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ISCP NEWS

ISCP Honorary Member, B. Frank McCullough, Passes Away



photo: Center for Transportation Research (CTR)

Dr. B. Frank McCullough, a Charter Class Honorary Member of ISCP (2001 inductee), passed away the morning of November 26, 2012 from a heart attack while playing golf. Dr. McCullough earned his Ph.D. in Civil Engineering at the University of California-Berkeley, and B.S. and M.S. degrees in Civil Engineering at the University of Texas - Austin where he has conducted research and taught thousands of students over a period of nearly 50 years. Frank was known around the world as the "Father of Continuous Reinforced Concrete Pavement" and he was also instrumental in pioneering work in the development of post-tensioned and precast concrete pavements. As an emeritus member of TRB, he was well-known for his leadership in highway and airport rigid pavement design.

For a more complete biography of Dr. McCullough, please go to:
<http://www.concretepavements.org/Membership/honorary/mccullough.htm>

He is survived by his wife of more than 50 years, Norma Jean, 5 children and was blessed with 12 grandchildren. Having spent most of his life in the Austin, Texas area, he has maintained close relations with the friends he has developed over the years. We extend our deepest sympathy to his family, colleagues and students.

INDUSTRY RESOURCES/RESEARCH REPORTS

RMC Research & Education Foundation Releases New Concrete Overlays Guide



On November 15, 2012, The Ready Mixed Concrete (RMC) Research & Education Foundation released a new tool that will assist designers with designing concrete overlays for existing asphalt parking lots and will educate contractors on best practices for constructing them. The "Guide for Concrete Overlays of Asphalt Parking Lots" was prepared by the National Concrete Pavement Technology Center (CP Tech Center) with its development including review and input from a Technical Advisory Committee (TAC) comprised of the most experienced concrete overlay designers and contractors in the country.

The guide includes information and guidance in areas such as:

- assessing the integrity of the existing pavement
- selecting project candidates
- pavement design principles and design life
- managing parking lot drainage
- dealing with entry evaluations of adjacent buildings

The guide also incorporates aspects of ACI 330 "Guide for Design and Construction of Concrete Parking Lots", and will be featured on a new 2013 Foundation CD: "Tools & Resources".

Julie Garbini, Foundation Executive Director, said, "The CP Tech Center at Iowa State has a terrific track record for the development of technical content like this guide, so it was a natural partnership to work together on this project."

The Vision of the RMC Research & Education Foundation is to support research and educational programs that will increase professionalism, quality and sustainability in the concrete industry.

The new "Guide for Concrete Overlays of Asphalt Parking Lots" is available for download and hardcopies are available by request. To download the Guide, please go to: http://www.rmc-foundation.org/images/Concrete_Overlay_Guide_11-14-12.pdf.

To order a hardcopy of the Guide, please contact Jacques Jenkins, NRMCA:
e-mail: jjenkins@nrmca.org | telephone: 240-485-1165

For more information, please contact Jennifer LeFevre, RMC Sr. Director, Communications and Programs:
e-mail: jlefevre@rmc-foundation.org | telephone: 240-485-1151

"...the latest in a variety of tools, developed through Foundation support, that give industry professionals practical resources that they can utilize immediately,"
- Michael Harlan, Foundation Chairman

National Concrete Pavement Technology Center
Guide to
CONCRETE OVERLAYS
of Asphalt Parking Lots
October 2012



Concrete "That Heals Itself" to Undergo Testing in the Netherlands

Bacterial spores are added to the concrete mix; they are activated by water

An experimental concrete that contains limestone-producing bacteria that is said to "patch cracks by itself", is to undergo outdoor testing at Delft Technical University in the Netherlands. It is the brainchild of microbiologist Dr. Henk Jonkers and concrete technologist Eric Schlangen. The new material could potentially increase the service life of the concrete - with considerable cost savings. If all goes well, Dr Jonkers said they could start the process of commercializing the system in 2-3 years.



Concrete is the world's most popular building material, but cracking is a problem

Concrete is the world's most widely used building material, but it is prone to cracks, which means that structures need to be reinforced with steel. "Micro-cracks" are an expected part of the hardening process and do not directly cause strength loss. Fractures with a width of about 0.2mm are allowed under norms used by the concrete industry. "In the lab we have been able to show healing of cracks with a width of 0.5mm - two to three times higher than the norms state," Dr Jonkers explained. "Now we are upscaling. We have to produce the self-healing agent in huge quantities and we are starting to do outdoor tests, looking at different constructions, different types of concrete to see if this concept really works in practice."

