



50th anniversary of ica 2009

Dear Colleagues

The International Cartographic Association (ICA) was officially born at 4.20pm on the 9th of June 1959 in Bern, Switzerland during a two-day cartographic conference organised by Professor Eduard Imhof.

At the previous cartographic conference in Mainz, Germany in November 1958, a committee chaired by Professor Imhof with the help of Professor Erwin Gigas and Dr Carl Mannerfelt was set up to investigate possible ways to facilitate international collaboration in cartography. The Bern conference was entirely devoted to this subject. Thirteen nations sent delegates to the meeting: Austria, Belgium, Finland, France, Germany, Italy, The Netherlands, Norway, Spain, Sweden, Switzerland, United Kingdom and United States. The two-day meeting was very productive and included:

- a report by Eduard Imhof on the possible ways to organise international collaboration
- a discussion of the report
- voting for the creation of the International Cartographic Association
- a discussion on the principles concerning the statutes
- election of the executive committee
- open questions

The major discussion point was the relationship with the International Geographical Union (IGU), i.e. whether the ICA should be a special committee of the IGU or an independent sister association. Eventually, the decision to create an independent association named *Association Cartographique Internationale* / *International Cartographic Association* / *Internationale Kartographische Vereinigung* was made and the Executive Committee elected:

- President: Eduard Imhof (Switzerland)
- Vice Presidents: Duncan M Fitchet (United States), Stéphane De Brommer (France), Lewis J Harris (United Kingdom), Carlo Traversi (Italy), Carl M Mannerfelt (Sweden)
- General Secretary: Erwin Gigas (Germany)

The Committee was mainly composed from members of the previous committee, called *Le comité des Six* (Committee of Six), formed during the 1956 Esselte Conference in Tollare near Stockholm, Sweden.

The first General Assembly of the International Cartographic Association, organised by the *Comité Français de Techniques Carto-*

graphiques, took place in Paris, France in 1961. It was attended by 84 delegates from 29 nations. A special celebration of this event is planned for ICC2011 in Paris.

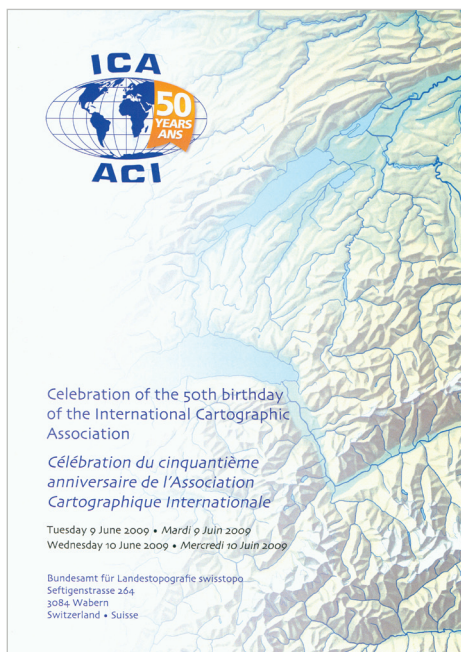
The aim of this anniversary meeting in Bern, 9-10 June 2009, was to celebrate the 50th anniversary of the ICA. The Federal Office of Topography (swisstopo) proposed to host the event and we wish to thank them again for their hospitality, especially Stefan Arn for his support. All past Presidents, Vice Presidents and General Secretaries were invited to Bern, together with representatives from the thirteen nations present at the 1959 meeting and representatives from the ICA national members.

The two-day programme consisted of two parts. The celebration of the past including testimonials covering the first 50 years was presented on the first day, followed by a reflection on today's challenges on the second day. Swiss cartography also featured prominently for the ever-present role it plays in the ICA and world cartography.

This special issue of the ICA News summarises the Bern meeting.

Anne Ruas | Vice President of ICA | France ●

Cover of the 50th Anniversary of the ICA Programme |
Christine Jeans, Newcastle



day 1 tuesday 9 june 2009

welcome and overview :: 02

william cartwright :: 02
stefan arn :: 03

the ica from 1959 :: 04

walter imhof :: 04
carl mannerfelt :: 05
ernst spiess :: 06
jean-philippe grelot :: 08
christopher board :: 10
lorenz hurni :: 12

gala dinner :: 14

fraser taylor :: 14
michael wood :: 15
ferjan ormeling :: 15

day 2 wednesday 10 june 2009

celebrating the future :: 16

dietmar grünreich :: 16
anne ruas :: 16
menno-jan kraak :: 17
juan vidal garcia :: 18

the work of ica
commissions :: 20

elri liebenberg :: 20
michael peterson :: 21
chris perkins :: 22
igor drecki :: 23

the work of national mapping
agencies :: 24

vanessa lawrence :: 24
jarmo ratia :: 24
fridolin wicki and andré streilein :: 25

eduard imhof and the ica
exhibition :: 26

stefan räber :: 26

participants :: 28

cartwright welcome • celebrating 50 years of ica history



Professor William Cartwright | Photography Thomas Maag

Welcome

Friends, *chers amis*, on this occasion of the 50th anniversary of the International Cartographic Association I warmly welcome you all to this most significant occasion. *C'est une célébration très importante - le cinquantième anniversaire de l'Association Cartographique Internationale.*

Je pense qu'il est sage que je cesse de parler français maintenant, pour éviter de tomber dans le comique.

For all of us this is indeed an achievement to celebrate – 50 years of service to the international cartography and GI Science community. I join with you to formally acknowledge the dedication and tireless efforts of the many who have preceded us in establishing and growing the Association.

I am personally humbled to be President of the International Cartographic Association on this occasion. I consider this a great personal honour to be able to stand here today and to welcome you to this celebration of the Association's 50 years.

Events like this do not just happen. It takes much effort behind the scenes to make it work. I wish to thank swisstopo for hosting this event – at the same location where a meeting took place 50 years ago. To the Swiss Cartographic Society, and its President, Stefan Arn for their generous input into this event. To ETH, and particularly Stefan Räber, for contributing with the excellent display - 'Eduard Imhof & the ICA'.

The Association has been led by Presidents who have excelled personally and professionally and as the head of this wonderful organization I also welcome and formally recognise the former Presidents who join us today:

- Professor Fraser Taylor, Canada (1987-1995)

- Dr Michael Wood OBE, United Kingdom (1995-1999)
- Professor Bengt Rystedt, Sweden (1999-2003)
- Professor Milan Konečný, Czech Republic (2003-2007)

Professor Joel Morrison, USA, President of the ICA from 1984-1987 was unable to attend this celebration. He extends his warm regards to colleagues and his best wishes for a successful event.

As well as the former presidents here today, I would like to acknowledge those who guided the ICA from its foundation:

- Professor Eduard Imhof, Switzerland (1961-1964)
- Brigadier Dennis Thackwell, United Kingdom (1964-1968)
- Professor Konstantin Salichtchev, USSR (1968-1972)
- Professor Arthur H. Robinson, USA (1972-1976)
- Professor Ferdinand Ormeling, the Netherlands (1976-1984)

I would like to welcome and acknowledge two former Secretary General and Treasurers of the Association who join us:

- Jean-Philippe Grelot, France (1991-1999)
- Professor Ferjan Ormeling, the Netherlands (1999-2007). Prof Ormeling is the current Chair of the ICA Publications Committee.

Former Secretary General and Treasurer Don Pearce, from Australia, could not attend the event. He sends his greetings to colleagues and wishes for a successful event.

I would like to warmly welcome current members of ICA Executive:

- Secretary General and Treasurer Dr David Fairbairn
- Vice President Professor Georg Gartner
- Vice President Pablo Gran
- Vice President Professor Menno-Jan Kraak
- Vice President Professor Zhilin Li
- Vice President Dr Anne Ruas
- Vice President Tim Trainor

And current Newsletter Editor, Igor Drecki. Dr Derek Clarke is unable to be with us in Bern. He sends his greetings to you all.

We have three former Vice Presidents with us today as well:

- Professor Takashi Morita, Japan
- Dr Jaume Miranda i Canals, Spain
- Professor Elri Liebenberg, South Africa

We have also received an email from former Vice President Dr Regina Araujo de Almeida (Vasconcellos), from Brazil, who was unable to attend. She sends her warm greetings to colleagues.

The International Cartographic Association awards its highest prize to individuals who have excelled in cartography – the Carl Mannerfelt medal. We have with us today

Professor Ernst Spiess, former Professor of Cartography at ETH Zurich, who was awarded the Carl Mannerfelt medal in 2005. He is also one of our speakers today.

I would like to welcome to representatives of Sister Societies who are here to join with us in this celebration:

- GSDI – President Bas Kok sends his greetings, and he is represented by GSDI past President Jarmo Ratia.
- FIG – President Stig Enemark sends his greetings.
- International Association of Geodesy – represented by Professor Michael Sideris
- The International Hydrographic Organisation
- IMTA – President Keith Ferris sends his greetings
- International Steering Committee for Global Mapping – represented by its Chair, Professor Fraser Taylor
- International Society of Photogrammetry and Remote Sensing – represented by President Prof Orhan Altan
- IGU – represented by Professor Bruno Messerli

We are pleased to have present representatives of nations who formed the ICA. Founding nations were:

- Austria (represented by Professor Wolfgang Kainz)
- Belgium (Professor Philippe De Maeyer)
- France (Dr Hélène Richard)
- Germany (Professor Doris Dransch was unable to attend at the last moment due to university commitments. Professor Dietmar Grünreich represented Professor Dransch and the Deutsche Gesellschaft für Kartographie)
- Finland (Dr Jarmo Ratia)
- Italy (Professor Alberta Bianchin)
- The Netherlands (Dr Peter Hoogwerf)
- Norway (Professor Terje Midtbø)
- Spain (Dr Jaume Miranda i Canals)
- Sweden (Professor Bengt Rystedt)
- Switzerland (Stefan Arn)
- United Kingdom (Bob Lilley)
- United States of America (Dr Lynn Usery)

I also want to note the work of all member nations and affiliate members of the organization. The international cartography and GI Science community is richer from your input into ICA.

I also welcome representatives of member nations that have hosted ICA conferences and our colleagues from Chile who are our hosts for the ICC 2009 in November. We have joining us representatives of the Local Organising Committee for Moscow 2007 and the Chair of the Local Organising Committee for Santiago 2009, Col. Juan Vidal Garcia.

And, finally, but not least, a welcome to members of the ICA Community and our colleagues and friends.

cartwright welcome · celebrating 50 years of ica history cont...

It has now been 50 years since Dr Carl Mannerfelt's proposal to establish an international cartographic organization. From this idea, the work of the 'Committee of Six' led to the foundation of the International Cartographic Association on June 9, 1959, in Bern, Switzerland.

We are here in the same place 50 years later and we celebrate our heritage, we highlight the achievements of the past 50 years, we provide information about some of our current activities and we look forward to another 50 years of collaborative international science and scholarship.

I also want to acknowledge the Chairs of Commissions and Working Groups, Editors of the Newsletter and other publications and individuals who have advanced ICA objectives. Thank you. Some Chairs are here today. However, one long-standing Commission Chair, the past Chair of the ICA Commission on Standards, and a current auditor of ICA, Hal Moellering could not be with us today, as he broke his knee last week due to a cycling accident. He sends his best wishes to the ICA and all attending this event.

This event will take place over two days and one night. It will be an 'affair' to remember. Events like this do not happen overnight and I want to thank Vice President Dr Anne Ruas and

Secretary General and Treasurer Dr David Fairbairn for organising the event on behalf of the ICA Executive, working closely with Stefan Arn.

I want to thank our speakers who will provide their personal inputs into this event. They are:

- Walter Imhof
- Professor Bengt Rystedt
- Professor Ernst Spiess
- Jean-Philippe Grelot
- Dr Christopher Board
- Professor Lorenz Hurni
- Professor Dietmar Grünreich
- Dr Anne Ruas
- Professor Menno-Jan Kraak
- Professor Elri Liebenberg
- Professor Evangelos Livieratos
- Professor Philippe De Maeyer
- Professor Michael Peterson
- Dr Chris Perkins
- Dr Vanessa Lawrence
- Dr Jarmo Ratia
- Dr Fridolin Wicki
- Dr André Streilein

Presentations on Day 1 will look at elements of the ICA from 1959. Day 2 will celebrate the future. I am sure that you will agree that this is an impressive list of some of the key players in international cartography and GI Science.

My personal involvement with ICA began at the ICA international conference in Perth, Australia in 1984. After my first taste of the activities of the Association I was hooked. I have been involved in ICA activities since then. It's said that in public service one gets more from being actively involved in an organization. This is certainly the case with me. From my early days as an ICA 'newcomer', I was warmly welcomed and encouraged to participate. This I did, and I am truly grateful to those individuals who ensured that everyone was included in ICA activities.

Finally, my sincere thanks to all who have contributed to this fantastic event in Bern.

Pour terminer, mes remerciements sincères à toutes les personnes qui ont contribué à faire de ces deux journées un 'événement'!

On behalf of the International Cartographic Association, the Executive Committee, those that undertake important activities for ICA, colleagues and friends of ICA – thank you for coming from near and far to join with us in this celebration of the Association's first 50 years. I know that you will find the presentations and social activities interesting and stimulating.

Thank You - *Merci*

William Cartwright | President of ICA | *Australia* ●

arn welcome to the 50th anniversary event

Dear Executive Members of World's Cartographic Associations, Dear Cartographers, Dear Colleagues

The Swiss Society of Cartography and the Swiss Federal Office of Topography (swisstopo) would like to sincerely welcome you to the celebration of the 50th birthday of the International Cartographic Association. We are excited that you accepted the invitation. Exactly fifty years ago the ICA was established in this very place. Now we are all here again to celebrate its birthday.

To be honest, when the ICA first asked if we were prepared to be the host for this event, I didn't even know that the ICA had been established here in Wabern. Of course, I was immediately fond of supporting this event and also a little proud about the fact that the ICA was actually born here.

Cartography has a long history. As early as even 8,000 years ago, man had a desire to map out landscapes, villages and property boundaries.

But where is cartography heading today? Does cartography have a bright future?

Of course, in our fast-paced world there is an immense need for geodata. Almost 80% of the political and social decisions have some correlation to space and spatiality. But is cartography going to have the right answers to solve these tasks? I do not know.

However, I know that living the spirit of ICA is the best precondition to help cartography continue with its success into the future. What had begun 50 years ago amongst a small group of dedicated people became a huge Association today. I am sure that Carl Mannerfelt, Erwin Gigas, Daniel Chervet, KW Bland, Duncan Fitchet, Stéphane de Brommer and Eduard Imhof would be quite delighted and proud of seeing us here celebrating what they had once established.

Carrying on this heritage is a genuine task. Continuing to work with one another – united – cannot be taken for granted. We may consider ourselves lucky to be part of this Association. So, let us celebrate the ICA, let us praise cartography where it stands today and let us enjoy this very special event.

