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International Commission on the History of Geological Sciences

INHIGEO

NEWSLETTER

No. 45
Covering activities generally in 2012
Issued in 2013

INHIGEO
is
A Commission of the International Union of Geological Sciences
&
An affiliate of the International Union of the History and Philosophy of Sciences

Compiled and Edited by Wolf Mayer
INHIGEO Editor

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(Published in May 2013 covering events generally in 2012)

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2012-2016

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REPORTS

President's Message (April 2013)

Dear Members,

This is the first INHIGEO Newsletter edited by Wolf Mayer. Wolf was named Editor – a newly-created position – with the election of the new Board in August 2012, at Brisbane. A special welcome, Wolf, to this new and important position. Also joining the Board at this time, in addition to myself, are Luz Azuela and Mike Johnston. A warm welcome also to Luz and Mike. Let me say, for myself, that it is an honour and a pleasure to serve as President of INHIGEO. In addition, on behalf of all INHIGEO members, I wish to express our deep gratitude to those who have recently ended periods of distinguished service on the Board: David Oldroyd, Gerardo Soto, and Philippe Taquet.

Fortunately for all of us, the INHIGEO Board retains a large measure of continuity and 'institutional memory' through the ongoing service of our immediate Past President, Silvia Figueirôa, and several other officers: Ken Bork, Barry Cooper, Greg Good, Martina Kölbl-Ebert and Jiuchen Zhang. It is a special comfort to me that Barry Cooper agreed to serve a second term as Secretary-General. As everyone knows, the Secretary-General, more than anyone else, bears the responsibility for seeing to the regular ongoing business of INHIGEO.

The path of INHIGEO's growth and development has now entered a new phase, in the wake of the ad hoc review by IUGS reported on in last year's Newsletter, and with consequent revisions in the Commission's Terms of Reference and By-Laws. These documents were disseminated in the Third Circular, December 2012, and are reproduced in this Newsletter. The institution of the electronic Circulars was, itself, one of several significant changes resulting from the recent review and reforms. But the Commission's basic objectives remain the same: to promote studies on the history of the geosciences in an international context. INHIGEO has been very successful in accomplishing these goals in recent years, and there is good reason for hope and trust that this pattern of success will continue.

Foremost among INHIGEO's successes in 2012 was the excellent historical program mounted within the framework of the International Geological Congress at Brisbane. A number of us were privileged, too, to take part in the outstanding field trip from Sydney to Brisbane, organized by David Branagan. This year we look forward eagerly to the rich and diverse INHIGEO program of symposia and field excursions planned as part of the International Congress of History of Science, Technology and Medicine, at Manchester in July. I anticipate the pleasure of meeting many of you there.

Ken Taylor

Secretary-General's Report (April 2013)

Dear Members,

It is a great pleasure that for 2013 and future years we now have a dedicated Editor, Wolf Mayer, who can devote more time and energy to further develop of the INHIGEO Newsletter. So following our President's comments I also affirm with a thank you, Wolf, for assuming this important INHIGEO role, which was previously one of the Secretary-General's responsibilities.

2012 was another busy year for INHIGEO with a successful annual conference held in association with the International Geological Congress in Brisbane, Australia, and a delightful pre-Congress field trip from Sydney to Brisbane. Hugh Torrens was the recipient of the inaugural "Vladimir V. Tikhomirov History of Geology Award", with his daughter Rebecca accepting the award on his behalf. Finally our Brisbane meeting also brought about the installation of a new INHIGEO Board for 2012-2016. As a consequence, I am delighted to be back as Secretary- General for another four years.

2012 also saw the introduction of the "INHIGEO Circular" which aims to provide up-to-date news and essential information on INHIGEO activities. Circulars are being issued by email in March, June, September and December and are prepared by the Secretary-General.

As of April 2013, INHIGEO has 237 members from 48 countries. And as this newsletter is nearing completion we have 15 new nominations to be considered by the INHIGEO Board. Over the past year we have sadly lost longstanding and widely respected members in Michel Durand-Delga (Honorary Senior Member, France), Nikolay Yuskin (Russia), Peter Krüger (Germany) and Josef Haubelt (Czech Republic).

The INHIGEO Board has also approved David Oldroyd and Phillipe Taquet as Honorary Senior Members.

At the end of 2012, a very small number of inactive members were removed from the membership register following a prolonged lack of communication.

In July 2013, INHIGEO will convene in Manchester, United Kingdom, in association with the 24th International Congress of the History of Science, Technology and Medicine (ICHSTM). An excellent meeting is promised by our British hosts. Two dedicated INHIGEO symposia are being planned:

Geologists in the Field
Geology in Art and Literature

In addition three field trips are being organised before, during and after the Congress as follows:

The Silurian of 'Siluria' and the idea of a Palaeozoic era (Leaders: Martin Rudwick & Hugh Torrens)
Buxton Spar and Spa (Leader: Tom Hose)
Ruskin's Geology (Leaders: Alan Bowden & David Oldroyd)

I look forward to seeing as many INHIGEO members as possible at the Congress and field trips.

In July 2014, INHIGEO will convene in the USA for the first time since 1989. President Ken Taylor and the US delegation are planning that Symposium 39 will be held at the Asilomar Conference Grounds, located by the Pacific Ocean on the Monterey Peninsula in Pacific Grove, California. Asilomar is located about 120 miles (190 km) south of San Francisco. The meeting will be co-sponsored by the Geological Society of America (GSA). GSA's History and Philosophy of Geology Division is a partner in planning the meeting. The Conference Theme will be "Doing the History of the Earth Sciences: What, Why, and How?"