Longer life - "For durability reasons - in order to improve the service life of the construction - it is important to get these micro-cracks healed," Dr. Jonkers told BBC News. Bacterial spores and the nutrients they will need to feed on, are added as granules into the concrete mix. But water is the missing ingredient required for the microbes to grow, so the spores remain dormant until rainwater works its way into the cracks and activates them. The harmless bacteria - belonging to the Bacillus genus - then feed on the nutrients to produce limestone. The bacterial food incorporated into the healing agent is calcium lactate - a component of milk. The microbes used in the granules are able to tolerate the highly alkaline environment of the concrete.

The team is currently trying to reduce the cost. Dr. Jonkers expects an improved system to be ready in about six months, then the outdoor tests should begin; the team is already talking to several construction firms that could provide help. The concrete will have to be monitored for a minimum of two years to see how it behaves in this real-world setting. "Then, if everybody's happy, we can think about trying to commercialize the product," said the TU Delft researcher. Dr. Jonkers expects big savings through extending the concrete's service life.

For more information and the complete article, please go to: <http://www.bbc.co.uk/news/science-environment-20121303>
Paul.Rincon-INTERNET@bbc.co.uk BBC © 2012



- Volume 5 Drawings include:
- Typical Rigid Pavement Structure (PICTURED right)
 - Trench Drain and Drainage Layer under Low 'SO' Kerb
 - Narrow Median between Normal Crossfall Pavements with Drainage Layer
 - Drainage Layer under High Pavement Edge
 - Trench Drain and Drainage Layer under Low Pavement Edge
 - Trench Drain and Drainage Layer under High 'SO' Kerb
 - Trench Drain under Low 'SO' Kerb No Drainage Layer
 - High Pavement Edge No Drainage Layer (Possible Trench Drain)
 - High Pavement Edge No Drainage Layer (No Trench Drain)
 - Trench Drain under Low Pavement Edge No Drainage Layer
 - Trench Drain under Low 'SO' Kerb with Guard Fence No Drainage Layer
 - Narrow Median between Normal Crossfall Pavements No Drainage Layer
 - Trench Drain under Low 'SA' Kerb No Drainage Layer
 - Narrow Median between Superelevated Pavements No Drainage Layer
 - Trench Drain under Low 'SO' Kerb No Drainage Layer
 - Trench Drain under High 'SA' Kerb No Drainage Layer
 - Trench Drain and Drainage Layer under Low Integral 'SO' Kerb
 - Trench Drain and Drainage Layer under High Integral 'SO' Kerb
 - Trench Drain under Low Integral 'SO' Kerb No Drainage Layer
 - Trench Drain under Low Integral 'SA' Kerb No Drainage Layer
 - Trench Drain under Low Integral 'SO' Kerb with Guard Fence No Drainage Layer

RMS Website Releases Subsurface Drawings for Heavy Duty Pavements

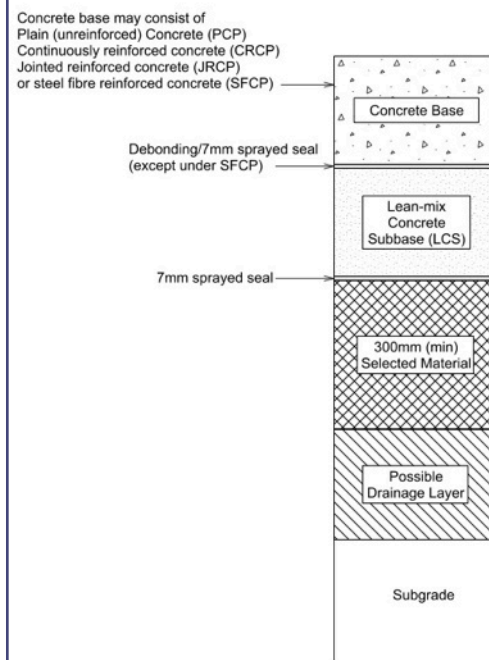
Roads and Maritime Services, New South Wales Australia (RMS, NSW), has released revised subsurface drawings for heavy duty pavements. "Standard Pavement Subsurface Drainage Details", Volume 5 - TYPICAL RIGID PAVEMENT STRUCTURE, contains 21 drawings of Rigid Pavement Details for concrete pavements.