I'm really happy to be here. I'm really happy you are here. Thank you for coming.

Stefan Arn | President of Swiss Society of Cartography | *Switzerland* ●



Stefan Arn | Photography Thomas Maag

imhof commentary on eduard imhof's private life



Walter Imhof | Photography Thomas Maag

Eduard Imhof was born in 1895, in Schiers, Canton of Grisons, in the midst of the Swiss mountains, and grew up under simple circumstances, with two older sisters and four brothers. His mother Sophie, née Egli, fell ill and had to be institutionalised in 1902. She was diagnosed as suffering from schizophrenia, and Imhof's oldest sister Marie had to take over her role in the household. At about the same time, the motherless family moved to Zurich, where my grandfather Gottlieb Eduard Imhof (Eduard Imhof's father) took a position as a teacher at the Agricultural School "Strickhof".

Here in Zurich, the "mountain-experienced" Imhof boys could now only climb on the roofs and pinnacles, instead of mountain crests and high peaks. And instead of roping down a rock face, they were abseiling down 5 stories high

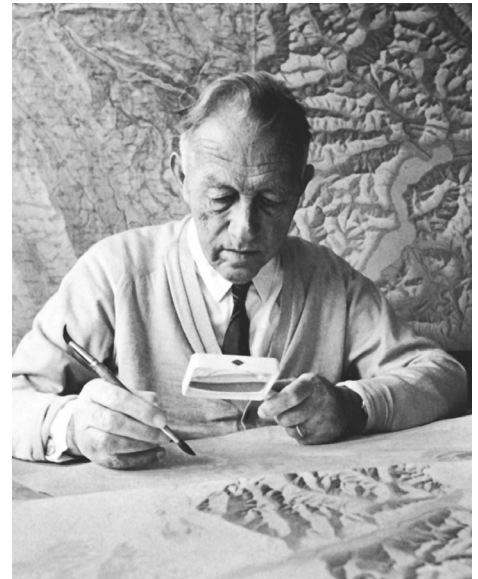
house walls, which terrified the whole neighbourhood! As a schoolboy, Eduard Imhof would accompany his father with great joy on mountain hikes. Even at that young age, he always took along pencils and a sketch block in his backpack in order to make drawings of the landscapes they visited. In college, he was struggling with French and English, and especially with Latin. Today we would call this dyslexia, an evil I promptly inherited from my father.

Eduard Imhof graduated from ETH Zurich as a surveying engineer in 1919 and three years later, in 1922, he married my mother, Agnes Untersander (1895-1949).

In 1925, Imhof was appointed "Professor for plan and map drawing, topography, and related subjects". The Institute of Cartography at that time did not yet exist, so he founded it single-handedly on the quiet. In 1928, the young Eduard Imhof and his wife moved from Zurich to Erlenbach on the outskirts of Zurich, and soon, three daughters and one son livened up the neighbourhood.

Even as an adult, Eduard Imhof was an enthusiastic mountaineer (but never an extreme one). This is proven by the hundreds of mountain sketches, drawings and paintings he made instead of photographs. As soon as he came home from his hikes, he put them on a wall for further review.

My father always had a good relationship with young people, with school pupils and his older students. He was also a member of the school commission at Erlenbach, a supervision board which is elected by the local voters. He participated at orienteering races, he gave lectures about his exciting journeys to foreign countries and about his youth in the mountains. He also organised mountain hikes for the



Eduard Imhof | Photography courtesy of Imhof family

school classes. However, the most important experience of his life was an expedition to Chinese Tibet in 1930/1931. The aim of this expedition was to determine the exact location and the height of the huge mountain *Minya Konka* (today *Gongga Shan*). The mountain reaches an altitude of 7590 m, dwarfing the Matterhorn (4478 m) in Switzerland! Back at home, he gave public lectures about his adventures by presenting glass slides.

The typing of Imhof's manuscripts and other administrative work was done by my mother Agnes until 1949. After her death, Imhof married Viola May (1923–2002, from Berlin) who took over the office work. Later she also acquired a computer, an invention with which Imhof would never have made friends.

Furthermore he was never at the wheel of a car, from 1954 this was Viola's task. He took much more pleasure from an exciting hike or by modelling a mountain relief. The second marriage with Viola was a lucky chance for both Eduard Imhof and for us, the "grown-up and flown out children". She took care of our father during 32 years, either at home in Erlenbach, during his professional activities or on his trips. Even as a widow, she kept in touch with the world of topography and cartography for 16 years until her death in 2002.

At the great age of 89 years, Imhof eternalised the mountains of his "China-Tibet-Expedition" on a 6 metre wide and 1.5 metre high fresco on his house wall. On April 27, 1986, three months after his 91st birthday, my wonderful father died. Our family always keeps him in fond memory, and of course, as we can see today, the International Cartographic Association has never forgotten him.



Dent Blanche, painting by Eduard Imhof | Image courtesy of Imhof family

Walter Imhof | Switzerland

Text translated by L Hurni and H Bradshaw ●

mannerfelt how ica was born

I would like to introduce myself as a fossil – a live cartographic fossil - dating from the early period, when the first plans for the ICA were born. I have been enjoying an ongoing love story with maps and atlases. We have lived together from the Stone Age, I mean the lithographic Stone Age, up to the present, computerised space age.

Carl M:son Mannerfelt,
International Cartographic Conference
Opening Session, Stockholm, June 23, 1997

With these words I opened my speech to the International Cartographic Conference in Stockholm 1997. But before I continue let me go back to the beginning. When World War II ended there was a great need for new maps. School atlases, tourist maps, road atlases, globes, world atlases, navigation charts and city plans, all had to be revised or re-created. It was in such an environment that the first idea of closer co-operation among cartographers from different countries emerged.

After the long isolation of wartime, and in my position as head of cartography at the Esselte Group, I took the opportunity to travel the world. First, I travelled to London and then by ship to the USA, where I visited Harvard University and several government agencies in Washington DC. All of these agencies were very welcoming and I was introduced to the new techniques of using plastic material and new reproduction methods. I was impressed by the enormous experience in the mass production of military maps.

My first idea for a world-wide organisation for cartography was no doubt conceived at that time. Many new contacts were made and at the Congress of Printing and Allied Industries in Venice in 1954 I conveyed a proposal from Sweden to establish an international association for cartography, where cartographers and reproduction specialists could meet in order to compare ideas and notes. I started my speech by saying that “Modern cartography is in a most peculiar position between art handicraft, geographical science and mechanical reproduction techniques” and continued with an outline of a working program for such an international association. Finally, I had the honour of inviting interested cartographers to a first meeting in Stockholm in 1956. We were ready to start.

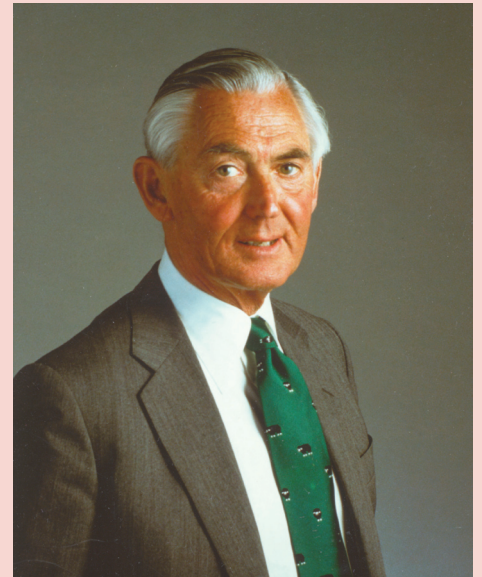
On behalf of Esselte some 35 cartographers from different countries where invited to *The Esselte Conference on Applied Cartography* to take place from 27 July to 2 August 1956 on one of the 24 000 islands in the Stockholm Archipelago. As an introduction to the final session I presented a paper where I proposed the creation of an international association for

cartography and outlined a working programme. The findings from the conference were presented in Munich one month later where I repeated my proposal: “At the final session of the conference a motion was discussed to form an International Organisation of Applied Cartography. In spite of the existence of the world-wide international organisations for geodesy, geography and photogrammetry and the cartographical department of the UN, there is no organisation or society, which represents the central and specific interests of cartography.” Furthermore, the conference adopted the following resolution: “The representatives of the Esselte-Conference for Applied Cartography agree that an organisation for the continuation and intensification of international cooperation in the field of applied cartography ought to be founded. This international organisation shall be active in those fields of cartography which are not covered by other existing organisations. The conference is aware of the fact that further contacts with the various countries are necessary before a final resolution may be adopted. The assembled participants suggest therefore to form a temporary committee which should contact the competent authorities of the various countries. The target will be to suggest the establishment of an International Society of Applied Cartography.

In order to put into practice this resolution, the temporary committee was elected by the conference consisting of:

- Dr Carl M:son Mannerfelt, Esselte, Stockholm, Sweden, Chairman
- Dr Erwin Gigas, Director Institut für Angewandte Geodäsie, Frankfurt am Main, Germany
- Dr Daniel Chervet, Eidgenössische Landestopographie, Wabern, Switzerland
- Dr K. W. Bland, Ordnance Survey, London, Great Britain
- Mr D. Fitchet, Rand McNally, USA
- Mr Stéphane de Brommer, Institut Géographique National, Paris, France”

Now the “Committee of Six” was established and ready to break new ground. It was a thorny road to navigate, through bureaucratic jungles, top-secret institutions and all the challenges which existed between competing companies and organisations. The committee held a meeting in Bern, 5-6 June 1957, attended by Professor Eduard Imhof who continued the work to create a new international cartographic association. Another meeting was organised by Rand McNally in Chicago in 1958, where Professor Gigas was elected as secretary of the committee. The main report was given in Mainz in November 1958 at a meeting called by Professor Gigas and the Deutsche Gesellschaft für Kartographie. The report included a thorough review of cartographic reproduction



Dr Carl Mannerfelt | Photography courtesy of Bengt Rystedt

techniques, contacts made by the committee and a tentative working program for a new international cartographic association. The meeting decided to continue and asked the new chairman of the committee, Professor Eduard Imhof to organise a founding meeting that took place in Bern in June 1959, where the delegates from 13 nations took the formal decision to establish the International Cartographic Association (ICA).

Many people were involved in these first steps, but the most important person was Professor Imhof. He was not incognisant of the risks and difficulties in establishing a specialised organisation for cartography. It should be noted that at that time IGU strongly argued for having cartography as a section within IGU rather than an independent organization.

Personally, I am still convinced of the importance of stimulating deeper education in the noble art of cartography. More than ever we need academically and professionally skilled cartographers who are also creative editors and possess visionary feelings for design, generalisation, typography and colour balance.

Half a century ago I could never have conceived that our first efforts would one day lead to an organisation like ICA today with so many member nations and the ability to assemble thousands of cartographic specialists in conferences and commission meetings.

Good luck to you all from a 96 year old fossil!

Carl Mannerfelt | Former Vice President of ICA (1959-1964) | Sweden

Presentation delivered by Professor Bengt Rystedt, former President of ICA (1999-2003)

Dr Carl Mannerfelt passed away on 10 September 2009. His obituary will be published in the ICA News No 53, December 2009. ●

spiess ica efforts in map design and production



Professor Ernst Spiess | Photography Thomas Maag

If we are to evaluate the effect ICA had in this period of 50 years, we have to look into its manifold activities. The results of conferences and meetings are recorded in publication form and in our personal remembrances. An important assessment of these events can be found in the many reports published in the cartographic journals of the national societies. In the initial phase until 1974 papers were partly published in the *International Yearbook of Cartography*. To mention only two relevant examples: Carl Mannerfelt himself described in the first edition up-to-date drawing and reproduction techniques as used for the Swedish National Atlas. Another article, often referenced to later on, was Eduard Imhof's fully illustrated contribution on name placement.

The most extensive source of information, however, is the wealth of abstracts and papers of the individual presentations at the conferences up to present times. During conferences the time needed to separate the wheat from the chaff is usually lacking. But looking back you will find in this collection an enormous treasure. More recently, conference papers are now made available on-line through the ICA website. No doubt this material is a very valuable source of the state of the art in present day cartography and related fields. The contributions more and more make use of the possibilities of the web, including illustrations so much missed through the last five decades.

The impact of all the exhibitions of maps, atlases and commercial hardware and software is not to be neglected. What visitors got from displays, demonstrations and personal contacts has certainly influenced in many cases their own ideas and their dispositions. Much of what they saw and discussed will have been stimulation and impulse for their own activities.

Somehow more focussed on special items are the commissions and working groups. They periodically presented their reports about their ongoing work and about new techniques or concepts. Much more widely spread, also outside ICA, are the ICA publications, initiated and produced by the commissions and also the publications on the technical standards on spatial databases collected, systemised and published by the respective commission under the editorship of Hal Moellering. The content gives a comprehensive summary of the respective activities in those countries, which participated in the commission work.

To the surprise of many the first thing needed in international co-operation was to find a common terminology to understand each other, apart from the serious language problems. The *ICA Multilingual Dictionary* was an important step to remedy this situation. It would be an exaggeration to say that due to the *Dictionary* it is no more a problem nowadays. The increasing influence of predominantly English computer terminology has contributed quite a bit to alleviate this problem, but for every member of a non-ICA-language community it remains sometimes difficult to communicate ideas and to make them understandable.

The first initiatives of cartographers to exchange technical information on map production took place at the Esselte Conference in Stockholm 1956 and at the meeting at Rand McNally in Chicago, in 1958. Scribing and strip-masking techniques had been recently developed at different places, but were not yet common at all in many others at that time. The intention to share technical experiences was certainly one of the motives of the foundation of an international association.

Under the suggestions for the creation of special commissions the first General Assembly in Paris in 1961 we find two proposals, *Techniques and equipment for cartographic drawing* and *Recent developments in the field of cartographic reproduction techniques*. The report of the Frankfurt conference 1962 mentions for the first time *Automation* as one of the three main topics, referring, however, only to improvements in reproduction techniques. A milestone in the development process was David Bickmore and A R Boyle's report on an experimental unit for digital mapping, together with the first samples of maps drawn on a cathode ray tube presented by Waldo R Tobler. These contributions found great interest and were certainly one of the motives for the creation of an ICA Commission on Automation by that General Assembly. In the following years the Commission, in spite of its vast catalogue of terms of reference concentrated more and more on experimental digital mapping. This led to the formation of a Commission on Map Production at the General

Assembly in Ottawa 1972. In the next two decades there was an ongoing controversy on which subjects belonged to which commission, because automation more and more was involved also in analogue processes.