INHIGEO has continued over the past year to provide historical papers for the IUGS Journal *Episodes* under the stewardship of David Oldroyd. Over many years, David has overseen the publication in *Episodes* of nearly twenty historical articles on International Geological Congresses, at least fifteen 'Classic Papers on the History of Geology', and a large number of book reviews and reports of meetings and conferences. Now David wishes to step down from the role he has filled with distinction for so many years. INHIGEO is very much in David's debt for his excellent service in this important editorial capacity. At the time of writing, we are optimistic that the Board will be able to appoint a new Episodes Coordinator before the end end of the year.

INHIGEO's work continues to be made possible by important support from various organisations. Financially we continue to be greatly assisted by the annual grant provided by the International Union of Geological Sciences (IUGS). We also are aided by funding provided by the International Union of History and Philosophy of Science, Division of History of Science and Technology (IUHPS/DHST). In addition, the University of South Australia has continued to provide me with facilities without which I could not undertake my INHIGEO responsibilities.

My final thanks are to members of the new INHIGEO Board who have been quick to respond to my calls for advice, information and assistance and especially to our new President Ken Taylor for the energy and enthusiasm that he has devoted to INHIGEO affairs.

Please remember to keep me advised of any address changes, especially to your email address as the latter is now our major means of communication.

My very best wishes to all INHIGEO members for the coming year,

Barry Cooper

Editor's Message

Dear Friends and Colleagues,

It is with great pleasure and with some apprehension that I present to you my first Newsletter as INHIGEO Editor.

In preparing issue No. 45, I have largely followed the fine example set by my predecessor, our Secretary-General, Barry Cooper. However readers may notice my lack of artistic talent in the lay-out of this publication, particularly with respect to the placement of photographs and other illustrations. But experience is a great teacher and I hope to benfit from it.

I greatly appreciated receiving the many contributions sent in by members for inclusion in this Newsletter. One of my editorial tasks required me to make some changes to the text of a number of submissions in order to bring them into line with common English usage. I sincerely hope that in doing so, I have not inadvertently altered the authors' intended meaning. For any other editorial changes I have made, I ask for the understanding of contributors.

In addition to the official records of INHIGEO business, and much helpful information about forthcoming conferences, this Newsletter contains very informative country reports, two interesting articles, some conference reports, a number of book reviews and obituary notices. Given that INHIGEO now has members in 48 countries the receipt of reports from only 25 of these may be regarded as somewhat disappointing. I would like to encourage members in the remaining 23 countries to inform me of their activities and to submit reports and other relevant material for inclusion in the next Newsletter.

Interest in the history of the geological sciences has grown considerably in the last few decades and many countries have established their own societies/groups to cater for this need. I believe that many of the activities of these national organisations would also be of interest to a wider INHIGEO membership. Although we learn about the work of a few of these specialist groups from the annual reports submitted by members, it would enrich the contents of this Newsletter if more information about significant news/developments/research findings, etc., which appears in these national publications, could be reprinted here. I am therefore asking members to put me in touch with editors of such 'Newsletters' in their respective countries, so that I can request an exchange of publications, either in e-format or hard copy. In some instances this happens already: JAHIGEO distributes its Newsletter to all INHIGEO members, while I receive the Newsletter of HOGG, as well as *Viewpoint*, the magazine of the British Society for the History of Science. I hope to include a section in next year's INHIGEO Newsletter featuring extracts from such publications which may be of general interest to our members.

I would also welcome suggestions from members about improvements to this Newsletter. If anyone has fresh ideas with regard to new content, format, layout or any other matters that might make this publication more beneficial to members or more enjoyable to its readers, please contact me.

Here is one, perhaps controversial point on which I would be interested to hear the views of the membership. It seems clear to me that the name 'Newsletter' does not accurately reflect the contents of this publication. It may be that in the minds of many, the near 50-year history of the INHIGEO Newsletter has given its name an iconic status that must not be tampered with. Other might have different thoughts. To gage the views of the membership on this issue, I would like to list it on the agenda under "New business" for discussion at the Manchester meeting (if I am not dismissed from my post before then as a suspected iconoclast).

It remains for me to acknowledge the great help provided by the Research School of Earth Sciences at the Australian National University in Canberra, for fascilitating the distribution of the e-version of this Newsletter and for agreeing to accept the postal charges for the almost 50 hard copies I will be sending out.

I look forward to meeting many of you at the Manchester Congress in July.

Wolf Mayer

38TH INHIGEO CONFERENCE 2013, MANCHESTER, UNITED KINGDOM
(In association with the 24th International Congress of the History of Science, Technology and Medicine ICHSTM)

From 21-28 July 2013, INHIGEO will convene in Manchester, UK, in association with the ICHSTM Congress. For the latest news on the Congress, please visit the Congress website at www.ichstm2013.com Registration is now open and fees are £280.

Two dedicated INHIGEO symposia are being planned:
Geologists in the Field
Convenors: Leucha Veneer (UK) and Martina Kölbl-Ebert (Germany).

This symposium will explore the history of geological and geophysical fieldwork, examining the work of individuals, research groups and commercial explorers in all areas of the world, from all periods of history. Papers considering the changing nature and status of fieldwork, innovations in the instruments, techniques and training methods of fieldwork, and the role of fieldwork in the development of geological knowledge and theory will be featured. Papers discussing the relationships between fieldwork, collections and museums or between fieldwork and laboratory-based studies are also welcome, as are papers that relate to any aspect of fieldwork not discussed above, including the importance of geological fieldwork as it relates to any aspect of the history of science, technology and medicine.