- This publication includes:
- Subsurface drainage drawings (listed left)
 - Quality alert on improving silicone sealing works
 - Full-width paving (ie: tied concrete shoulders and 2 lanes placed in one pass)

- Related drawings, released in 5 separate volumes, include:
- Volume 1 - DESIGN AND LOCATION
 - Volume 2 - GRANULAR PAVEMENT WITH BITUMINOUS SURFACING DETAILS
 - Volume 3 - FULL DEPTH ASPHALT PAVEMENT DETAILS
 - Volume 4 - ASPHALT OVER BOUND SUBBASE PAVEMENT DETAILS
 - Volume 6 - SUPPLEMENTARY MODEL DRAWINGS

To download the PDF of Volume 5, please go to: http://www.rta.nsw.gov.au/cgi-bin/doingbusinesswithus/designdocuments/index.cgi?vol5_ed3_rev2_2012.pdf

For the RMS website, please go to: http://www.rta.nsw.gov.au/doingbusinesswithus/designdocuments/standard_subsurface_drainage_details.html



RIGID PAVEMENT STRUCTURE
DETAIL PTR
NOT TO SCALE

Volume 5 First Drawing:
• TYPICAL RIGID PAVEMENT STRUCTURE

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PIARC: New President & New Executive Committee Elected

On October 24-25, 2012, the Council of the World Road Association (PIARC) held its meeting in Lucerne, Switzerland and elected a new President and the New Executive Committee for the 2013-2016 period.



Oscar de Buen Richkarday (Mexico) was elected *President* of the World Road Association to begin office on January 1, 2013. He is a Civil Engineer from the Universidad Nacional Autónoma de México (UNAM) with a Master of Science degree in Transportation from the Massachusetts Institute of Technology (MIT), United States. He spent most of his professional career in the public sector, mainly at the Mexican Secretariat of Communications and Transport (SCT), where he served as Undersecretary of Infrastructure from 2007 to February 2011. Oscar de Buen Richkarday was *Vice-President* of the World Road Association from 2009 to 2011.

The Council elected *Executive Committee Members* and the *Secretary General*. The new *Vice-Presidents* elected are Menno Hennevelde (Australia), Tchona Idossou (Burkina Faso) and Friedrich Zottter (Austria). The Council renewed the term of Mr. Jean-François Corté (France), as Secretary General until 2016.

The National Committees elected Mr. Bojan Leben (Slovenia) as their *Representative* on the Executive Committee. For a full list of the Executive Committee Members, please go to: http://www.piarc.org/en/2012-11-15_18253.htm.

Who Said Animals & Construction Crews Can't Work Together?

Australian engineers took these two photos after a startling discovery: A troop of kangaroos lent a helping hand (and feet) to their green concrete pavement project! Nearly a dozen (12) roos are pictured laying about, adjacent to the site office of a major concrete project in New South Wales Australia.



Kangaroos are cute until they hop on wet [green] pavement!! Ha!



Kangaroo © New Oxford American Dictionary

CONFERENCE NEWS

10th ICCP Conference Proceedings Now Available

CDs containing the Proceeding of the 10th International Conference on Concrete Pavements are finally available and will be mailed to all conference delegates during the week of December 3, 2012. These CDs also include PDF copies of the Conference and Workshop presentations as well as PDF copies of the Student Competition Posterboards. The CDs include a CD search engine to help users locate papers or presentations of interest.

Hard copies of the proceedings (without presentation and posterboard materials) are also in production and will be mailed shortly.

Additional copies of the CDs and hard copy proceedings are available for \$75 plus shipping, and can be ordered online from the ISCP website at: www.concretepavements.org, or by contacting the office of the secretary at: secretary@concretepavements.org.