In 1973 a group of experts from 18 countries started discussion about an exhaustive inventory of cartographic techniques. It was not easy at all to attain a systematic approach due to the different levels of experience and technology of the commission members. Still more problems were encountered in the formulation of a comprehensive definition in English and French for each process, starting from proposals in different languages. These difficulties continued during the preparation of the *Compendium on Cartographic Techniques*. The idea to involve volunteers from all over the world and develop the manuals by international co-operation was condemned to compromises, lack of co-ordination and loss of time. Also some of the illustration material did not meet sufficient standards, which gave cause to unpleasant rejections. Fortunately, the editor of the final edition, James P Curran was in a position to remedy English language problems as well as technological defects. Later, the Commission started a project on workflow diagrams. The aim was to create a visual means to describe the rather complicated analogue and digital processes of map production, starting from various sources, followed by map compilation, map construction, map reproduction and final printing. It was conceived as a tool for map process design, quality control as well as for education. The system has been presented by Sjeff van der Steen at the Conference in Barcelona in 1995.

Another ICA publication, which found reasonably wide dissemination, was the manual *Basic Cartography for Students and Technicians*. The individual chapters were attributed to members of different countries, who partly involved their corresponding national commissions in the conception and preparation. The traditional drawing and scribing techniques shown in detail in the first volume were a valuable guide for apprentices for scarcely more than ten years. For countries, where they might have been welcomed, the books were just too expensive.

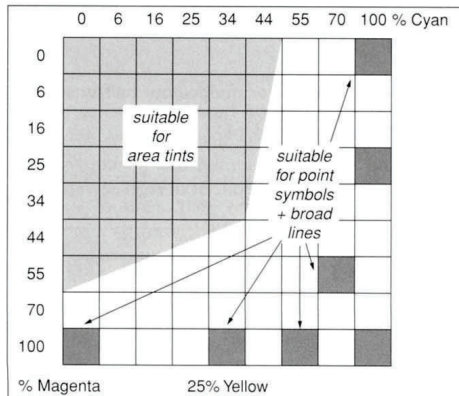
What had started as automation in cartography developed rapidly into computer-assisted cartography, further to digital and to web-based cartography. Numerous papers, reports and demonstrations described the on-going change. The topics covered every aspect of these new technologies: new equipment, automatic mass digitizing, scanning, drum scanners and plotters, map publishing, vector and raster data conversions, computation of map projections, automated generalization, proof printing, printing on demand, computer-to-plate printing,

spiess ica efforts in map design and production cont...

web mapping and many others were the headlines of an enormous wealth of contributions. Which ones were milestones in this cartographic revolution, and to what extent, would be the subject of a definitely more thorough study. It must be mentioned at this point that the main part of this revolution might be due, unfortunately, to the commercial firms, developing equipment and software, however, primarily not for cartography. But there are several indications of improvements for cartographic applications that originated in discussions with ICA commissions and objections raised during ICA exhibitions.

An early initiative in map design was the attempt of a standardization of map symbols in maps. At the time these proposals were partly welcomed, when based on a well-structured classification. But if we are honest, we would not like to use those symbols nowadays, first from a graphical point of view and second because the same object may appear in maps in completely different contexts. Nevertheless the design of symbols and their standardization is still a common theme today.

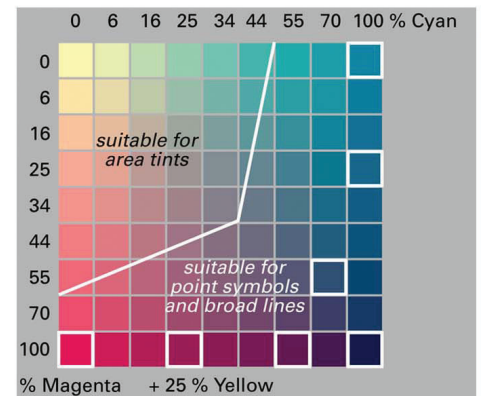
Another issue of map design that attracted the cartographers' attention from the beginning is colour in maps, including the design of colour atlases for choosing tones and tints for process colour printing. Already at the conference of Amsterdam in 1967 a special session was devoted to colour. Countless are of course the moments in all the 22 conferences, when colour became part of a presentation. Relatively rare, however, were contributions concentrating specifically on this item. The five books produced by the Commission on Education and Training have been an extremely valuable source for various aspects of map design as well. They include communication,



Selection of light area tints and dark line and point symbol colours on one of the colour charts. Version in colour explains principles of colour selection spontaneously | Image © *Manual on Basic Cartography*

theory of cartographic expression and design, visualisation, map compilation, generalization, toponymy, computer-assisted cartography etc. Of course these manuals concentrate more on the fundamentals in contrast to many sophisticated papers at the conferences. The constraint to illustrate map design and reproduction in black and white only, due to limited financial resources, is a real handicap for these books. The benefit of colour for explaining rules and concepts in map design is shown by the Figure above.

Visual perception and presentation with respect to map design have appeared as a topic at most ICA conferences. The various schools tended towards a general agreement about the fundamentals of visual presentation and related terminology. Entirely new aspects of visual presentation had to be taken in mind with the advent of web-maps. Besides the static maps there are now dynamic ones with a variety of interactions. Various contributions have insisted on the need to extend the graphic variables



with a set of dynamic visualization variables to be used on displays.

If we compare the well-established theoretical state of the art in design with the actual production, the transfer into practice seems to have failed up to now. We are left with the fact that the messages have not yet reached all old and new players in cartography. The ICA community has the potential to remedy this situation. In the 50's, cartography was a worldwide scattered group of academic and production units, often hiding their procedures and techniques like secret services. Since then ICA with all its activities has transformed the whole field into an open society. The flow of information is remarkable and all the professionals involved gain from many personal contacts. Therefore if we look back, the ICA is a story of success in spite of its limited resources. Our best wishes shall be with the Association for its future.

Ernst Spiess | Switzerland ●

afternoon break

Afternoon break organised by the Swiss Federal Office of Topography (swisstopo) at their Headquarters in Wabern, Bern | Photography Thomas Maag and Stefan Räber



grelot ica in the 1990s: entering the information society



Jean-Philippe Grelot | Photography Thomas Maag

La mission de l'Association Cartographique Internationale est de promouvoir la discipline cartographique et la profession de cartographe dans un contexte international (The mission of the International Cartographic Association is to promote the discipline and profession of cartography in an international context). This statement has been adopted during the 10th General Assembly of the association in 1995. Through the image of ICA as a tree with roots, a trunk, branches and their leaves, I will demonstrate, through some initiatives and actions, how the ICA implemented this statement to help cartographers enter the information society in the 1990s.

Background of cartography in the 1990s

Cartography has long been part of geography, and cartographers were seen as specialised geographers. The cartographers' emancipation in the 1950s has corresponded to the graphic arts transformation due to the industrial production of photo-sensitive emulsions.

During the 1960s, the theoretical thought showed progress and built the basis of cartography as a discipline. A map was regarded as end product provided to the users. The concern for users, map use and the map-user interface was low.

During the 1970s the first computing systems arrived and were used to automate cartographic drawing. They were somewhat sophisticated and quite expensive, and computer specialists were seen as the professional group which would dominate a large number of scientific disciplines.

But at the end of the 1980s, computer science became a common tool in a spectacular way and surveyors, photogrammetrists, image interpreters, cartographers and other

specialists could seamlessly incorporate geo-located and geo-referenced data into the emerging information society. At the same time people had realised the limitations of resources and the necessity of controlling their exploitation and their protection. They wanted to spend their time in the more profitable way and considered time as an additional critical resource. Maps have progressively been regarded as decision-making tools. They have been taken out from the academic domain in order to benefit the society in general. ICA president Fraser Taylor wrote: *"The need to convert data into useful information has never been greater and the map and related cartographic spatial information products are ideal media for the organization, presentation, communication and utilization of the growing volume of information which is becoming available"* (Geographic Information Systems: The Microcomputer and Modern Cartography, 1991). As a decision-making tool, geographic information had acquired an economic, commercial and societal value.

In such an environment, making maps and supplying geographic information systems is not sufficient. Users become central, not producers nor even maps. Users have to be provided with what they need rather than to be convinced they have to adapt themselves to what producers have made for them. They also have to be satisfied according to the utilization value they have anticipated.

With the information revolution in mind, the ICA has worked on new definitions under the guidance of Christopher Board. During the 10th General Assembly in 1995, the association has adopted the following working definitions:

- A **map** is a symbolised image of geographical reality, representing selected features or characteristics, resulting from the creative effort of its author's execution of choices, and is designed for use when spatial relationships are of primary relevance
- **Cartography** is the discipline dealing with the conception, production, dissemination and study of maps

ICA's roots

The deeper and more developed are the roots, the higher the trunk and the larger the branches will be. As you should imagine from the review of the 1990s background, cartography as a discipline was the ICA's main root. Not a fixed root, but a root which always has to grow and develop ramifications.

Some of these ramifications were devoted to active links with governmental and non-governmental organisations. I would mention four of them: International Council of Scientific Unions (ICSU), International Geographical Union (IGU), International Union for Surveys and Mapping (IUSM) and United Nations (UN).

ICA has been granted Scientific Associate Membership in ICSU (currently International Council for Science) in 1990. It was an important step for scientific recognition at the highest international level, because the application for membership has to be supported by a number of international scientific organisations and national academies of science. ICA could then fully promote ICSU non discrimination principles for attendance in conferences and seminars whatever the political circumstances were. ICA was also given the opportunity to contribute directly and indirectly to ICSU scientific programs such as those related to Agenda 21.

IGU has been an old partner of ICA. The issue with the IGU was to develop the actual partnership. A long process resulted in links between a number of corresponding commissions which could exchange information and sometimes had more formal bilateral activities.

IUSM required a tremendous amount of work with finally small results. IUSM was established in 1985 as a result of coordination efforts of several international scientific organizations involved in geo-referenced information. It was a non-governmental body dedicated to surveying and mapping, defined in its statutes as *'the science, art, technology and economic aspects of collection, measurement, processing, analysis, interpretation, portrayal, dissemination, utilization and evaluation of geographically and other spatially referenced data'*. The basic objectives of the Union were to promote interdisciplinary studies, to initiate, facilitate and coordinate research and investigations, and to provide scientific and technical advice on practical projects. This high ambition still increased after a strategic meeting in 1995 but no substantial activity took place. IUSM members recognised that ICA has often been the most proactive association for the Union, but the Union finally was disbanded in 1999. However, to preserve the principle of co-operation, a joint board has been set up to allow member organisations to meet annually for mutual information and to maintain links between them.

ICA had relations with several UN agencies, mainly UNESCO and UNICEF. ICA had been admitted to UNESCO in 1990 as non-governmental organization under category C, which meant mutual information relationships. It was a key for the recognition of ICA by the UN system. Closer were the contacts with UNICEF, especially through the Barbara Petchenik Children Map Award.

The paradigm of the information society is that the societal and often the economic value of information depends on its dissemination. With that in mind, the ICA devoted substantial effort to enlarge the cartographic community. Multiplying contacts and participation in local

grelot ica in the 1990s: entering the information society cont...

events, ICA had the pleasure to welcome sixteen new member nations and twelve new affiliate members between 1995 and 1999 general assemblies. The budget policy was consistent with the enlargement policy: from 1987 to 1999, the basic unit fee has been kept at the same level, i.e. US \$250. Although the ICA has financially supported the commissions and working groups according to their budget requests, a strict financial management has been followed. It has been mentioned by Michael Wood in his presidential report in 1999, which is certainly a reference when coming from a clever Scot. But more seriously it gave the opportunity to create a Promotion and Solidarity Fund in 1995 with an initial allocation of US \$20,000. The fund has been used to support young Travel Awardees attending the 1997 and 1999 conferences.

As a very specific initiative aimed at children of the entire world (run through the national cartographic committees), I would remember the first years of the Barbara Petchenik Children's Maps Award. The award has been created in 1993 as a memorial for Barbara Petchenik, a former Vice President of the ICA and a cartographer who worked throughout her life with maps related to children. The aim of the award is to promote children's creative representation of the world. The awarded drawings were submitted to the UNICEF International Art Committee for consideration as greeting card designs. As many as 27 ICA member nations participated in the first contest in 1993. Twenty of the maps were included on the United Nations CD-ROM 'My City' exhibited at the 1995 World Summit on Social Development in Copenhagen, later in New York and at the Women's Summit in Beijing. Upon the initiative of UNICEF and the ICA, 18 maps from the 1993 and 1995 contests have been used in an Education for Development resource poster named 'Children Draw the World'. The entries have later been published in the ICA Newsletter, on the ICA website and in a number of other places, and the contest still continues.

ICA's trunk

Entering the information society, time has come to structure and publicise ICA's activities in a professional way. This was like building a trunk strong enough to carry a growing number of initiatives of any nature, from commissions and seminars to publications. As a result, a set of guidelines have been established. They have first been published in 1993 and 1996 issues of the *Bulletin du Comité Français de Cartographie* and later on the ICA website:

- the ICA statutes and by-laws, with revisions after each general assembly
- the terms of reference of commissions and working groups
- guidelines to the chairpersons of commis-

sions and working groups

- the rules of procedures of the Publications Committee, using Roger Anson's long experience
- guidelines to national committees, especially useful for developing countries in order to promote their own national cartographic activities and organisations
- guidelines for ICA conferences and general assemblies, benefiting from Don Pearce's vast expertise
- a standard call for papers, to be used for international cartographic conferences and as a guideline for any substantial seminar
- guidelines for the Barbara Petchenik Children's Maps Award
- guidelines for the endorsement of conferences by ICA

These documents constituted a common reference to all people involved in ICA activities. They participated in the identification and the visibility of the cartographic community as an international professional group.

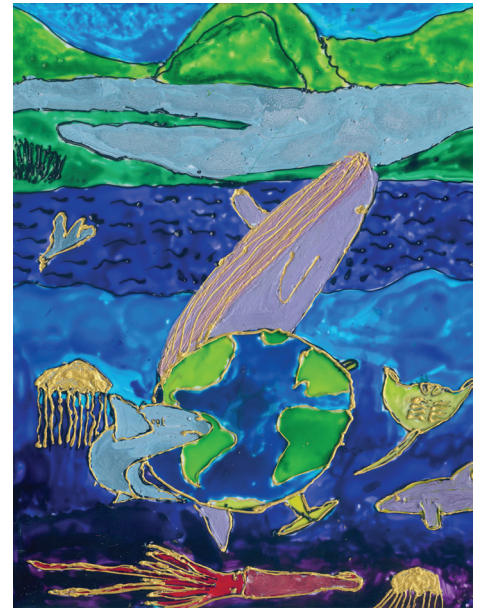
ICA's branches and leaves

The commissions and working groups have always been the substance of ICA activities and recognition. They provided the material for publications, they encouraged papers and attendance to conferences, they convened seminars and workshops in many countries, they materialised knowledge exchange between countries and between individuals.

The specific elements added in the guidelines for commissions and working groups dealt with publications and seminars, in order to give commissions and working groups actual goals and appropriate means to achieve the formal terms of reference approved by the general assembly. Each ICA Vice President was assigned two or three commissions for helping them as much as he or she could, and the progresses were reviewed every year according to the terms of reference.