Geology in Art and Literature
Conveners: Ralph O'Connor (UK) and Noah Heringman (USA)

This symposium will explore the role of art and literature in the production and communication of geological knowledge. 'Literature' and 'art' are broadly defined: papers will explore both 'high' genres (such as fine art and poetry) and genres which are conventionally associated with science communication in which artistic form was no less important (such as scientific treatises and printed illustrations). Papers will discuss figures and representational traditions from around the world, although the main focus will be on the period from the eighteenth century to the present day (in order to achieve a sense of disciplinary focus around geology). The papers will discuss the ways in which knowledge was shaped by the constraints and possibilities of artistic and literary forms or aesthetic demands, the role of art and literature in shaping wider public perceptions of geology, and the ways in which art and literature have represented the work of geological knowledge-production itself.

In addition, three field trips are being organised before, during and after the Congress as follows:

The Silurian of 'Siluria' and the idea of a Palaeozoic era
(Leaders: Martin Rudwick and Hugh Torrens) 18-21 July, 2013

This field trip will focus on're-treading' some of the fieldwork by British geologists in the Welsh Marches, which contributed decisively to the proposal of the idea of a Palaeozoic era. It will be a *historical* geological field trip: we shall try to see what they saw, through their 19th-century eyes, rather than in terms of geological ideas current today.

Buxton Spar and Spa (Leader: Tom Hose) 25 July, 2013

The core of the trip will be based on the Geologists' Association 1904 Excursion to Buxton and North Derbyshire. A trip to the historic Poole's Cavern will be a highlight of the day. The excursion will also explore the town of Buxton and the geology of its environs in the Derbyshire Wye Valley. In addition Buxton houses a museum with historical geological collections. The town is also home to modern 'Buxton Mineral Water', with the origins of its spa being traced back to the Roman period.

Ruskin's Geology (Leaders: Alan Bowden & David Oldroyd), 28-30 July, 2013

The Ruskin Field Excursion to the Southern Lake District is designed to give participants a flavour of John Ruskin's geological work and how this influenced his art. We will also examine the geological interests of other famous Lakelanders such as William Wordsworth and Beatrix Potter.

For general enquiries about this INHIGEO conference, please contact Cherry Lewis: cherry.lewis@bristol.ac.uk.

For queries regarding the field trips please contact Beris Cox: beris.cox@btinternet.com .

INHIGEO BUSINESS NOTICES

Minutes of the INHIGEO Business Meeting 2012, Boulevard Auditorium, Brisbane Convention and Exhibition Centre, Brisbane, Queensland, Australia
Tuesday 7 August 2012

Members Present: Luz Azuela (Mexico), Carol Bacon (Australia), Zoya Bessudnova (Russia), Kennard Bork (USA), David Branagan (Australia), Barry Cooper (Australia), Silvia de M. Figueirôa (Brazil), Francesco Gerali (Italy), Tatiana Ivanova (Russia), Mike Johnston (New Zealand), Marianne Klemun (Austria), Leonid Kolbantsev (Russia), Toshio Kutsukake (Japan), Leo Laporte (USA), Irena Malakhova (Russia), Wolf Mayer (Australia), Teresa Mota (Portugal), Sally Newcomb (USA), David Oldroyd (Australia), Stephen Rowland (USA), Philippe Taquet (France), Ken Taylor (USA), Gennadiy Trifonov (Russia), Susan Turner (Australia), Ezio Vaccari (Italy), Michiko Yajima (Japan), Toshihiro Yamada (Japan), Jiuchen Zhang (China).

Presiding: President Silvia Figueirôa (Brazil) and Secretary General Barry Cooper (Australia)

1. Welcome and Opening

   President Silvia Figueirôa opened the meeting at 7.00 pm and welcomed members.

2. Regrets and apologies from those unable to attend

   Ana Carneiro (Portugal), Tom Darragh (Australia), Geir Hestmark (Norway), Michiya Inomata (Japan), Hirokazu Kato (Japan), Martina Koelbl-Ebert (Germany), Cherry Lewis (UK), Kerry Magruder (USA), Randall Miller (Canada), P. Mohr (Ireland), Alan Mason (NZ), Lucero Morelos (Mexico), K.S. Murty (India), Gerardo Soto (Costa Rica), Simon Nathan (NZ), Hugh Torrens (UK), Bruce Waterhouse (New Zealand).

3. Arrangement of the agenda

   The agenda, revised from that published in Newsletter #44, was circulated.

4. Minutes of the previous meeting held in Toyohashi, Japan, 3 August 2011

   These were accepted unanimously without amendment. Moved David Branagan seconded Ken Bork.

5. Matters arising from the minutes

   All matters were considered under listed agenda items

6. President's Report

   The President summarized the 4 year INHIGEO report that she had given to and that had been accepted at the IUGS Council meeting on the previous Sunday.

In general she reported that INHIGEO has had a highly successful period over the past four years with ongoing annual conferences in Calgary (Canada), Madrid-Almadén (Spain), Toyohashi (Japan) and now Brisbane (Australia) and ongoing production of an annual newsletter.

Most importantly, Silvia reported that new Terms of References had been approved for INHIGEO at the IUGS Council on the previous Sunday following the report of the IUGS review committee in 2011 and follow-up work by the INHIGEO Board.

