for GZS maps

the Ministry of the Environment, Spatial Planning, and Energy. The Institute has about forty employees, some of whom also lecture in various aspects of Geomatics at the Faculty of Civil and Geodetic Engineering. Unlike GZS, which we had visited that morning, half of the remit of the Geodetic Institute is for public services: undertaking surveying and mapping and providing research, development, and technical expertise for SMA, the national surveying authority. The other half, however, is for public tender, where the Institute may find itself bidding against the two hundred or so other geodesy companies in Slovenia. Within the commercial dimension it therefore is inevitable that the Geodetic Institute frequently finds itself in direct competition with the GZS – an arrangement that is considered healthy for the provision of quality maps! (A map of Maribor produced by the Geodetic Institute won first prize at the International Cartographic Association conference held in Canada in 1999.)

One of the key activities of the Geodetic Institute is the production and maintenance of several national topographic map series and databases, at the scales of 1:5000/1:10,000, 1:25,000, 1:50,000, 1:100,000, 1:250,000, 1:500,000, 1:750,000, and 1:1,000,000. The Basic Topographic Chart produced at the scales of 1:5000 and 1:10,000 comprises over 3000 sheets, whereas the 1:1,000,000 map reduces Slovenia neatly onto an A4 page. The Institute also undertakes photogrammetry on behalf of SMA, with cyclic aerial surveys performed every three years for the production of digital orthophotos at 1:5000. These also provide the base material for the national digital elevation model (DEM) at 1:25,000. In addition to maintaining the national toponymic gazetteer of some 200,000 names, the Geodetic Institute produces tactile maps for selected city areas at 1:1000 and also issues a wide range of thematic maps.

The Geodetic Institute has recently been involved in a major project to establish and maintain the national geodetic service. This comprises a permanent geodetic network, which ensures that Global Positioning System (GPS) readings taken in Slovenia are accurate to within 2–3cm. According to our host, Slovenia is currently the only country in the world to have had its entire coastline measured by GPS. Not particularly challenging, perhaps, when considering that Slovenia has a coastline of just 46km, but in light of the results of the GPS survey one may have cause to think again – it had doubled in length!

Another significant area of responsibility is the maintenance and development of the national land cadastre. One of the modern tasks has been to transform the local co-ordinate systems utilized in surveys dating from around 1825 to the national grid. Today, the national cadastre incorporates a 3D computer model of every building in Slovenia and, as we had heard at SMA, 2000



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Effective house numbering on a 1:7400 map of Portorož & Piran

people are currently visiting the occupants armed with thirty questions (e.g., pertaining to the forms of telecommunication in use) in order to augment and update the existing database. Other activities undertaken by the Geodetic Institute include natural hazard monitoring (such as landslides and the retreat of the Triglav glacier) and the analysis of satellite imagery for applications in agriculture and topographic cartography.

The visit to the Geodetic Institute confirmed the view that Slovenia enjoys an astonishing concentration of cartographic activity and quality. What is perhaps more significant is that the country maintains a cartographic tradition of which their two million inhabitants are deservedly proud.

Alexander Kent

Pictures by John Davies, Chris Higley, Gerry Jarvis, Graham Steele and Gerry Zierler.

My thanks to John Davies not only, personally, for organising such an informative and enjoyable expedition but also, as editor, for compiling this report with a wrist in plaster and against a very tight timescale. A short paper by Renata Šolar and Dalibor Radovan on the historical maps in the National Library and their digitisation may be downloaded in English from hrcak.srce.hr/index.php?show=clanak_download&id_clanak_jezik=4113 – there are more stunning pictures. – CJH