Incoming PIARC President Oscar de Buen Richkarday



Record Attendance at ACPA-SE Airfield Pavement Conference, USA

According to Greg Dean, Airport Programs Director, *American Concrete Pavement Association-SE Chapter (ACPA-SE)*, this year's Airfield Pavement workshop generated a record attendance with approximately 90 delegates. This two-day workshop was held November 7-8, 2012 at the Hilton Atlanta Hartsfield Airport in Atlanta, Georgia, USA.



This was the 5th annual program with attendees, speakers and exhibitors including engineers and personnel from Georgia, Tennessee, South Carolina and North Carolina Airports, as well as engineering consultants and industry representatives from across the southeast and several from the northeast, USA.

The ACPA-SE Airfield Pavement Conference is a unique venue because it incorporates interaction between agencies, consultants and industries pertaining to airport pavement technologies and best practices. Case study projects included recent pavement construction at USA's Augusta, Georgia, Regional Airport; Charlotte-Douglas International, Charlotte, NC; Cleveland Regional Jetport, Cleveland, Tennessee; and Hartsfield-Jackson Atlanta International Airport, Atlanta, Georgia. The presentations illustrated how unique challenges in design and construction were accomplished and the teamwork involved that enabled demanding schedules to be met.

Presentations included:

- Rigid Design (Part I & Part II) Using Faarfield (FAA R&D)
- Airfield Pavement Projects - Funding & Prioritization
- Overview: FAA Guidance (Part I)
- South Carolina Airfield Projects - Observations & Lessons Learned
- Pavement Management - Key to Sustainable Concrete Pavements at the World's Busiest Airport
- Specifications - What Do They Really Mean?
- Runway Rehabilitation at Augusta Regional Airport
- Runway (Keel) Replacement at Charlotte-Douglas
- New Cleveland Regional Jetport
- Fast Repairs at Hartsfield Jackson Atlanta Airport
- Acceptance, Existing Pavement Evaluation & Case Histories
- Airport Placement Smoothness: New Pavement
- Overview: FAA Guidance (Part II) Using State Standards in Rigid Design

One of the highlights of this year's conference was the presentation of the *ACPA Sustainable Award* to Frank Hayes (retired) and the Hartsfield- Jackson Atlanta International Airport (HJAIA) team for their leadership in implementing a pavement management system. The pavement management system has enabled HJAIA to get maximum life and value out of their concrete pavements.



Portland Cement Concrete is the only pavement that can withstand both load and environmental conditions beyond the FAA recommended 20-year design life.

For a list of all 2012 presentation presenters, as well as PDFs of the presentations, please go to: http://www.pavementse.com/2012_airport_presentations.htm.

Mr. Dean concludes, "One does not need to sacrifice pavement durability in order to meet demanding schedules...concrete is the right choice for nearly all airfield pavement applications". Portland Cement Concrete is the only pavement that can withstand both load and environmental conditions beyond the FAA recommended 20-year design life.



EUPAVE Successful Debate: "Concrete Makes a Difference in Road Safety"



Organized at the European Parliament (EU) in Brussels, and hosted by Brian Simpson, Member of the European Parliament (MEP) and Chair of the European Parliament's Transport and Tourism Committee, EUPAVE held a successful roundtable breakfast debate on the contribution of infrastructure to road safety in the European Union and the role of infrastructure in achieving the prevention of all road deaths by 2050, named "VISION ZERO". Participants agreed that situ-cast and pre-cast concrete offer solutions to make European roads safer. The debate was held on November 8, 2012, and congregated more than 60 people from the European Commission, Members of the European Parliament, as well as road transport and construction-related stakeholders.

"...infrastructure can help to make European roads safer, thanks to a wide range of cement and concrete products..."

Aniceto Zaragoz, EUPAVE President

The event focused on how road infrastructure can help to achieve this objective set by the EU and make European roads safer. Specific emphasis was placed on:

- Concrete safety barriers
- The contribution of concrete products and applications to minimize work zones
- Increase fire safety at tunnels and obtaining safe and comfortable roads

Brian Simpson opened the event, stating, "Road safety is a very important issue where safety barriers really matter. I am glad that EUPAVE is raising this issue."

Aniceto Zaragoza, President of EUPAVE added, "There is no single solution, but infrastructure can help to make European roads safer, thanks to a wide range of cement and concrete products. It is important to encourage authorities to make good quality and sensible investments on safe and comfortable roads."