Membership numbers have also climbed from 201 members in 42 countries in 2008 to 252 members from 50 countries following the recent ballot.

Future Meetings are planned for Manchester, UK (2013), United States (2014), China (2015), South Africa (2016), Armenia (2017) and Mexico (2018).

David Oldroyd had also continued to be the INHIGEO representative on the Editorial Board of "Episodes". In this capacity he had prepared articles dealing with past International Geological Congresses and "Classic papers in Geology".

In conclusion the President thanked the Secretary General for his diligent efforts on behalf of the Commission.

7. Discussion /Matters arising from the President's report

INHIGEO website

David Oldroyd asked about the INHIGEO website following significant discussion during the IUGS review meeting in Toyohashi in 2011.

The President responded that plans are being made to link it with the IUGS website.
The Secretary General reported that since the IUGS review, a section providing historical INHIGEO records (ie early newsletters) had been added to the existing web site however this had revealed that the capacity of the site to store a large amount of information was limited.

Ezio Vaccari offered to store all historical newsletter files at his University website with a hyperlink from other sites.

The matter was referred to the incoming INHIGEO Board for detailed consideration.

8. Secretary General's report

The Secretary General complemented the President's Report by adding that:-

a. The following deaths had been recorded over the past 12 months and obituaries had been either published or had been planned for publication in the Newsletter

   Emile den Tex (1918-2012)
   Evgeny E. Milanovsky (1923-2012)
   Wilfried Schröder (1941-2011)
   John Fuller (died 2012)

b. The recent ballot had resulted in 62% participation with three additional countries: Chile, Morocco, and Bulgaria being added to the existing membership.

   Members were advised that this was the last ballot of this kind as the new Terms of Reference give the INHIGEO Board final decision-making responsibility on membership

applications.

c. The new Terms of Reference also create the new category of Associate Member.

d. The INHIGEO Board had endorsed Gabiel Gohau, Martin Rudwick and Hugh Torrens as INHIGEO Honorary Senior Members.

e. Following an approach from IUGS, the INHIGEO Board has created the "Vladimir V. Tikhomirov History of Geology Award" and has made the first nomination on request.

The INHIGEO Board is delighted that its nominee, Hugh Torrens, has received the inaugural award of this honour. This was presented by President Figueirôa at a special session of Brisbane Congress held the previous night.

f. As previously announced, the post of Newsletter Editor will be included in the INHIGEO Board for 2012-2016.

g. INHIGEO has had ongoing financial support from IUGS and IUHPS and this has been sufficient to continue a full slate of activities.

9. Discussions / Matters arising from the Secretary General's Report

Ken Bork raised the issue of a possible future winding up by IUGS of its INHIGEO Commission as envisaged at the IUGS review meeting in Toyohashi in 2011, with the concurrent establishment of a separate organisation or Academy.

The Secretary General advised the meeting that this matter had been discussed in detail within the INHIGEO Board early in the year with consensus that it was neither beneficial for INHIGEO or IUGS. The current INHIGEO Board attitude was to resist any such moves.

David Oldroyd advised that he thought that the suggestion was motivated because IUGS wanted INHIGEO, in the longer term, to raise its own operating funds with concurrent reduction of annual IUGS grants.

Philippe Taquet indicated that such IUGS views may be the attitude of individuals on the current IUGS Board. IUGS Board membership was changing at the Brisbane Congress.

Ken Taylor pointed out that INHIGEO remained a Commission of IUHPS regardless of IUGS attitudes.

There was general support at the meeting for the current Board approach to resist establishment of an INHIGEO organisation separate from IUGS. Given INHIGEO support for "Episodes" and the Tikhomirov Award, ongoing links as an IUGS Commission should also benefit IUGS.

10. Other IUGS topics

a. INHIGEO Circular

In addition to those IUGS topics already considered, the Secretary General advised that in response the IUGS review at Toyohashi, a formal INHIGEO Circular had been introduced in February 2012 in order to improve member communications and that a Circular is planned to be issued 3-4 times each year. Ken Bork approved of the introduction of the Circular and suggested that it be issued on a regular basis 4 times each year.

11. Publications

a. Toyohashi conference – Publication of papers from the 2011 conference has taken place and the Secretary General has been advised by Michiya Inomata that copies are already being dispatched. Mike Johnston advised that it had been delivered to his home in New Zealand.

David Oldroyd asked about distribution, availability and cost of the publication. Toshihiro Yamada agreed to refer these questions to Hirokazu Kato, who is in charge of the publication.

b. Brisbane Congress - David Oldroyd has initiated plans to publish papers that have been submitted to biography symposium at the Brisbane Congress in a coming issue of Earth Sciences History. Papers should be submitted by end October 2012.

c. Contributions to "Episodes" - Classic geological papers and historical reviews of past International Geological Congress meetings continue to be published in "Episodes", the IUGS Journal under the stewardship of David Oldroyd who is also a member of the Editorial Board of "Episodes".

David advised that he was disappointed by the response of the INHIGEO membership to his calls for "Episodes" contributions and that he had effectively written many contributions himself. He was now happy to hand over this responsibility to someone else. This matter was referred to the incoming INHIGEO Board for consideration.

12. Future Meetings of the Commission

a. 37th INHIGEO Conference– Manchester, UK, 22 - 28 July 2013

The 2013 INHIGEO conference will meet in association with the 24th International Congress for the History of Science, Technology & Medicine being held in Manchester, England under the guidance of Cherry Lewis.