Among the 18 books and booklets published by ICA in the 1990s, several titles clearly indicate issues related to cartographic information processing. For instance, *Thematic Mapping from Satellite Imagery*, *Spatial Database Transfer Standards* (thanks to the extraordinary work of Harold Moellering and his commission), *Electronic Atlases and National Atlas Information Systems in the Information Age*, *GIS and Computer Mapping for Coastal Zone Management*, and several chapters of *Basic Cartography for Students and Cartographers* and of the proceedings of the *Teaching Cartography Seminars*, two series under the patient guidance of Ferjan Ormelung.

I will not give details on the commissions and working groups. I will just mention a point in relation with the move towards the information society. In 1995, the ICA Standing



Hannah Cleaver-Marshall (11), *Under Water Magic* glass painting, Peachgrove Intermediate School, Hamilton, New Zealand; 2001 Barbara Petchenik Children's Map Award competition | Image courtesy of New Zealand Cartographic Society

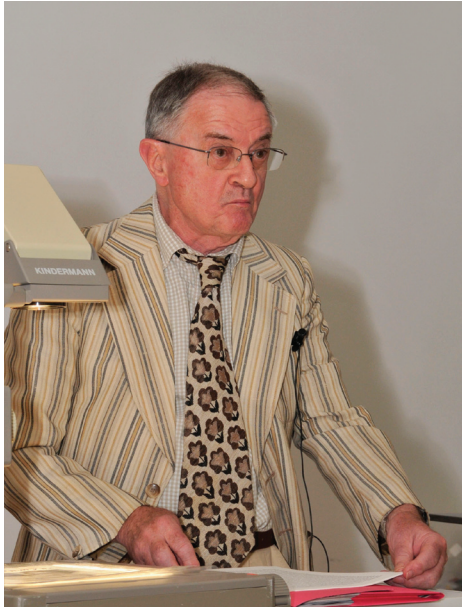
Commission on Advanced Technology was disbanded by the General Assembly. Disbanding a standing commission is always difficult and unusual. Disbanding a commission on advanced technology seems dramatic for a scientific organisation. But the rationale of the decision was clear: many if not all the commissions had to cope at that time with advanced technology, from map production to visualisation, from spatial data transfer standards to spatial data quality, from mapping from satellite imagery to map generalisation. Finally ICA Commission on Maps and the Internet was established in 1999. The world had changed; without any doubt, cartography was within the information society.

Conclusion

The 1990 decade has been a great technological and professional challenge. The subsequent decade sees the results far away from the nice and peaceful 'planetary village' some had anticipated. We now live in globalised world with its economical issues. We perceive the advent of its societal issues. You will be given the opportunity to discuss it in November in Chile. But if you are interested in the topic, if you are prepared to work on it and to make some additional research, I am afraid that you do not have any choice: you have to come yourself and invite all your best colleagues to come with you to Paris in 2011! *Venez à Paris, capitale mondiale de la cartographie, en 2011!*

Jean-Philippe Grelot | Former Secretary General and Treasurer of ICA (1991-1999) | France ●

board reflections on three ica commissions



Dr Christopher Board | Photography Thomas Maag

Cartographer's (Technical) Terms

As a geographer brought up to regard maps as integral to exploring patterns of all kinds in relation to the Earth's surface, I am privileged to take part in this golden jubilee celebration of the International Cartographic Association. Only commitment to an excursion following the IGU meeting in London in 1964 kept me from participating in the ICA meetings in Edinburgh.

Shortly after my arrival at the London School of Economics in 1963 I was asked to become involved in the UK's contribution to work on technical terms instigated by Emil Meynen at the Frankfurt meeting in 1962. My contribution was mainly in thematic mapping and map use, and complementary to the terminology of map design and production employed by professional cartographers. Thrown into the deep-end, our first task was to list as many technical terms as possible before attempting to define what they meant. Later we reacted to many more terms, often of German origin, finding their English equivalents, if they existed.

As our ultimate aim was a multi-lingual dictionary we followed Meynen's ideas for a classified list of terms and definitions with indexes in several languages. By December 1966 the UK had a working Glossary and we soon received similar documents from France and the USA. Such documents were the raw material for discussions at full meetings of members of Commission II. Salishtchev's introduction to the published Dictionary emphasised the work of national committees, the international character and fruitful collaboration between cartographers. Many were the contacts made; and those who took part in Commission meetings learned much about how others saw maps and mapping.

While in the national committees we laboured to understand what was meant by terms such as *Kartenzeichenkunde* (Semiotologie) for which there was then no English equivalent. The outcome was a publication which provided a standard set of definitions in principal languages and indexes in these and several others. A full list of members and corresponding members was published in 1965 and is recorded in the Dictionary itself. Corresponding members tended to be cartographers active in their own countries and effectively extended the coverage of languages to at least 13 by the device of adding synonyms for the terms at the side of the main definitions.

Perhaps as a by-product of my work on definitions, I was asked in 1987 to organise a task of redefining cartography and map by the newly elected ICA President D. Fraser Taylor.

Cartographic Communication

Even before this magisterial work was completed, in 1968 at the ICA meeting in India, Ing A. Kolacny of Czechoslovakia was asked to chair a working group on Cartographic Information on which he had delivered a paper. This soon became Commission IV as it became clear that there was an emergent invisible college of those who had similar interests. Unfortunately its first meeting in Prague in 1969 took place after the Soviet invasion with consequences that ultimately deprived the new Commission of its original muse, who was never again allowed to attend ICA meetings or leave Czechoslovakia.

Changing its name to Cartographic Communication in 1969 clarified the objective and terms of reference. Nevertheless a session on cartographic communication was held at the ICA Stresa meeting in 1970 but without

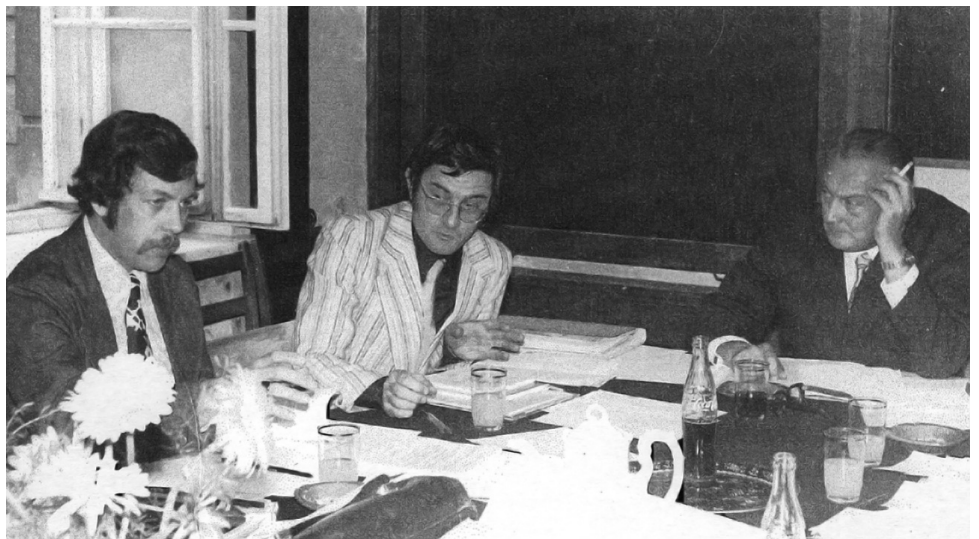
Kolacny. Despite these setbacks the Commission met several times in the countries of members: Warsaw; London; Paris. It naturally met at ICA conferences in Ottawa, Madrid, Moscow, College Park and Tokyo. Lech Ratajski replaced Kolacny first as acting chairman about 1970 and modified the terms of reference to emphasise cartology which did not get much support according to Ormeling.

This Commission was essentially put together by a small group of those who were interested in theoretical considerations. They exchange views, papers and held discussions at seminars and conferences. Cartographic journals began to publish their papers which helped. Sometimes, as hinted above, such abstract matters faced indifference or even hostility to a world dominated by map producers, or those training professional cartographers.

Gradually however the existence of the group became known and new members joined. In the UK I was generously supported from 1972 by our national committee and encouraged to bring together anyone whether geographers, cartographers, psychologists and others who had an interest in communicating through maps. Two seminars were held in London in 1975, and 1983 whose proceedings were published by *Cartographica*. These brought together members of the Commission with local researchers further expanding the reach of the subject matter and familiarisation with what the ICA was doing between conferences.

The frequency of Commission meetings and the popularity of sessions at conferences helped to hold the core group together. One very popular strand was modelling the communication process involving Ratajski, Robinson, Morrison, Freitag, Head and others. Another slant was to assess the degree to which theory may have been tested in practical map design,

Meeting of the ICA Commission V on Cartographic Communication in the Department of Cartography, University of Warsaw, Poland in 1974; (from left) Joel L Morrison (USA), Christopher Board (UK) and Commission Chair Lech Ratajski (Poland) | Photography courtesy of Christopher Board



board reflections on three ica commissions cont...

for which we produced a bibliography of nearly 900 works whose contents were indicated by key words. Great efforts were made to employ French and English in the introductions and indexes of key words. However, the impact of Kolacny's and others' models of cartographic communication was to give due prominence to map use, especially map reading, as opposed to production. Cartographers in the inter-war years had been content to leave such matters to geographers, who generally treated topographic mapping as a given.

The Tokyo meeting in 1980 was significant for ICA in that there were two critiques of communication models, one by Freitag and the other by Judy Olson leading more deeply into map use through cognitive processes. I was elected chairman of Commission D, which had been V under Ratajski who had died in 1977. The new terms of reference proved to be intention tasks, begun but never completed. In retrospect they were too ambitious, looking more like a programme for a Commission over eight years.

Ormeling, reviewing the development of commissions, records A.H. Robinson's programme to tighten up their aims and work, a task continued by his successor, J.L. Morrison. In 1984 four Standing Commissions were designated and set up: Training and Education; Map Production Technology; Advanced Technology; and History of Cartography. U. Freitag took up the banner of the former Commission D with a Working Group on Concepts and Methodology in Cartography, to report in 1987, while I moved to a new group on Map Use.

History of Cartography

My involvement in the history of cartography came late and as an active member of the Charles Close Society. Experts on the history of cartography had suggested that a Working Group be established in 1972. Cooperation with the International Society for the History of Cartography proved unfeasible as there were many non-cartographers in the latter, which ran ICHC conferences in 'odd' years.

In 1991, I became much involved in the invitation by the UK to hold its 14th conference in Bournemouth to mark the bicentenary of the Ordnance Survey. But by that time my involvement with the Charles Close Society reawakened my interest in the history of cartography, particularly that of the 20th century. Impending retirement from LSE allowed me greater freedom to undertake further research on the policy of altering maps for reasons of national security. At the same time Brian Harley, one of the founder editors of the Chicago project *The History of Cartography*, was also publishing papers urging users of historical maps to be aware that political

considerations played a major part in map content.

Within the ICA I was increasingly busy as the chairman of the UK's national committee including its transfer from the Royal Society, its detachment from the National Committee for Geography and welcome from the British Cartographic Society. As the UK delegate to ICA General Assemblies I quickly realised how decisions were made. There were also several attempts to redefine cartography and map, duly reported in the ICA Newsletter. At the Ottawa General Assembly in 1999 I handed over the editorship of ICA News and was a candidate for the chairmanship of the History of Cartography Commission. My terms of reference concerned building a basic source for the history of official mapping agencies. This proved far too ambitious and on reflection should have been regarded as a type one task involving all member countries. I had not realised the momentum established by the Standing Commission on the History of Cartography. Many existing national members probably were not interested in my top-down approach. I made some new contacts through an alternative network, but these generally failed to produce any results. Despite having a web site, only Dorothy Prescott and Elri Liebenberg came to my rescue, the former completed an impressive bibliography for the States and Commonwealth of Australia, which was made available electronically. After making a rather negative report at Durban in 2003, I handed over the chairmanship to Postnikov, who was nominated by Russia but had not sent in any terms of reference.

In 1996 I renewed my visits to South Africa and began to research military mapping of the last century collaborating with Elri Liebenberg. We were able to mount an international conference in Cape Town on the History of Cartography of Africa before the main conference in Durban. The discussions in Cape Town and the confusion over the future of the Commission on the History of Cartography led to the creation of a Working Group on the History of Colonial Cartography focussing initially on Africa. This was an example of comparative research being examined in an international context, bringing together scholars who were working in Namibia, South Africa and East Africa. A successful seminar was held in Utrecht in 2006 which attracted several more individuals to present their research within the theme History of Colonial Cartography from 1750 to 1950. As in the case of the Cape Town conference in 2003, the proceedings were distributed on CD often with full-colour illustrations.

Since the Moscow General Assembly in 2007 former ICA Vice President Liebenberg has chaired the Commission and organised with

colleagues in Portsmouth, UK another Symposium titled *Shifting Boundaries: Cartography in the 19th and 20th centuries*. Colonial cartography naturally falls within this scope. The focus is now the recent history of cartography as opposed to the predominantly pre-1800 emphasis in the ICHC meetings run by the Board of *Imago Mundi*. There is no doubt that small group of specialists who began to share views on colonial cartography spearheaded the revival of the History of Cartography Commission.

One consequence is that almost any historico-cartographic theme within the last two centuries can offer a new focus for an ICA group. The abandonment of the status of standing commission from 2003 does not mean that there should be only one commission on the History of Cartography. There are many historians of cartography in the member nations of the ICA. It should be possible to provide forums at sessions at international conferences, or symposia between such conferences to suit like-minded researchers.

In hind-sight

Some rethinking about the core definitions of cartography and map have taken place, but even among practising cartographers these are often unknown or ignored. The fall-out from the Commission on Cartographic Communication can be seen in the place of modelling, theory, philosophical arguments about map content. History of cartography will survive, helped by its many devotees and the great projects such as that by the University of Chicago Press. Accommodation has begun between ICHC and ICA which have met in the same years since 1987. After all we recognise that thematic and topographic cartography are broad areas that will survive, albeit under other guises, such as general purpose and special purpose mapping.

Perhaps a current review of ICA structures should contemplate a four-year term with limited objectives and likely participants including a chairperson, calling it a working group. Would it not be possible for the ICA Executive to set up commissions for specific topics which of necessity require the participation of a broad range of members bringing in many by e-mail contacts. All of us can think of topics. Mine are: changing place names; training map users; simple updating techniques for out of date mapping. Depending on the perceived priorities, each Vice President would drive one such commission, aided by a deputy chairperson who would have to undertake the execution of the task. There will still be a need to establish task groups or small committees to serve the President, revise the Statutes, or to recommend medals and awards.