James Charlesworth, Director of Extrudakerb, focused on concrete safety barriers and declared, "Not all road barriers are the same. The UK Highways Agency publicly agrees that concrete barriers are the

Left: **Gary Mitchell**, ACPA National Airports Director
Right: **Greg Dean**, ACPA-SE Airports Director/Contractor Liaison

2012 Concrete Airport Pavement Reception

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safest. The Construction Products Regulation (CPR) will establish a European certificate of performance and safety for all road restraint systems”.

Tappani Mikkeli, European Commission's DG ENTR Head of sector for construction, stated, “The Commission will pursue Member States to enforce CPR and exhaust all means of actions for them to do it”.

Luc Rens, Managing Director of EUPAVE, said, “The Parliament's last resolution on road safety calls says we need adequate road surfaces which enhance skid resistance, climatic and meteorological performance and visibility; and which require low maintenance, thereby increasing user safety. That is definition of concrete roads”.

Olivier Onidi, European Commission's DG MOVE Director for Innovative and Sustainable Mobility, concluded, “We already have a Directive on road infrastructure safety management that applies to roads belonging to TEN, but we should probably go beyond the TEN. With support of the Parliament, the Commission can make sure that stringent conditions are attached to the EU funding; and that there will be more opportunities to funding infrastructure which complies with those conditions”.

For more information, please go to: <http://www.eupave.eu/documents/eu-affairs.xml?lang=en>.



Announcing CONCREEP-9@MIT: International Conference 2013

CONCREEP-9@MIT

The International Conference on Creep, Shrinkage and Durability Mechanics of Concrete, Concrete Structures and other Quasi-Brittle Materials - Massachusetts Institute of Technology (CONCREEP-9@MIT), will be held September 22-25, 2013 in Cambridge Massachusetts, USA. The conference will be chaired by Hamlin M. Jennings, Franz-Josef Ulm and Roland Pellenq and Hosted by the Concrete Sustainability Hub at MIT (CSHub@MIT) as well as the Groupement de Recherche International Multi-scale Materials Under the Nanoscope (GDRI, M2UN).

The 2013 conference will be the 9th edition in a highly successful conference series, that started more than a half a century ago in Munich, Germany (1958,1968). The conferences have been held consecutively in Leeds, England (1978), Evanston, Illinois, USA (1986), Barcelona, Spain (1993), Cambridge, Massachusetts, USA (2001), Nantes, France (2005), and Ise-Shima, Japan (2008). In 2013, the conference returns to the Massachusetts Institute of Technology in Cambridge, Massachusetts.

CONCREEP-9@MIT will bring together scientists and engineers at the leading edge of research and implementation of innovation related to creep, shrinkage and durability mechanics of concrete and concrete structures. The main objective of CONCREEP-9@MIT is to review and discuss novel efforts in both research and engineering practice on physical origin, prediction and structural effects of time-dependent deformation. The development of science-enabled engineering solutions requires an outreach to fields that have classically not been associated with the CONCREEP community. Specifically, through the co-sponsorship of this conference by the Groupement de Recherche International Multi-scale Materials Under the Nanoscope (GDRI, M2UN), we extend the outreach to the community of:

- soft matter scientists
- glasses physicists
- computational materials scientists.

The ConCreep conference series will continue to foster science-enabled engineering of concrete materials and structures as related to creep, shrinkage and aging of our built infrastructure.

For more information, please go to Concrete Sustainability Hub at MIT at:
<http://web.mit.edu/cshub/concreep/index.html>.



CALL FOR ABSTRACTS

Announcing First Call For Abstracts for CONCREEP-9@MIT: Due December 31, 2012

Announcing the First Call for Abstracts for the International Conference on Creep, Shrinkage and Durability Mechanics of Concrete, Concrete Structures - Massachusetts Institute of Technology (CONCREEP-9@MIT), to be held September 22-25, 2013 in Cambridge Massachusetts, USA. Abstracts on the below topics - not less than 400 words, but not exceeding 600 words - are invited by December 31, 2012.