Three associated INHIGEO historical field trip are planned to:

(1) Shropshire and the Welsh Borderland (led by Martin Rudwick and Hugh Torrens),

(2) Buxton Spar and Spa (led by Tom Hose) and

(3) Ruskin's Geology (led by Alan Bowden and David Oldroyd)

The INHIGEO sponsored symposia at 24thICHSTM will be:

(1) Geologists in the Field (Conveners: L. Veneer and Martina Koelbl-Ebert)

(2) Geology of Art and Literature (Conveners: Ralph O'Connor and Noah Heringman)

A First Circular has already been sent to all INHIGEO members with abstracts required by 1 October 2012.

The meeting was informed that other historical sessions associated with geology are also being planned, notably on petroleum by the International Commission on the History of Technology. Francesco Gerali confirmed that he was involved. The Secretary General

indicated that it was important these did not clash with the major INHIGEO efforts co-ordinated by Cherry Lewis.

Marianne Klemun and Susan Turner both expressed concern that these other symposia arrangements had different deadline dates when compared with the INHIGEO symposia. They advocated better co-ordination.

b. 38th INHIGEO Conference, 2014 – California, USA

Ken Taylor reported on the organisation of 2014 INHIGEO conference which has a current provisional planning group of Greg Good, Vic Baker, Ken Bork and himself. The History & Philosophy of Geology Division of the Geological Society of America will co-sponsor and efforts are being made to involve GSA central office.

Three possible themes have been suggested

(1) Geological exploration: Opening Continents and Concepts
(2) Paleo-environmental thinking in historical perspective
(3) The organization of geological science – historical developments

The preferred location is in or near San Francisco with two options, either a hotel in San Francisco or the Asilomar Conference Centre, 120 miles south of SF, being considered.

A one day mid conference field trip near the conference venue as well as a post conference (4-6 day) field trip to Yosemite National Park, eastern Sierra Nevada, Sonora Pass and the Californian Gold Rush Country are envisaged.

More details should be available over the next few months.

39th INHIGEO Conference 2015 – Beijing, China

Juichen Zhang reported that the 2015 will be sponsored by the Chinese University of Geoscience (Beijing).

The meeting will be held in Beijing with one of the historical themes likely to be geological education. A field trip outside of Beijing will also be arranged.

In April 2012, a conference committee has been formed with Yusheng Zhai as Chairman.

Additional information should be available at the Manchester conference next year. Suggestions for the conference organisation are welcome especially for the field trip.

c. 2016-2018 and 2020 conferences

No discussion on these INHIGEO conference took place given meeting time constraints. They have been provisionally assigned to Cape Town, South Africa (2016), Yerevan, Armenia (2017), and Mexico City (2018). With the New Delhi being chosen for the 2020 International Geological Congress, the 2020 INHIGEO conference will likely be held in India.

d. Possible 2019 Conference?

The Secretary General advised that during the Congress that he had received an offer to hold the annual INHIGEO conference in Saint John, New Brunswick, Canada from Randall Miller. Randall was an apology for the meeting. Unless other offers lapse, it seems that this offer could be accepted for the 2019 conference. Earlier dates are already committed.

Susan Turner confirmed that New Brunswick had much to offer INHIGEO members given that both the meeting facilities and geological heritage were very suitable.

Finalisation of the 2012 INHIGEO Membership Ballot

13. Following the recent ballot, the following were declared INHIGEO Members

ANGETTER, D.	Austria
MENEGAT, R.	Brazil
PATACA, E. M.	Brazil
PICANCO, J. L.	Brazil
MAVRUDCHIEV, B. D.	Bulgaria
TCHOUMATCHENCO, P. V.	Bulgaria
BROOKES, I. A.	Canada
TIPPETT, C. R.	Canada
CHARRIER, R.	Chile
HERVE, F.	Chile
DAI JINYE	China
ZHANG ERPING	China
BENNIKE, O.	Denmark
WALTER, H.	Germany
LUZZINI, F.	Italy
ARRUBARRENA, L. E.	Mexico
GONZALES-TORRES, E.	Mexico
LUGO-HUBP, J.	Mexico
MORAN-ZENTENO, D.J.	Mexico
SANCHEZ-GRAILLET, L.	Mexico
URIBE SALAS, J. A.	Mexico
JALIL, N.-E.	Morocco
BARZILAY, W. F.	Netherlands
VAN LOON, A. J.	Netherlands
KOLBANTSEV, L. R.	Russia

Leonid Kolbantsev was present at the meeting and he was personally welcomed to the Commission.

14. Declaration of the INHIGEO Board 2012-2016

The following 2012-2016 INHIGEO Board Membership has been approved by IUGS and was endorsed by the meeting.

President:	Professor Kenneth L. TAYLOR (USA)
Secretary-General:	Dr Barry J. COOPER (Australia)
Editor:	Dr Wolf MAYER (Australia)
Past-President:	Professor Silvia F. de M. FIGUEIRÔA (Brazil)
Vice-President Europe:	Dr. Martina KÖLBL-EBERT (Germany)
Vice-President North America:	Dr Gregory A. GOOD (USA)
Vice-President Latin America:	Professor Luz Fernanda AZUELA (Mexico)
Vice-President Asia:	Professor Jiuchen ZHANG (China)
Vice-President Australasia and Oceania:	Dr Michael JOHNSTON (New Zealand)
Ex officio (Past Secretary-General):	Professor Kennard BORK (USA)

President Figueirôa thanked the retiring Board for their support and especially acknowledged those leaving the Board at the meeting, notably Philippe Taquet, Gerardo Soto and David Oldroyd. In particular it was noted that David Oldroyd had served the Commission diligently for 16 years, including an 8 year period as Secretary General.