Christopher Board | *United Kingdom* ●

hurni cartography at eth zurich



Professor Lorenz Hurni | *Photography Thomas Maag*

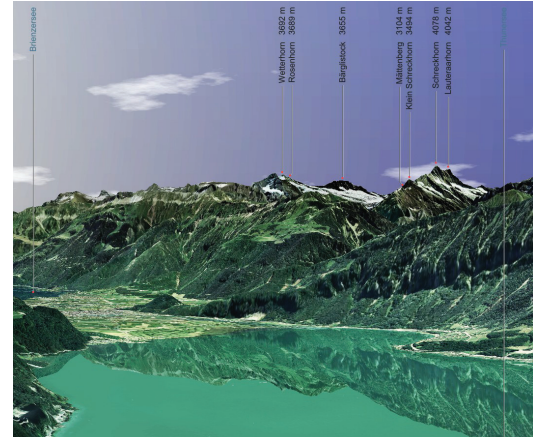
After the Swiss civil war in 1847, a new political beginning was necessary. In 1848, the modern Swiss Confederation was founded, empowering the central government on the one hand and leaving well defined corrective measures to the cantons on the other – a typical Swiss compromise.

Already in 1834, General Guillaume Henri Dufour was ordered by the former Swiss government to build up a new high-quality topographic map of Switzerland at the scale of 1:100 000. The role of that map can be interpreted as supportive of the “nation-building” of Switzerland. For the first time the country as a whole was shown in a relatively

large scale, with high geometric precision and in a well designed, comprehensible manner.

Another brick to this nation-building was the foundation of a polytechnic university, the Swiss Federal Institute of Technology (Eidgenössische Technische Hochschule, ETH) in Zurich in 1855. The technological progress and the needs for technical infrastructure such as railroads asked for specialists in engineering. Dufour already had an education as civil engineer from the École Polytechnique in Paris, which comprised also topographic compilation and depiction methods. The first professorship in that domain at ETH Zurich was also closely linked to civil engineering.

Since the foundation of the Swiss Federal Institute of Technology, at least one chair was devoted to topography and/or cartography. The first professor of topography was Johannes Wild, one of about 45 professors and lecturers of the young ETH. Wild had an education in civil engineering and mapping from Munich and Vienna and had just finished the field work for his topographic map series 1:25 000 of the canton of Zurich, later known as the *Wild Map*. This map served as a cantonal base for the Dufour map and was one of the first multicoloured large-scale topographic maps with contour line depiction. Earlier, he was also involved in topographic and planning work for the first Swiss railroad line between Zurich and Basel. In 1843, he produced an internationally renowned map of the Unteraar Glacier on which Louis Agassiz also based his research which finally led to the development of the ice age theory. Wild was assigned professor at ETH Zurich without having applied for the post, but finally accepted the position.



Wild's successor Fridolin Becker published numerous maps covering areas in the Swiss Alps, but also abroad. He is considered one of the pioneers of relief depiction for topographical maps. The introduction of chromolithography in cartography in the second half of the 19th century allowed the introduction of continuous tone shadings in maps. In Switzerland, the Alpine Club published the first multicoloured relief maps which were further developed by Becker. He especially focused on the development of natural colour depiction by applying hypsometric tinting combined with shading and representation of sun-lit faces. Becker also elaborated a number of plaster reliefs.

Eduard Imhof was Lecturer and Professor of Cartography at ETH Zurich from 1925 to 1965. After his diploma graduation in 1919, he was immediately appointed Lecturer to replace Fridolin Becker who was already severely ill at that time. After Becker's death in 1924, Imhof was promoted to Professor in 1925. One of his first actions was the foundation of the Institute of Cartography, thus becoming the first academic cartographic research institute world-wide. According to the well-cultivated legend, Imhof simply asked a painter to write **Institute of Cartography** above the entrance door of his office!

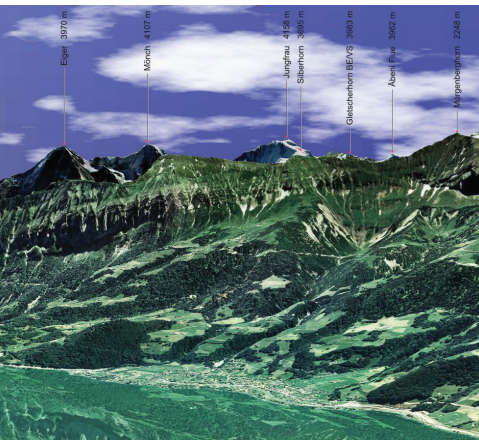
Imhof continued Becker's work by precisely defining design rules for hypsometrically tinted relief maps and applying this technique in many school maps and atlases. His main contribution was the further refinement of Becker's colour scales, finally leading to his famous *Swiss-style colour relief shading*. He developed a hypsometric tinting starting with a grey-bluish green in the lowlands, then into an olive, brown-red, yellow and finally fading into a white in the highest area.

At the time of Imhof's studies, the first considerations for a new National Map Series, which should replace the old Dufour and Siegfried maps from the 19th century, were starting. The introduction of the new National Map however started only in 1938, and ended in 1978. Imhof had a major influence on the



Map of Mount Everest 1:100 000 in Eduard Imhof's *Swiss Secondary School Atlas*, 1962 edition | *Image courtesy of Lorenz Hurni*

aperitif sponsored by swisstopo



Automatically labelled panorama of Lake Thun and Bernese Alps | Image © Atlas of Switzerland

definition and the design of the new maps. He especially urged to introduce a metric map scale series consisting of scales of 1:25 000, 1:50 000, 1:100 000, 1:200 000, 1:500 000 and 1:1 000 000. A counter-proposal postulated a scale of 1:33 333, replacing both 1:25 000 and 1:50 000 scales, but fortunately it was unsuccessful.

Later on, Imhof concentrated much more on atlas cartography, especially the *Atlas of Switzerland* and the *Swiss Secondary School Atlas*. Nevertheless, he still worked on numerous mountain maps, terrain sketches, paintings and natural colour relief maps. The legacy of Imhof was on one side published in his book *Cartographic Relief Presentation*, but also disseminated in two international academic advanced training courses in 1957 and 1960.

The theories of Imhof on relief depiction were further taught and developed by his successor Professor Ernst Spiess who applied them successfully in his 1959 expedition map of the Panta Range in Peru. He also applied and developed the techniques of natural colour reliefs in his school atlas maps as well as cliff drawing techniques for topographic mapping. Spiess' main focus of work however was the further development of the *Atlas of Switzerland*, the Swiss national thematic atlas and the re-conception of Imhof's secondary school atlas into the current *Swiss World Atlas*. Besides he introduced digital production technologies and methods into cartography and successfully applied them in his atlas and map projects. Today a major focus at the Institute is the further development of those methods and their extension and adaptation to new media such as electronic and web atlases and other interaction devices.

Lorenz Hurni | Switzerland ●



Photography Thomas Maag and Stefan Räber



Fraser Taylor (right) and Anne Ruas

taylor address

Ladies and Gentlemen

It gives me great pleasure to congratulate ICA on its 50th Anniversary. As many of you know, I served ICA in an official capacity for 16 years - first as a Vice President and then two terms as President and a final term as Past President. Before becoming a Vice President I was actively involved in ICA commission work. My interest and involvement has continued and I work closely with the current President of the ICA William Cartwright in the Joint Board of the Geospatial Information Societies as Chair of the International Steering Committee for Global Mapping. In that capacity, too, I bring my greetings and best wishes to the ICA on this important anniversary. The success of the ICA, in my opinion, is largely due to the involvement and enthusiasm of the key supporters of ICA's work many of whom are in this room. It is the involvement of people which makes the ICA such a vibrant organization.

The achievement of the ICA which gives me the most pleasure over the long time I have been involved is the Barbara Petchenik Children's Map Competition. Barbara was a Vice President during my presidency and she was a warm and enthusiastic person who manifested all of the best qualities of those supporting the organization. I created the Barbara Petchenik Children's Map Competition in memory of her achievements and I think that the results speak for themselves. It is these kind of people centred activities which make the ICA such a rewarding organization with which to be involved.

Fraser Taylor | Former President of ICA
(1987-1995) | Canada ●



Photography Thomas Maag and Stefan Räber



Michael Wood (left) and Bengt Rystedt

wood address

Ladies and Gentlemen

Congratulations to the ICA on reaching its 50th Birthday. I am so glad to be here.

My theme is one of thanks.

I am currently organising a 50th reunion of our school-leaving class of 1959. Little did I know that in that same year some great people were meeting in Bern to establish the ICA, an organisation which has helped change the World. My first thanks is to our founders, and especially Eduard Imhof, whom I was proud to have known from the 1960s.

Since Bern 1959, a Global Community, founded on knowledge, wisdom and friendship, has been hard at work. The increasing depth and diversity of its activities have widened its visibility across geospatial science, and respect for it has grown. It was thus an honour for me to help lead the ICA in the late 1990s, and contribute to its internal and global outreach activities. From the outset I admired and wished to highlight the achievements of the ICA, and now its fine website gives amazing new awareness of the fine work it has done and continues to do. I was also pleased to have played a part in creating the new Strategic Plan, an agenda item which I had proposed since joining the Executive Committee in 1991. Of course I could have done none of this without help, from my early mentor, John Keates, to the fantastic executive team I had joined. My second thanks therefore goes to them, and in particular to my Secretary General, Jean-Philippe Grelot, to whom I owe so very much.

My next word of thanks and admiration goes to the many people, beyond the office-holders, who do the wider work of the ICA across the World. It is they who are often at the true pioneering fringe of our field.

And finally I thank our hosts in Bern. Not only do they continue to be the World's finest cartographers, but they have organised a 50th Birthday Party which we will never forget. Long live the ICA!

Michael Wood | Former President of ICA (1995-1999) | United Kingdom ●

ormeling address

Accountability, visibility and accessibility

On behalf of the ICA Secretary General and Treasurers, I would like to highlight some of the concepts we have been working on since 1991. Jean-Philippe Grelot, during his administration as ICA Secretary General (1991-1999), has codified all the rules and regulations, valid for streamlining all the relations between the ICA, its members and its officers, and published them in ICA directories, thus making the ICA and its officers **accountable** to its members.

During my own administration (1999-2007) under presidents Rystedt and Konecny, ICA **visibility** was increased: making ICA visible in international arena, such as UN-related (UNGEGN, UNOOSA, UNGIWIW), but also in other global initiatives like Digital Earth, GSDI and Global Map. Perhaps we overstretched ourselves sometimes, but this presence at international level, next to our participation in the joint board of the geospatial societies, has certainly increased the international profile of cartography and thus of its professional members.

More important for those members is probably the increased **accessibility**. The ICA website started in 2000, and was considerably revamped in 2007 when David Fairbairn took over as the Secretary General. In 2000, what started to be a digital version of the directory, became a major resource for general assem-



Ferjan Ormeling (left) and Jean-Philippe Grelot

blies from 2003 onwards, incorporating CV's of members standing for office, and presenting commission reports. It has become the main means of communication with the members, including the ICA News, which continues to be available digitally, both in English and Spanish.

The most important aspect is the recent innovation showing the work of our members, through publishing all papers presented at ICA conferences since Barcelona in 1995 on the ICA website, making them both accessible and downloadable. Everyone can see now, for free, what we have accomplished, thanks to David and Georg Gartner and ICA webmasters Felix Ortag and Manuela Schmidt. Even though the ICA has its official English language ICA journals, the subscription price would still put them out of reach for many cartographers, which makes this new ICA service all the more relevant to its users.

Ferjan Ormeling | Former Secretary General and Treasurer of ICA (1999-2007) | The Netherlands ●

grünreich the future of cartography in context of sdi



Professor Dietmar Grünreich | Photography Thomas Maag

Cartography as a discipline has been developing over the last 40 years based on model theory, semiotics, communication theory and cognition theory as well as on the successful introduction of digital geoinformation technologies (GIT). On the one hand GeoScientific

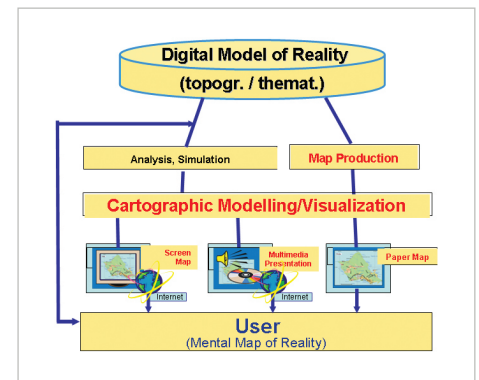
Visualizations (GeoScVis) are subject of research-oriented cartographic work, on the other cartographic representations considered to be user-oriented models of the natural and social environment will predominantly be created in the future at the interface between the Geospatial Data Infrastructures (SDI) and their users. Currently there are several SDI projects on local (national), regional and global levels. Those on the national level are considered to be the building blocks for the other ones. This is the case in the European Union where the INSPIRE (Infrastructure for Spatial Information Europe) framework directive requires the member states to deliver harmonized and interoperable geodata in order to implement EU policies. Here the paramount task of cartography is to develop and maintain the concepts and solutions of the SDI-user interface based on modern cartographic concepts. This concerns primarily optimal cartographic design which is considered to be the prerequisite for successful cognitive information processing by the user.

It is advised to apply the graphic filter concept introduced by Spiess for the transformation of harmonized SDI geodata into cartographic representations. This concept allows describing and setting the filter param-

eters according to the respective user model and adequate cartographic design rules in order to produce user-friendly and useful cartographic representations by means of effective GIT.

Finally, the author supports the position that the National Mapping Agencies play a central role in developing and maintaining SDIs and should be the custodians of cartography as a discipline which is indispensable for the creation of geographic information in the consciousness of the decision-makers and other SDI users.

Dietmar Grünreich | Germany ●



ruas research on data integration



Dr Anne Ruas | Photography Thomas Maag

Data integration consists of mixing geographical data in a coherent way. During the integration process, it is necessary to recognise redundancy (data matching) and relocated objects in

relation to their relative position and to absorb as much as possible the small geometrical differences between representations (data stretching).

Data integration is a key process to improve data and map production (increasing coherence between themes, integrating and propagating updating information), to ensure a proper match between data sets (for example in the context of INSPIRE) and, more recently, to integrate user-data with a reference data set.

Experiments show that even when data are coming from professional data providers (like NMAs), the acquisition process requires so many approximations and compensations that data never fits well without geometric treatment. The difficulties are caused by geometrical inconsistency (or lack of accuracy) and the sub-standard metadata related to data and their specifications.

To integrate data, a certain redundancy between data sets is fundamental. These common objects, detected by data matching, are the anchor points that allow stretching one dataset to the other. Furthermore, the higher the number of themes to integrate, the more complex is the process. We wonder if it is

possible (and meaningful) to integrate all data once or whether performing data integration on demand for each output will not be a better solution. In the latter case, we need to improve the automation of data integration process.