Topics of interest include (but are not restricted to):

- Nanomechanics of Creep and Shrinkage
- Multiscale and Multiphysics Approaches
- Creep, Shrinkage and Fracture of Cementitious Materials
- Microstructure, Setting and Aging of cement
- Micromechanics of Creep and Shrinkage
- Creep and Shrinkage of Concrete under Extreme Conditions



- Constitutive and Numerical Modeling
- Performance design of New Concrete Materials and Structures

- Model-based monitoring of creep and shrinkage in concrete structures
- Structural Mechanics of Creep and Shrinkage

Upon review by the technical advisory panel, the notification of acceptance will be given by January 31, 2013 at which stage recommendations concerning the format of the papers will be sent the authors for inclusion in the conference proceedings.

Please send abstracts by email to: 2013concreep9@mit.edu.

For the CONCREEP-9@MIT website, please go to: <http://web.mit.edu/cshub/concreep/index.html>.

Call for Papers & Abstracts Digest

December 31, 2012 Due date for abstracts for the 14th International Winter Road Congress to be held February 4-7, 2014 in Andorra-la-Vella, Pyrenees. The theme is: "*Reconciling road safety and sustainable development in a context of climate change and economic constraints*". For information, please go to: <http://www.aipcrandorra2014.org/?lang=en>.

December 31, 2012 Due date for abstracts for the International Conference on Creep, Shrinkage and Durability Mechanics of Concrete, Concrete Structures - Massachusetts Institute of Technology (CONCREEP-9@MIT), to be held September 22-25, 2013 in Cambridge Massachusetts, USA. Please send abstracts by email to: 2013concreep9@mit.edu. For more information, please go to CONCREEP-9@MIT at the Concrete Sustainability Hub at MIT: <http://web.mit.edu/cshub/concreep/index.html>.

May 15, 2013 Due date for papers for the 12th International Symposium on Concrete Roads - "*Innovative Solutions - Benefitting Society*" to be held in Prague, Czech Republic, September 24-26, 2014. For the Symposium website, please go to: www.concreteroads2014.org.

UPCOMING EVENTS

JANUARY
2013



ISCP Annual Membership Board Meeting

January 12, 2013, 5:30 - 8:00 pm,
Thurgood Marshall Room North, Marriott Hotel in Washington, D.C., USA
<http://www.concretepavements.org/calendar.htm>

92nd Annual Meeting of Transportation Research Board (TRB)

January 13-17, 2013 in Washington, D.C., USA
<http://www.trb.org/AnnualMeeting/AnnualMeeting.aspx>

World of Concrete 2013 (Use ACPA registration code A14)

February 4-8, 2013 in Las Vegas, Nevada, USA
<http://www.worldofconcrete.com/>

9th Concrete Conference & Exhibition: Concrete for Sustainable Construction

February 11-13, 2013 in Manama, Kingdom of Bahrain, <http://www.concrete9.org>

UKIERI Concrete Congress: Innovations in Concrete Construction

March 5-8, 2013 in Jalandhar, Punjab, India, <http://www.ukiericoncretecongress.com>

8th International Conference on Fracture Mechanics of Concrete and Concrete Structures (FraMCoS-8)

March 24-28, 2013 in Ciudad Real, Spain <http://www.framcos8.org/>

Fifth North American Conference on the Design and Use of Self-Consolidating Concrete (SCC2013)

May 12-15, 2013 in Chicago, Illinois, USA
<http://www.intrans.iastate.edu/events/scc2013/>

International Conference on Concrete Sustainability (ICCS13)

May 27-29, 2013 in Tokyo, Japan
<http://www.jci-iccs13.jp/>

For events taking place in June 2013 and beyond, please go to:
<http://www.concretepavements.org/calendar.htm>.

FEBRUARY
2013

MARCH
2013

MAY
2013



The ISCP Newsletter is produced monthly by:

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ISCP invites ISCP members and friends to submit articles and calendar items to the Editor-in-Chief for future issues.

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Secretary/Treasurer: **Neeraj Buch, Ph.D.** secretary-treasurer@concretepavements.org

Please visit the **ISCP Website** at www.concretepavements.org for more information about ISCP.

Maps, globes: National Geographic Family Reference Atlas of the World ©2002 National Geographic Society, Washington, D.C. & Concise Earth Book World Atlas ©1987 Graphic Learning International Publishing Corporation, Boulder, Colorado, Esselte Map Service AB Stockholm. All additional sources noted on perspective pages.

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