15. New business, Business without notice

Irena Malakhova formally thanked the outgoing INHIGEO Board for its involvement in creating "Vladimir V. Tikhomirov History of Geology Award".

Irena also tabled a digital copy of "Foreign Members of the Russian Academy of Sciences XVIII-XXI centuries"

Francesco Gerali thanked the INHIGEO Board for their assistance to attend the Brisbane Congress and called for future support for young members to attend INHIGEO conferences. He also called for INHIGEO to form a "young INHIGEO Commission".

Francesco also tabled his new book on Italian geologist Giovanni Capellini. Arrangements are already underway for a review of this book in the next INHIGEO Newsletter.

16. Vote of thanks for our hosts in Australia

President Figueirôa formally thanked the Secretary General for co-ordinating arrangements for the INHIGEO conference in Brisbane. In response the Secretary General thanked other members of the Australian delegation for their assistance.

As there was no other business, President Figueirôa closed the meeting at 8.55 pm.

INHIGEO Business Meeting, Manchester, United Kingdom
(In association with the ICHSTM Congress, 21-28 July 2013)

Provisional Agenda

1. Regrets/Apologies from those not able to attend

2. Arrangement of the Agenda (requests for modification)

3. Minutes of the previous Meeting, Brisbane, Australia (2012) (See above)

4. Discussion / Matters arising

5. President's Report

6. Discussion / Matters arising

7. Secretary-General's Report

8. Discussion / Matters arising

9. Editor's Report

10. Discussion/Matters arising

11. IUGS Topics:

    Contributions to *Episodes*

12. Future Meetings of the Commission

13. Finalisation of 2013 Membership Ballot

14. New business / business without notice

15. Vote of thanks for our hosts.

Revised INHIGEO Terms of Reference and By-Laws – August 2012

In August 2012, IUGS approved a substantial revision to the INHIGEO Terms of Reference and By-Laws**.**

This revision follows from an "*ad hoc* review of INHIGEO" by IUGS which took place in Toyohashi, Japan, in 2011, the report of which was subsequently published both in the last INHIGEO Newsletter as well as in *Episodes* 35: 362-364 (June 2012).

The revision represents the first substantial changes to the rules governing INHIGEO since 1993.

These revised "Terms of Reference and By-Laws", reproduced below, were approved unanimously by the INHIGEO Board on 19 January 2012, with subsequent approval by the IUGS Executive Committee at its annual meeting in San Sebastian, Spain, on 14 February 2012, and by the IUGS Council at its meeting in Brisbane, Australia, in August 2012.

The revised Terms of Reference and By-Laws introduce and codify several significant changes in INHIGEO administration and membership. These include:

- Removal of the "11 INHIGEO members per country limit" as agreed at the Toyohashi Business Meeting of INHIGEO.

- Cessation of the biannual membership ballot in favour of all new members being fully approved by the INHIGEO Board as either Full or Associate INHIGEO members, following nomination via existing procedures or by direct approach to the Secretary-General.

- Establishment of a new category of Associate INHIGEO Membership to accommodate those applicants who may not qualify for membership on the basis of historical contributions, yet are interested in the work of the Commission. Associate Members will not hold office, make nominations or participate in ballots under the proposed Terms of Reference and By-Laws. However it can also be offered in order to establish membership from countries with minor scholarly communities.

- Recognition of email as a routine means of communication within INHIGEO.

- Recognition of historians as well as scientists as a professional group within INHIGEO.

- Recognition of the Newsletter Editor and past Secretary-General (ex officio) as members of the INHIGEO Board.

- Recognition of the recently proposed IUGS History of Geology Award.

INTERNATIONAL COMMISSION ON THE HISTORY OF GEOLOGICAL SCIENCES (INHIGEO)

TERMS OF REFERENCE

OBJECTIVES

The primary objective of the International Commission on the History of Geological Sciences (INHIGEO) involves the promotion of studies on the history of geological disciplines in an international context. In so doing, INHIGEO endeavours to promote and co-ordinate the activities of regional, national, and international organisations having shared purposes. INHIGEO also works to foster the publication of individual or collective works that illuminate the history of the geological sciences and to maintain an information-rich website.

STRATEGIES

- *Meet regularly, usually once a year, and every four years with the International Geological Congress (IGC), to conduct a major symposium on the history of geology. This typically includes a multi-day field component. Associated with these activities are the publication of abstract volumes and excursion or other guidebooks.*

- *Work with various publishing houses and journals, and where appropriate in co-ordination with IUGS, to promote the publication of symposia proceedings and a variety of contributions relevant to the history of geological sciences.*

- *Publish the annual INHIGEO Newsletter that incorporates information from the Officers and Members, national reports, book reviews, conference reports, interviews, obituaries, short historical research papers, and a variety of news items and illustrations that promote the sharing of professional insights.*

- *Provide regular information by email circulars to the INHIGEO membership dealing with issues of immediate relevance to the Commission and to the study of the history of the geological sciences.*

- *Develop and maintain an internet website that provides up-to-date information on the Commission's activities as well as other information that will be of interest to INHIGEO Members and the wider public.*

- *Liaise with IUGS to enhance the recognition of outstanding geologists via its "Scientific Awards of Excellence", and specifically with the "Vladimir V. Tikhomirov History of Geology Award".*

- *Contribute to Episodes on historical matters, for example by recording the history of past IGC meetings and other IUGS activities, by promoting knowledge of classic works in geology, and by furnishing reviews of books on the history of geological sciences.*

BY-LAWS

1. INHIGEO is a Commission of the International Union of Geological Sciences (IUGS). It is also affiliated with the International Union of the History and Philosophy of Sciences (IUHPS).