At the IGN-France COGIT Laboratory we have been working on this subject for a long time. We designed the first robust data matching process based on geometrical distance and topological relationships that gives good results for networks and areas. It has been incorporated into a GeoOxygène interface to guide the process and provide match editing tools, all using Open Source coding. A project involving development of a web service to integrate XVIII century mapping to a reference database is currently underway.

Another project involved designing a process based on fuzzy logic to take into account all available information, such as distances between concepts (semantic distance) and between toponyms, to improve the matching process.

Another COGIT development involves analysing the database specifications to better understand the relationships between two data sets. Actually, data specifications contain a lot

ruas research on data integration cont...

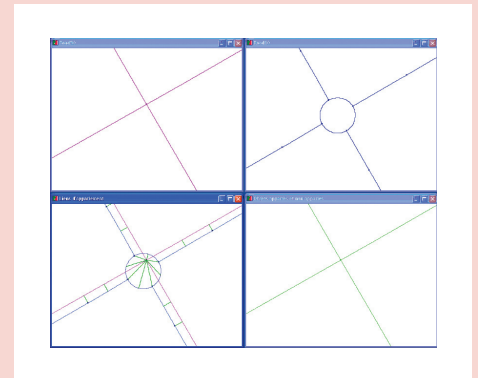
of information including textual definitions of information contained in the databases, the selection rules and the representation rules. COGIT first proposed a language to formalise this information and also managed to identify the hidden implicit ontology of a database. More recently we developed methods to automatically create taxonomy from database specification using natural language analysis software. We work on the use of specifications and data schema to improve data matching.

For the future, we believe that the development of integration services is essential. We distinguish two kinds of integration:

- the classical integration that would use geometric data matching and stretching (with anchor points or anchor objects)
- the more complex integration with datasets that do not fit semantically well one to another (for this case, we advise to use fuzzy logic and semantic distances from data schema and data specifications)

Last but not least, with the explosion of available datasets, including participatory ones, we believe more research should be performed on dataset integration and comparison.

Anne Ruas | France ●



The Open Source matching module in Geoxygène

kraak ica research agenda



Professor Menno-Jan Kraak | Photography Thomas Maag

The goal of the ICA Research Agenda is primarily to give some guidelines for the ICA Commissions and Working Group's work as well as to lead to tighter co-operation between Commissions and working Groups. More widely, the agenda is written in order to show ICA's actual and potential contribution to scientific research within our global society, and to serve as a moderator for discussions in that forum. In order to implement its own strategic mission, "to ensure that geospatial information is employed to maximum effect for the benefit of science and society" (ICA Strategic Plan, 2003), ICA must have a clear agenda for research covering all fields and topics under the title Cartography and GI Science. This agenda, therefore, documents current research activity in these fields, suggests areas where more

intensive or renewed effort is required, and also discusses the methods by which some of this research can be undertaken, i.e. within ICA Commissions, through international collaboration with sister societies, and under suggested programmes of integrated research.

Work on the agenda started as early as 2003. The ICA Executive Committee and the chairs of the Commissions and working Groups have met regularly at ICA Conferences and special meetings to discuss its content. It was first presented at the ICC 2007 in Moscow. It resulted in the following list of major topics:

- **Geographic Information, GI** (we have decided to use the term 'Geographic Information' in this document. 'Geospatial Information' is considered as a synonym, and the term 'Geospatial' is used in contexts where it is commonly used)
- **Metadata and SDIs** (in the text spatial data infrastructures (SDI) has a synonym of 'geospatial data infrastructure'; by adding the geo- prefix we can emphasize the real contents of the data in question)
- **Geospatial Analysis and Modelling** (the emphasis is on the extraction of added value from the processing of spatial data on maps and the use of analysis and modelling techniques to initiate, support and supplement the mapping process)
- **Usability** (this keyword covers a range of issues which connect the human user of spatial data with its representation, its processing, its modelling and its analysis)
- **Geovisualization, Visual Analytics** (here the visual representation of spatial data, in map and in other forms, is discussed, along with methods of using such representations)
- **Map Production** (this keyword stands for the numerous stages in mapping and map production as technical processes, but also

production of various map types from Atlases to Internet maps)

- **Cartographic Theory** (the fundamental concepts which form the basis of all our spatial data handling are incorporated under this keyword)
- **History of Cartography and GI Science** (the importance of the development of methods and practices throughout history was recognised in the brainstorming session: all current-day activity is informed by detailed accounts of such development)
- **Education** (to ensure a valid and viable future for our current activity, we need to research and implement methods to educate and train future generations: methods of doing this fall under this research heading)
- **Society** (a dominant research topic throughout has been the examination of how such spatial data handling is grounded in societal structures and how it is undertaken by different groups of people)

In a next step the Terms of Reference of each Commission and Working Group have been analysed to see which of their Terms is related to research. It should also be realised that the Commission and Working Group chairs had the opportunity to indicate which of their Terms of Reference were research related. The interpretation of the meaning of research will no doubt vary among the chairs. Its outcome is also qualitative, it doesn't tell us about the amount of research. The Figure overleaf summarises this effort and focusses on the agenda's individual research topics.

Is the agenda as presented here complete? Can it be complete? The answer to both questions should be 'no' for several reasons. First of all creating the agenda has taken many years due to the organisational work flow with organisations like the ICA. Second, the

kraak ica research agenda cont...

technology push is stronger then ever and new hypes pass by every few months. However, some hypes prove to be of structural importance, and therefore require some attention. An example is the Google Earth/Maps type of developments.

Another 'hype' not found in the agenda - but picked up by some Commission and Working

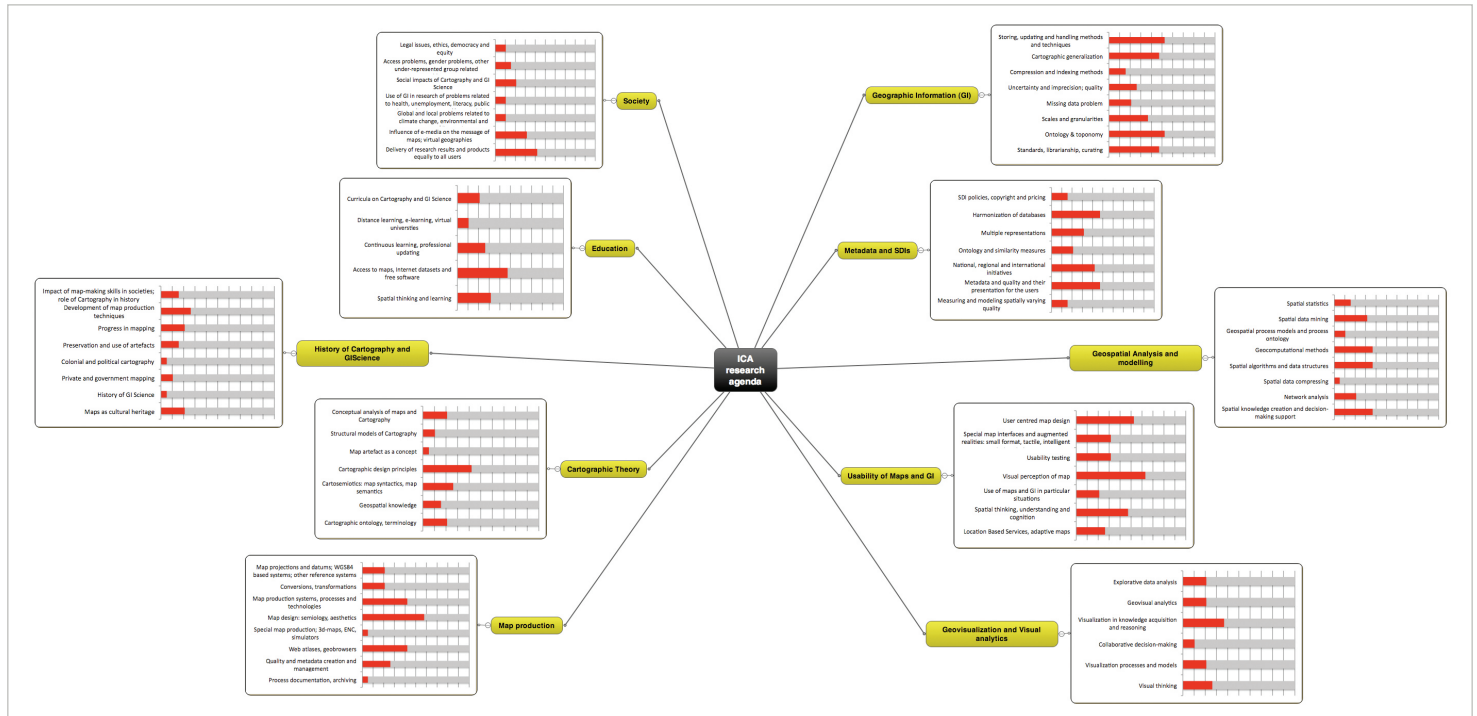
Group activities is for instance related to Web 2.0 or 'neo-cartography'.

It is obvious that a research agenda like this is supposed to be a living document. It will be placed on our website and a kind of wiki-forum is being considered. This short article is a summary of the full agenda as published in 2009 issues of *The Cartographic Journal* (46

(2), 63-75), *Cartographica* (44 (1), 44-55), and *CaGIS* (36 (2), 209-222).

Menno-Jan Kraak | *The Netherlands* ●

ICA Research Agenda's individual research topics; the horizontal bars represent the percentage of Commissions and Working Groups 'interest' in a particular topic, based on the data received from the on-line survey. | Image courtesy of Menno-Jan Kraak



garcia icc 2009 · santiago · chile



Colonel Juan Vidal Garcia | Photography Thomas Maag

A warm welcome will be given to all those who attend the 24th International Cartographic Conference (ICC) in Santiago, between 15-21 November 2009. About a thousand attendees are expected to come to Chile from around the world, plus a large number of local participants. The organizers are the ICA at international level, the Military Geographic Institute of Chile (IGM) as the local host and a Chilean firm FISA to run the conference production.

The IGM is the official cartographic agency of Chile that represents the state in geographic, surveying and cartographic issues. IGM maintains and develops the base topographic data in digital and analogue format; the base map series is at 1:50 000 scale, with two other series at smaller scales also covering the entire Chilean territory. Other cartographic material at larger scales cover selected parts of Chile. The IGM also maintains the National Geodesic Network as a base for positional reference and produces atlases, multimedia products, and

orthophotographs. From 2007, the IGM is the headquarters of the ICC 2009 Local Organizing Committee consisting mainly of IGM personnel, some of them dedicated full-time to ICC 2009. LOC includes the Scientific Sub-committee, containing representatives from five ICC patrons and from the IGM, local reviewers and local session moderators. Their main tasks are to select abstracts for the conference and schedule the sessions for paper and poster presentations. So far about 600 abstracts have been selected.

The conference is backed by several patrons, including governmental bodies, the local NSDI network, the academic sector and two other mapping agencies (apart from IGM). Most of these are Chilean except for two international scientific organisations (PAIGH and SELPER). The conference venue is the Military School of the Chilean Army in Santiago.

ICC 2009 has been widely promoted throughout the world at many conferences and events over the last two years, while the

garcia icc 2009 · santiago · chile cont...



relevant information has been distributed through two successive Call for Papers brochures and the ICC 2009 website. The conference

is organised around four central activities:

- The Scientific Conference, with paper and poster sessions
- The International Cartographic Exhibition, with displays of maps, atlases, globes and digital cartography
- Meetings of the ICA Commissions, Working Groups and Committees
- Technical Exhibition, including a trade show where organisations and businesses can present their products, services and solutions

The conference also includes several complementary activities, featuring technical

visits to tour three Chilean cartographic agencies, an orienteering competition, and the display of children's maps, part of the Barbara Petchenik Children's Map competition. At the Plenary sessions, five internationally renowned speakers will present their vision for these key areas related to cartography:

- civilian agencies
- training of professionals
- defence agencies
- private industry
- UN-led international initiatives

The overall objective of the conference is to facilitate the transfer of knowledge and technology at international level, in line with the conference motto *The World's Geospatial Solutions*. ICC 2009 is all set to be a great success.

Juan Vidal Garcia | Chile ●



One of the promotional images of the 24th International Cartographic Conference, Santiago, Chile, 15-21 November 2009 | Image courtesy of IGM, Chile

morning break

Morning break organised by the Swiss Federal Office of Topography (swisstopo) at their Headquarters in Wabern, Bern | Photography Thomas Maag



liebenberg ica commission on history of cartography



Professor Elri Liebenberg | Photography Thomas Maag

Many cartographers today still hold the outdated belief that the history of cartography is about collecting old maps, and that writing an article on a historical map is something a geographer or historian, without much knowledge of cartography, does on a day off. To refute this perception, I will refer to three aspects, namely:

- the status of History of Cartography in the past
- the present status of History of Cartography
- the relevance of History of Cartography to the discipline of Cartography

When the ICA was established in 1959, it had no Commission on the history of cartography. The international cartographic community, however, soon realised the importance of cartography's historical context and in 1972 a Working Group was established which was given commission status in 1976. In 1985 this commission became the Standing Commission on the History of Cartography - one of four in the Association. When the ICA General Assembly abolished Standing Commissions in 1999, the Commission on the History of Cartography continued to function.

History of Cartography in the past

Prior to the 19th century early maps were mainly examined for the following reasons:

- Practising map- and chart-makers explored maps of the past searching for information to be used on new maps or to compare the state of geographical knowledge and science in their own age with that of the past in their quest for more detailed cartographic representations
- Early maps were closely associated with the histories of discoveries and were used as

historical documents to further imperialistic aspirations

- Old maps were collected as part of a general preoccupation with biblical and classical geography

This situation changed during the 19th century when the history of cartography moved away from contemporary cartography to become the handmaiden of the history of geography defined as the history of geographical discoveries and exploration. The driving forces behind this development were:

- The institutionalizing of geography. This was especially exemplified by the foundation of national geographical societies such as the Société de Géographie de Paris (1821), the Gesellschaft für Erdkunde zu Berlin (1828), and the Royal Geographical Society of London (1830);
- The growth of specialized map libraries such as the Bibliothèque Nationale, the British Museum and the Library of Congress. Such research libraries played a crucial role by acting as repositories for antiquarian maps and charts and arranging for their cataloguing and exhibition;
- The development of an antiquarian map trade. By the late 19th century a complex network of mainly European, but also North American, map collectors and map dealers has come into being

Throughout the 19th and early 20th century the interest in early maps was subordinated to problems external to the map itself. Historical maps were viewed primarily as historical documents to be used in reconstructing the geographies of the past, whether of the ancient world, the biblical lands, or the age of discoveries when the foundations were laid for the overseas empires of the 19th century.

From the 1940s onwards, History of Cartography has been slowly emerging as a subject with its own scholarly identity. This process began when academic cartographers, led by Prof Arthur H Robinson, began to put "cartography" back into the history of cartography. Under his influence academic cartographers began to pursue what can be called an "internal" history of cartography in which they studied past practices and techniques of map production and design. Particular aspects which received attention were the history of thematic mapping, and aesthetic and conceptual questions of information presentation.

This new role of History of Cartography as a history of cartographic technology, was aided by the fact that, since 1960, it had been losing its niche within academic geography. This was exemplified by the fact that in 1964 the International Geographical Union (IGU) abandoned its commission concerned with the study of early maps.

Notwithstanding its divergence away from academic geography, the main influence on History of Cartography as a scholarly field during the 1960s and 70s, had been the emergence of cartography as an independent academic subject and practical activity. By 1980 cartography had developed into an identifiable scholarly and scientific subject which exhibited a generally accepted need, an up-to-date technology, and a body of scholarly literature.

Current status

History of Cartography is today a widely respected field of study in the Anglophone world with scholars across the humanities and social sciences finding the study of old maps intellectually challenging and academically rewarding.

Following Robinson, David Woodward advocated the study of map making and map use. He maintained that the history of cartography was primarily concerned with cartography, rather than with history and that it was a prerequisite for academics interested in the history of cartography to also have a background in cartography. Brian Harley's writings continue to have a profound influence on the history of cartography. Moving in accordance with the simultaneous humanistic and structuralist developments evident in theoretical geography, Harley, in the 1980s, theorized cartography and its history, especially around the idea of all maps being vehicles for the exercise of power and its uneven social distribution, and a commitment to deconstruct all aspects of the mapping process. Harley, more than anybody else, established the history of cartography as an interdisciplinary field in which early maps are studied as artifacts in their own right and as a graphic language that has functioned as a force for change in history.

Nothing exemplifies the current status of the history of cartography in the humanities better than the award-winning 6 volume publication of the *History of Cartography* by the Chicago

The four volumes in six books of the History of Cartography already published; members of the ICA Commission have contributed to Volume 6 | Image courtesy of Elri Liebenberg



liebenberg ica commission on history of cartography cont...

University Press. This publication, of which 4 volumes (in 6 books) have already appeared, will eventually cover the history of early maps from antiquity to the 21st century. The current Director of the project, Prof Matthew Edney, was Chair of the ICA Commission of the History of Cartography from 1995-1999. The Chicago History of Cartography Project is of special interest to the ICA Commission as many members contributed towards Volume 6 which deals with the 20th century. Volume 5 which deals with the 19th century, is currently being planned and at the International Conference on the History of Cartography (IHC) which took place in Copenhagen from 12-17 July 2009, a joint meeting between the ICA Commission and the Project leaders discussed its possible contents and structure.

For the period 2007-2011 the work of the ICA Commission on the History of Cartography deviates from what was done in previous years as it concentrates on cartography during the 19th and 20th centuries only, and endeavours to also document the history of geoscience. The reasons for this are that modern cartographers are seldom interested in cartographic data older than 1800 and maps are no longer paper products only.

In 2006 a "branch" of the Commission, the Working Group on the History of Colonial Cartography, presented a Symposium at the University of Utrecht in the Netherlands, and in September 2008 the Commission held a successful Symposium at the University of Portsmouth in the UK. Each of these symposia boasted both a CD-Rom and a printed Proceedings.

Practical relevance

The Commission distinguishes three aspects regarding to the practical role of early maps in cartography, namely:

- **Map evaluation:** methods of critical source evaluation which are highly developed in historical cartography are applicable to the compilation of contemporary maps. Problems relation to map specification, the dating of map content and the appraisal of the reliability of maps measured against geodetic and topographical standard often have to be solved by historical investigation
- **Public policy:** the history of national mapping programmes often provides a helpful, and often crucial, framework for future decisions about mapping



Proceedings and CD-Roms published for the 2006 and 2008 international symposia of the ICA Commission on the History of Cartography | Image courtesy of Elri Liebenberg

- **Preserving the cartographic past:** a record of the cartographic past is important not only to future generations of cartographic historians but also to the planners and designers of tomorrow's maps who need to draw on the experience and models of the past.
History of Cartography is an integral part of academic Cartography. By having History of Cartography as one of its Commissions, the ICA gives recognition to the roots of its subject and takes official cognisance of the study of its heritage.

Elri Liebenberg | South Africa ●

peterson ica commission on maps and the internet



Professor Michael Peterson | Photography Thomas Maag

The presentation is a compilation of different videos that depict alternative ways that have been proposed for interacting with computers. It is available from:

www.youtube.com/watch?v=w54m0_mm4II

The beginnings of the computer in cartography occurred fifty years ago with the introduction of the coordinate plotter by the CalComp corporation. The other major development happened in 1991 in nearby Geneva, Switzerland, with the introduction of the World Wide Web – attributed to Tim Berners-Lee. The original web, however, was conceived without the incorporation of images. The multimedia web that was so important for cartography was introduced through the Mosaic World Wide Web browser in 1993 by Marc Andreessen and Eric Bina.

The presentation begins with a video of the Apple iPhone. The video shows a search for a specific location and the display of a map showing the current position of the user. The iPhone and similar devices are in some respects the culmination of 50 years of effort in computer, computer mapping and telecommunications technology.

The second video shows the fogscreen, a technology that displays images on a wall of water vapor. Children are shown walking up to the image and putting their hands through it. The fogscreen represents an alternative display technology that may indicate how people will interact with computers in the future.

A concept for video glasses is shown next with a display attached to glasses that moves into position in front of one eye. Following this is a prototype of a flexible display, the collaboration table and a slate computer. A scene from the movie *Minority Report* is then shown that depicts a person interacting with a computer using hand gestures. The following videos expand on gesture-based computing with a Photolightbox application, scaleable keyboard, NASA's Whirlwind, and a TouchWall.

The next series of videos show MIT's Sixth Sense, a wearable computing device that allows interaction with an image that is projected on any surface. Applications include iconic gestures with pictures and maps, and augmented displays on books, newspapers and even people.

The presentation concludes by pointing out that the future of cartography is all about the medium, defined as the combination of the display, the interface, and the mode of map distribution.

Michael Peterson | United States ●

perkins ica commission on maps and society



Dr Chris Perkins | Photography Thomas Maag

The ICA Commission on Maps and Society was established in 2007 at the ICA General Assembly in Moscow. This presentation explores some of the reasons why our new Commission might make a difference and highlights concerns and challenges.

The figure below is a Wordle word cloud sourced from the Commission aims document covering the period 2007–2011. It highlights frequency, significance and links between concepts expressed in that document. Notice the stress upon Mapping as a process, on practice, meetings and publications. In many ways the interests of the Commission focus on these themes, but they also emphasise change: change in mapping technologies, but also in culture and ideas. In June 2009 I finished curating an exhibition in Manchester that illustrated these Wordle themes, and which signals possible research directions for the Commission. The rest of this presentation draws on this and other recent moments in the mapping world to highlight possible questions

which we think are likely to concern our Commission but also likely to impact on wider mapping research in the future.

Situated: 'placed, timed and cultured'

We would argue that research into all mapping should not take place in a cultural or social vacuum. Mapping takes place - literally. It is situated and timed, not just in terms of technology and representation, but also in terms of the wider cultural and ideological world – so that research needs to investigate the real world and emphasise practice and the contexts in which mapping processes are carried out.

For example the Mapping Manchester exhibition itself takes place – the objects are seen in the context of their display cases and the Victorian architectural surroundings of the exhibition space. In the exhibition the 1945 City of Manchester Plan was published as a fixed-format visualisation of the city in the aftermath of Second World War bomb damage. It projected a utopian dream of the city forward, a dream infected by the motor car and modernist architecture, a clean and remade city. Timed but looking forward. A future that never came about: mapping doesn't always represent a world – it is part of a process making worlds. So in carrying out a 'situated' mapping study we might ask

- who used mapping and what for?
- how was the aesthetic important?
- how has it been deployed in different contexts and what meanings stem from these interactions?
- and in the particular context of the 1945 Plan how might planners, architects, developers and city administrators use mapping as part of their process of governing the city?

Constituting as well as representing

Research around Maps and Society asks questions about how the visual is deployed to

do social work. For example, and continuing a Mancunian theme, how might Ordnance Survey mapping of Piccadilly Gardens in the city, and the data from which it is sourced be integrated into a promotional discourses around the 2002 Commonwealth Games? What part might the visual play in urban regeneration narratives? How might this mapping work as a source document for commercial value-added partners, but also as a source of revenue for its publishers? These questions would encourage a focus on the powerful and active potential of mapping practice to constitute new possibilities as well as simply representing something.

The multi vocal powerful representation

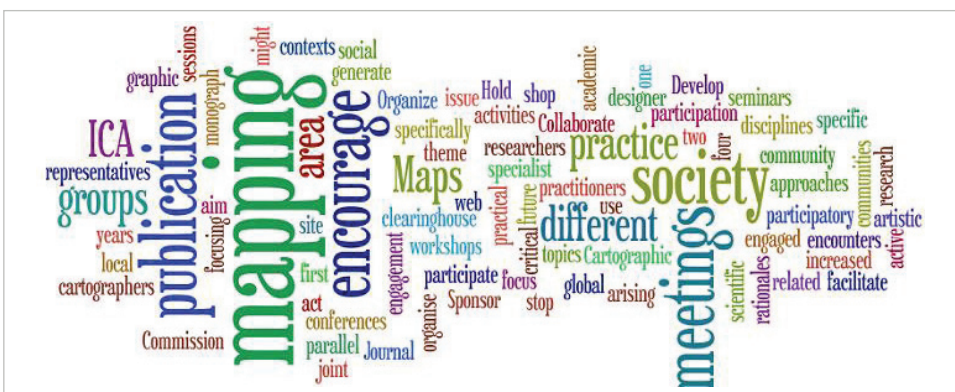
Research agendas around Maps and Society increasingly recognise that interface and screen design need to be explored not only as technical concerns, but also as an outcome that reflects particular social infrastructures. For example investigating the ARUP Associates Virtual model of Manchester of course needs to understand something about the nature of the LIDAR data from which it is sourced, and the software implementation allowing 3D animated flight through the urban canyons of the city. But understanding how the image is deployed and works necessarily also means appreciating organizational agendas hidden behind the display. It reflects an erosion of the power of the National Mapping Agency, and the product design (its functional and aesthetic qualities) impacts on what the design says about Manchester and the political economy of the city. So the key questions are around what real world differences might emerge for tasks associated with the image. For example how might the immersive 'real' feel of the interface alter how it is used: what differences might this make for people deploying the model at all stages in its construction and use. How would an estate agent use the animation to sell their services, as against how an exhibition viewer might imagine the city when seeing the display?

Mapping has escaped from cartographers...

Arguably the most significant change in the history of cartography has been the recent rise of everyday mapping, in which map users become creators, and in which map design becomes democratised and no longer controlled by professional practice.

On the one hand there is the rise of crowd-sourced collaborative cartography, exemplified by OpenStreetMap.org, in which mapping is shared instead of being owned. Web Mapping 2.0 completely alters the social dynamics of mapping, inviting interesting questions around

Word Cloud sourced from the ICA Commission on Maps and Society Terms of Reference 2007-2011 | Image courtesy of Chris Perkins



perkins ica commission on maps and society cont...

ownership, privacy, freedom of information, official secrecy and ethics. Tensions inevitably surface between commercial concerns and the open 'free' ethos of this surge of new mapping activity.

On the other hand there are the huge numbers of artists exploring mapping in their work, deploying the apparently fixed medium of the map, to say something important about the fluid and changing nature of place and identity. These changes inevitably challenge the orthodoxy that mapping allows power to be exercised by elite social groups. Mapping is changing the world and research needs to escape the academy as well, to explore everyday mapping practices.

Affective visualization

In all these shifts the power of visualization still lies in its differences from written, or spoken communication. Recent research has begun to investigate how mapping invokes particular emotions, questioning how maps move people and how maps affect the world. This affective power is likely to form a growing focus for future research, with a consequent consideration of the performance and process of mapping activities as a part of visual culture, instead of an emphasis on mapped outcomes.

Mapping will increasingly be understood as much more than a neutral device, and its agency will be considered.

Methods

As a consequence of all these changes, methods for carrying out research have to deal with less fixed or distant entities, and as a consequence the scientific emphasis of most cartographic research is shifting to include a focus on humanistic and social scientific methodologies. Mapping involves people, so it is likely that more ethnographic map research will be carried out. Visual methodologies such as semiotics, content analysis and audiencing are likely to vie for popularity with ethnomethodological consideration of what people actually do with maps. There is also likely to be more consideration of the materiality of the visualization: the rise of virtual mapping invites obvious questions about how touching or handling a map might still make a difference. What aspects of being available in a hard copy matter? How does touching a screen work? Does folding a map contribute to its ability to work etc. Changes in the political economy of mapping also suggest an increasing focus upon structural approaches and a growing interest in how maps contribute to discourse.



OpenStreetMap mapping party, Sunderland, May 2009 | Image courtesy of Chris Perkins

The future

Researchers are increasingly rethinking mapping. These changes in the ideas underpinning mapping research are complex, contested and clearly impact on research interests of the Maps and Society Commission, but Commission interests are not hermetically sealed from the wider world of cartographic research and trends highlighted in this brief presentation are likely to impact significantly on almost all of the activities of the International Cartographic Association.

Chris Perkins | United Kingdom ●

drecki ica news



Igor Drecki | Photography Thomas Maag

The ICA's 50th Anniversary celebrations are not about celebrating the Association itself, but about celebrating dedicated people, fellow

cartographers from around the world that have created and shaped the ICA over the last fifty years into a lively and exciting organisation. This process still continues today and all present here are a living testimony to this claim. I am both humbled and privileged to work with so many of you in my capacity as editor of ICA News. For over 25 years, the newsletter served not only our ICA community but also the global community of cartographers by publishing your news, stories, opinions and interests. Thanks to you, it continues its mission today.

In June last year we celebrated the 50th issue of the ICA News with a number of wonderful contributions. Today I am presenting to you the latest issue, No 52, with a comprehensive look at the ICA Commissions' work, reports from many cartographic events organised around the world, with updates on new features of the ICA website and a masterly illustrated article on fifty years of the ICA General Assemblies and Conferences. The focal point of the newsletter is Chile, an ICA member nation and the host country of the upcoming conference ICC 2009 in Santiago.



Cover of the ICA News, number 52, June 2009 | Image © ICA 2009

You are instrumental in making the ICA News a success, but more importantly in taking the ICA to new heights. It is a privilege but also something we are all dedicated to achieving.

Igor Drecki | Editor ICA News | New Zealand ●

lawrence ordnance survey of great britain



Dr Vanessa Lawrence | Photography Thomas Maag

A look at the future

Geoinformation management is a key component of a National Mapping Agency's capability

to capture, manage and develop geographic data products that meet the changing requirements of dynamic user requirements.

While traditional uses of National Mapping Agencies' products have focussed on the map as a contextual reference, today's uses of the products from a National Mapping Agency are much more diverse. In addition to traditional map representations, geographic data is also heavily used in processes such as analysis, report generation and business intelligence data aggregation to drive decision-making in both the public and the private sector.