2. INHIGEO is therefore bound by the IUGS Statutes and the IUGS By-Laws for Commissions.

3. The task of INHIGEO is to promote studies in the history of geological sciences and to stimulate and co-ordinate the activities of national and regional organizations that have the same purpose. It does so by promoting the holding of national, regional, and international symposia, by the publication of individual and collective works on the history of geological sciences, and by the maintenance of an informative website.

4. Reports on the work performed by INHIGEO, and its Members, and its plans and budget for the following year are to be submitted annually to the IUGS at a date designated by the IUGS Secretary-General. Similar reports are submitted to the IUHPS.

Structure

5a. A primary objective of INHIGEO is to establish an international network of scholars with active representation from as many countries as possible, and where possible having a diverse age range amongst its Members. INHIGEO specifically encourages the formation of national and regional groups.

5b. INHIGEO Members consist of scientists, historians and other scholars known for their publications and/or other activities in the field of the history of geological sciences.

5c INHIGEO Honorary Senior Members are proposed by the INHIGEO Board from amongst the extant INHIGEO membership, in recognition of their significant contributions to the field of the history of geological sciences and/or to INHIGEO. Proposals shall require the endorsement of the INHIGEO members present at a subsequent INHIGEO Business Meeting.

5d Individuals, who have a bona fide interest in the work of the Commission, but are not otherwise qualified for membership, may be nominated for approval by the INHIGEO Board as Associate Members. Associate Members cannot hold office, make nominations or participate in ballots, but in other respects have the advantages of INHIGEO membership. Over time, Associate Members are encouraged to qualify for and convert to full INHIGEO membership. Applications for Associate Membership of INHIGEO are especially encouraged from countries with minor scholarly communities.

5e. The INHIGEO Board consists of the President, regional Vice Presidents, Secretary-General, Editor, and Past President, with the Past Secretary-General having an ex officio role. Board membership should circulate within regions and to different countries as much as possible. The major regions, to be represented, when possible, are: North America, Latin America (South America, Central America and the Caribbean), Europe, Asia, Australasia and Oceania, and Africa. Board candidates are proposed by current Board members and elected by INHIGEO Members, subject to their approval by the IUGS Executive Committee and ratification by the IUGS Council. Any INHIGEO Member can also nominate another Member or other Members for membership of the INHIGEO Board when nominations are called by the Secretary-General. If there is more than one nomination for any position then the Secretary-General will organise an email ballot to determine Board membership. The President and other members of the Board remain in office until the next session of the IUGS Council and are eligible for re-election once only (or twice if their initial appointment was made between the years of the installation of IUGS Councils). The maximum term of office is therefore eight years under normal circumstances. Any casual vacancies on the Board will be filled by the residual Board with ratification by the INHIGEO membership at the earliest opportunity.

5f. Prospective members of INHIGEO shall normally be nominated by at least one INHIGEO member and supported by one Member of the INHIGEO Board, or by a national committee of geology or history of science. Nominations will be reviewed by the INHIGEO Board, the decisions of which will be conveyed to the INHIGEO Members present at the subsequent INHIGEO Business Meeting and will be announced in the Commission's subsequent correspondence to Members. Where appropriate, Associate, rather than Full Membership, may be proposed by the Board. If a person wishing to join INHIGEO is not acquainted with any INHIGEO Board Member, a Membership application may be made directly to the Secretary-General who will determine Board support and reach a decision accordingly.

5g INHIGEO membership is ongoing, provided that participation in INHIGEO activities continues. Every four years (during the term of an elected Board) all Members, other than Honorary Senior Members, shall be asked whether they wish to continue their INHIGEO membership. Failure to respond will normally result in cancellation of membership. Activities contrary to the Objectives and Strategies of INHIGEO may also result in termination of INHIGEO membership.

Functions

6. The INHIGEO Board directs the activities of the Commission. The President may delegate his or her powers to one of the Vice Presidents by mutual agreement. The President and the Secretary-General divide the management of organisational and financial matters between themselves.

7. The INHIGEO Board distributes information to Members by means of regular emails and an annual Newsletter in English.

8. INHIGEO Business Meetings are held at the time of the meetings of the International Geological Congress, in order:

a. to discuss reports on the work of INHIGEO and to consider plans for the next term;

b. to finalise Board membership for confirmation by the IUGS Council; and

c. to carry on any other Commission business that may come before the meeting.

9. INHIGEO Business Meetings can also be convened at any other time by decision of the Board. They shall normally be held at the annual INHIGEO conferences.

10. INHIGEO Board Meetings may be convened at any time as decided by the Board. It is anticipated that day-to-day matters will be regularly discussed by the Board, via email correspondence, given the world-wide dispersion of Board Members.

11. At INHIGEO Business Meetings each Member present (but not including Associate Members), including members of the Board, has a vote. A motion is considered passed if it receives a simple majority of the affirmative votes cast at the meeting.

12. The INHIGEO Board is responsible for recommending to the IUGS a recipient for the "Vladimir V. Tikhomirov History of Geology Award" every four years, during the first quarter of the year corresponding to an IGC. At this time, the INHIGEO Board shall communicate its nomination to the IUGS Board, for presentation by the IUGS President during the opening ceremony of the IGC.