These changing needs require producers of geographic data to rethink the way they customise their spatial information. It is now important to draw upon both cartographic methodologies and design methodologies to make the products appropriate for the user who maybe a specialist or may be very unfamiliar with using geospatial products; producers also have to rethink the channels to reach these customers.

In response to these challenges Ordnance Survey is modernising its approach to users of their data. There is now considerable coopera-



One of the promotional images of the Ordnance Survey of Great Britain | Image © Ordnance Survey of Great Britain

tion with customers and partners to understand their needs of today and into the future. In addition there are new challenges as customers fully understand that data from the National Mapping Agency is only one geography of many geographies that maybe needed by them to make important evidenced based decisions.

Vanessa Lawrence | United Kingdom ●

ratia national land survey of finland



Jarmo Ratia | Photography Thomas Maag

National Land Survey (NLS) of Finland was established in 1812. The NLS is the Finnish authority for Mapping and Cadaster and from 1 January 2010 also for Land Registry. The NLS currently employs 1750 staff; it became an affiliate member of the ICA in 2008.

At the beginning of 1990's, the NLS was facing an important strategic dilemma, i.e. whether the organisation should be developed towards a more business-like organization or should it keep its "national authority" status?

The decision was made to maintain the National Authority status and to develop it further. The production of road maps, tourist maps and all other thematic maps was transferred in 1991 to a state owned company (which was later privatised). When Land Registry merges with NLS in 2010 it will strengthen even more the status of the NLS.

The ultimate goal of the NLS activities is to make data produced by the NLS as accessible and usable to the public as possible. A new strategic move on pricing of data was proposed in 2008 whereby data is to be available to government bodies, municipalities, universities and schools at minimum cost with no license fee charged for official use, but for commercial use charged at full license fee. However, the Ministry of Finance has not approved this proposal, so finally only government bodies will get the data at minimum cost.

The main task of the NLS is to maintain an accurate, homogeneous and reliable topographic database. It is in the national interest to have a nationwide topographic database maintained



NLS field survey | Image courtesy of National Land Survey of Finland

by the government. This means that outsourcing map production to low-salary countries is very risky; little by little the national know-how and professional standards could be compromised. Training must be given in all levels of education, with research at the academic level. The NLS has run a campaign for years among young people to get enough students to GI courses in schools and universities.

Jarmo Ratia | Finland ●

the work of national mapping agencies

wicki and streilein federal office of topography · swisstopo

Since 1838 the Federal Office of Topography (swisstopo) has been the Swiss National Mapping Agency. It consists of seven divisions and has around 300 employees and 20 trainees. swisstopo produces high-quality spatial reference data and multitude of other derived products. It coordinates the activities for base federal geodata, promotes their broad application, and guarantees provision of information and fundamental base data for monitoring spatial development in Switzerland.

To reach the goal of establishing a National Geodata Infrastructure NGDI, swisstopo works closely with many partners and interest groups. The NGDI collects basic geodata and metadata, offers basic geoservices and provides technical infrastructure. Furthermore, it sets standards, offers education and training and devises strategies for distribution and pricing. The implementation of the NGDI was one of the main factors that brought about a new legal basis.

swisstopo developed a new law, called Act on Geoinformation, which was approved by the Swiss Parliament on 1 July 2008. The new law builds the legal basis for national, cadastral (property) and geological survey and all other land information based on various federal decrees. It fosters a clear logic for systematic application and it takes all of the existing decentralized structures and federal offices into account. Furthermore, it is a legal basis for the introduction of a cadastre of public-right restrictions of landownership.

The re-engineering of Topographic Mapping is one of the biggest projects swisstopo has ever engaged in. All geodata objects of the Topographic Landscape Model (TLM) have been given x, y and z coordinates. It has an accuracy of maximum $\pm 1\text{m}$ and is not



Dr Fridolin Wicki | Photography Thomas Maag



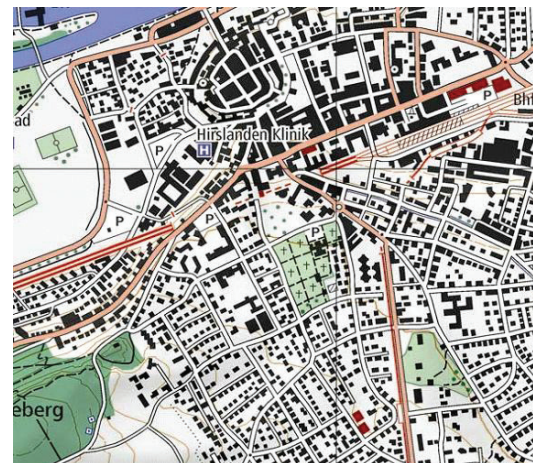
Dr André Streilein | Photography Thomas Maag

generalised. The TLM is going to be the basis for the Cartographical Multi-Representational Database.

The Digital Cartographic Models (DCM) are going to be generalised automatically. Cartographers are going to improve the generalisation interactively. Of course, swisstopo will carry on with its traditional high standards in cartographic representation. The well-known Swiss topographical maps are going to be slightly redesigned.

Fridolin Wicki and André Streilein | Switzerland ●

Sample of a redesigned Swiss topographical map | Image courtesy of swisstopo



other presenters

Bengt Rystedt (Sweden) delivered Carl Mannerfelt's presentation on *How ICA was born* (see page 05); Commission Chairs Evangelos Livieratos (Greece) and Philippe De Maeyer (Belgium) presented the works of ICA Commissions on Digital Technologies in Cartographic Heritage and on Management & Economics in Map Production respectively.

session chairs

David Fairbairn



Milan Konečný



Pablo Gran



Zhilin Li



Georg Gartner



Timothy Trainor



Bengt Rystedt



Evangelos Livieratos



Philippe De Maeyer

eduard imhof and the ica

räber introduction

On the occasion of the 50th Anniversary celebrations of the ICA at swisstopo in Bern, Switzerland, 9-10 June 2009, a small exhibition was prepared in honour of the first ICA President, Eduard Imhof (1961-1964). The exhibition displayed a small cross section of his enormous cartographic work and interests. The exhibits were arranged according to topics, such as school maps, atlases, and mountain reliefs, and for comparison, large school maps were presented alongside Imhof's corresponding original relief drawings in pencil, and ink. From 1932 to 1976 the Swiss Primary and High Schools atlases were published under Imhof's direction, with identical editions in German, French and Italian. On display, alongside these atlases, were some remarkable single sheets of great cartographic interest.

Imhof also created relief models of mountainous regions, and a little known original of his Mürtschenstock relief, at the scale of 1:10 000, was included in the exhibition. The model dating from 1922 is accurately carved in plaster, and features an astonishing amount of detail. Placed beside it was a cast, handpainted with natural colours, to offer a comparison for the visitors to the exhibition. One of Imhof's favourite activities besides mountaineering, was drawing and painting. He sketched alpine landscapes with great enthusiasm, many of them done in water colour, and five lithographs of such mountain scenes were on display. In addition, some original sketches, panoramas, and a multicoloured, painted map of Switzerland, at the scale of 1:300 000, were also presented, a true delight for delegates from all over the world.

The exhibition was prepared and designed by the Institute of Cartography, ETH Zurich.

Stefan Räber | Switzerland ●

Poster by Stefan Räber

Eduard Imhof

Cartographer and Artist



First ICA president

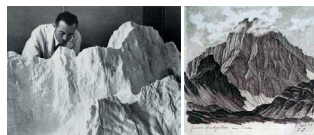
Eduard Imhof was the first president of the International Cartographic Association ICA (1961-1964).

Figure right: Lake of Walenstadt and Seez Valley, 1:10 000, Map painting, 1938-1939. Section.

The picture conforms to the natural appearance of the landscape. For inspiration, Imhof "chose the visual experience of a landscape painter and his artistic conception." The original art, painted with gouache colors, measures 480 x 200 cm. It is on permanent exhibit at the Swiss Alpine Museum in Bern.

Eduard Imhof (1895-1986)

was a professor of cartography at the Swiss Federal Institute of Technology, Zürich, from 1925-1965. His fame, which extends far beyond the Institute of Technology, stems from his relief shading work on school maps and atlases. Between 1922 and 1973 Imhof worked on many school maps. He drew and shaded maps of Switzerland as well her various cantons and the Austrian province of Vorarlberg.



Eduard Imhof not only drew and mapped mountains, he also modelled them.

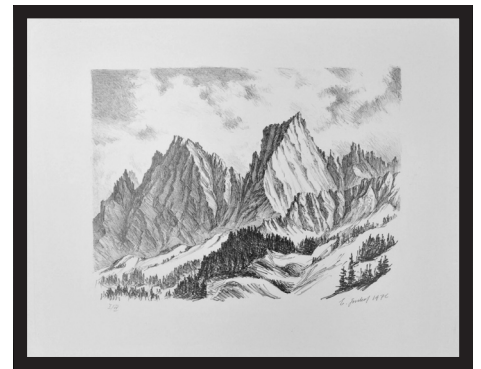
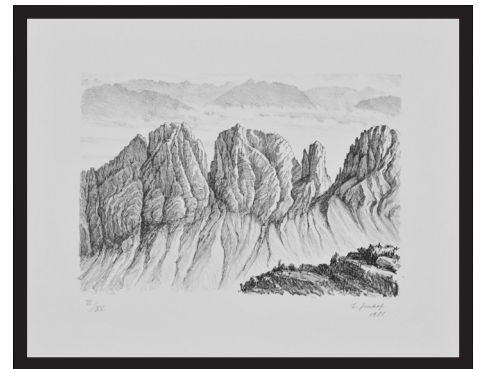
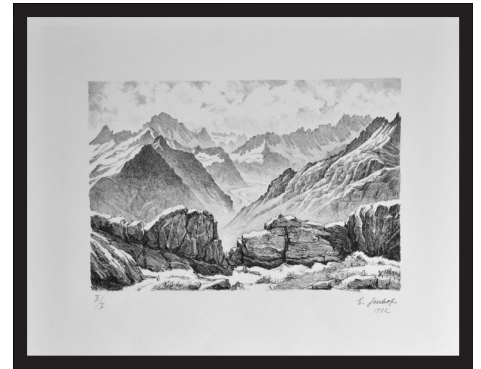
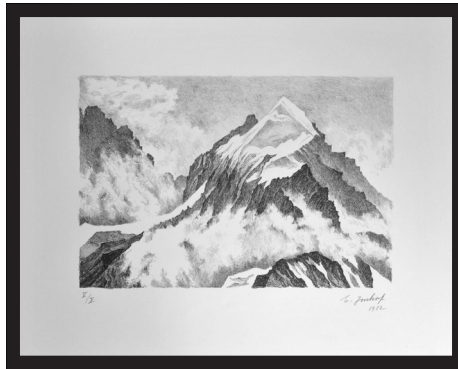
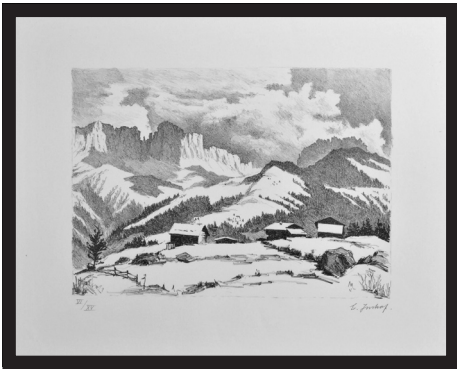
Figure: Grosse Windgälle, 1:2000, and rock drawing.



Stefan Räber (right), organiser of the Imhof's Exhibition, and Swiss delegate Christian Häberling | Photography Thomas Maag

Imhof's Mürtschenstock relief model; (from left) raw mould, carved model and hand-painted model with natural colours | Photography Thomas Maag





Photography Thomas Maag and Stefan Räder

50th anniversary of ica · bern · 1959-2009

participants



Participants of the 50th Anniversary of the International Cartographic Association meeting in Bern, Switzerland, 9-10 June 2009 | Photography Thomas Maag

Stefan Arn | *Switzerland*

Temenoujka Bandrova | *Bulgaria*

Marek Baranowski | *Poland*

Christopher Board | *United Kingdom*

William Cartwright | *Australia*

Philippe De Maeyer | *Belgium*

Igor Drecki | *New Zealand*

Sara Irina Fabrikant | *Switzerland*

David Fairbairn | *United Kingdom*

Hans-Uli Feldmann | *Switzerland*

Philippe Forêt | *Switzerland*

Juan Vidal Garcia | *Chile*

Georg Gartner | *Austria*

Pablo Gran | *Chile*

Jean-Philippe Grelot | *France*

Dietmar Grünreich | *Germany*

Christian Häberling | *Switzerland*

Lorenz Hurni | *Switzerland*

Wolfgang Kainz | *Austria*

Nikolay Komedchikov | *Russia*

Milan Konečný | *Czech Republic*

Menno-Jan Kraak | *The Netherlands*

Nick Land | *The Netherlands*

Miljenko Lapaine | *Croatia*

Vanessa Lawrence | *United Kingdom*

Zhilin Li | *Hong Kong, China*

Elri Liebenberg | *South Africa*

Bob Lilley | *United Kingdom*

Evangelos Livieratos | *Greece*

Miroslav Mikšovský | *Czech Republic*

Terje Midtbø | *Norway*

Jaume Miranda i Canals | *Spain*

Takashi Morita | *Japan*

Ferjan Ormeling | *The Netherlands*

Ammatzia Peled | *Israel*

Chris Perkins | *United Kingdom*

Michael Peterson | *United States*

Dušan Petrovič | *Slovenia*

Stefan Räber | *Switzerland*

Jarmo Ratia | *Finland*

Hélène Richard | *France*

Anne Ruas | *France*

Bengt Rystedt | *Sweden*

Kira Shingareva | *Russia*

Ernst Spiess | *Switzerland*

Fraser Taylor | *Canada*

Tim Trainor | *United States*

Necla Uluğtekin | *Turkey*

Lynn Usery | *United States*

Margaret Wood | *United Kingdom*

Michael Wood | *United Kingdom*

Laszlo Zentai | *Hungary*

Absent from the photograph above

Orhan Altan | *Turkey*

Jean-Philippe Amstein | *Switzerland*

Alberta Bianchin | *Italy*

Julie Cartwright | *Australia*

Jan Willem van Eck | *The Netherlands*

Peter Hoogwerf | *The Netherlands*

Walter Imhof | *Switzerland*

Bruno Messerli | *Switzerland*

Vladimir Pankin | *Russia*

Martin Probst | *Switzerland*

Michael Sideris | *Canada*

André Streilein | *Switzerland*

Monica Taylor | *Canada*

Martin Urech | *Switzerland*

Fridolin Wicki | *Switzerland*

maag the photographer



swisstopo the venue



ica news

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