Approved by the INHIGEO Board ……19 January 2012
Approved by the IUGS Executive Committee……14 February 2012
Approved by the IUGS Council …… 5 August 2012

Liaison with other IUGS Commissions and Task Groups

INHIGEO is being encouraged by IUGS to liaise with other IUGS Commissions and Task Groups. Several INHIGEO Members are already on the list of "Correspondents" for the newly formed Heritage Stone Task Group so a brief report of its activities follows.

Heritage Stone Group (HSTG)

Up-to-date details of this Task Group can be found at the website www.globalheritagestone.org .

The objective of HSTG is to facilitate formal designation of those natural stone resources that have achieved widespread utilisation and thus have historical importance in human culture. Those stones having international importance are to be designated as a 'Global Heritage Stone Resource' (GHSR). Provision is also made for formal recognition of specified features characterising natural stone resources, where deemed appropriate.

HSTG was formally established with an international Board of Management during the 34th International Geological Congress held in Brisbane, Australia, in August 2012. An inaugural HSTG Business Meeting was also held in Brisbane.

A first HSTG conference is scheduled as this newsletter moves to publication, in association with the European Geosciences Union (EGU) General Assembly, to be held in Vienna, Austria, 7-12 April 2013.

The first "Interim List" of potential GHSR candidates has also already been established. In addition a Check List of prescribed GHSR characteristics is also being circulated amongst HSTG correspondents.

A 2014 HSTG conference is envisaged as a session of the XII IAEG conference to be held in Turin, Italy, 15-18 September 2014. A session entitled: "Building stones & Ornamental rocks: Resource evaluation, technical assessment, heritage designation" has been proposed.

In August 2012, your INHIGEO Secretary-General has also been appointed Secretary-General of this newly formed IUGS Task Group, so interested INHIGEO Members are welcome to contact him about the work of HSTG.

CONFERENCE REPORTS

The INHIGEO Meeting, Brisbane, Australia, 5 to 10 August 2012, preceded by a 'History of Geology Field Trip' from Sydney to Brisbane, 30 July to 4 August 2012.

The 37th INHIGEO Meeting was held in Brisbane, capital of the Australian state of Queensland, in association with the four-yearly International Geological Congress (IGC). Consequently, INHIGEO activities made up a small part of a much larger congress. However this was compensated for by a very diverse program, and it was gratifying to see a number of IGC participants attending the history of geology sessions. An unfortunate timetabling clash of two historical sessions was averted, almost at the last minute, by the determined, but diplomatic efforts of the INHIGEO Secretary-General.

Oral Presentations

A wide range of papers on the history of geology were presented in the following INHIGEO sessions:

Monday afternoon 6 August

Symposium 33.1 Session 1 – *Biographical Studies of Eminent Geologists: A Symposium in Honour of David Branagan (1)*. Chair: Barry Cooper

Presentation of the "Tom Vallance Medal" to Professor David Branagan (See section on Awards, pp. 36-45)

David Oldroyd – Biographical and autobiographical work in studies of the history of geology.
Marianne Klemun – 'Living Fossil' - 'Fossilized life'? - Reflections on biography in the history of science.
Rowland Stephen – The life and geological contributions of eighteenth-century Russian polymath, Mikhail Lomonosov.
Ken Taylor – A peculiarly personal encyclopaedia: what Desmarest's *Géographie physique* tells us about his life.
Ken Bork – Alexandre Brongniart's rich life (1770-1847), and multifaceted contributions to geoscience and ceramic art.
Zoya Bessudnova – Grigory (Gotthelf) Fischer von Waldheim (1771-1853): author of the first scientific works on Russian geology and paleontology.
Sally Newcomb – The amazing Mr Kirwan (1733-1812).

Symposium 33.1 Session 2 – *Biographical Studies of Eminent Geologists: A Symposium in Honour of David Branagan (2)* Chair: David Oldroyd

Keynote Presentation: Léo F. Laporte – A novice's biography of George G. Simpson (1902-1984), paleontologist, evolutionist.
John Jell – Dorothy Hill, A.C., C.B.E., FRS, FAA – Brisbane's distinguished geologist.
Wolf Mayer – William Noel Benson: His geological work in Australia and New Zealand in the first half of the 20th century.
Barry Cooper – Ralph Tate (1840-1901): Pioneering Australian geologist.
Susan Turner – The Woodward factor: Arthur Smith Woodward and geology in Australia.
Francesco Gerali – Science and life of a geologist through his papers: the personal archive of Giovanni Capellini.
Tatiana Ivanova – Vasiliy Mikhailovich Severgin: a notable Russian mineralogist.

Monday evening 6 August

Presentation of the "Vladimir V. Tikhomirov History of Geology Award" to Professor Hugh Torrens. (See section on Awards, pp. 36-40)

Tuesday morning, 7 August

Symposium 33.1 – *Biographical Studies of Eminent Geologists: A Symposium in Honour of David Branagan (3)* Chair: Ken Taylor

Johannes Mattes – Alexander von Mörk and Poldi Fuhrich – The conception of heroes in cave exploration in the early 20th century.
Pedro Gonçalves – Carl Gustav Hedberg (1774-1827) and the beginnings of metallurgy of iron in Brazil.
Teresa Mota – 'A time for engineers and a time for geologists': scientific lives and different pathways in the history of Portuguese geology.
Patricia Vickers-Rich – Boris Sergeevich Sokolov: Russian Academician, geoscientist, naturalist, philosopher, historian and humanitarian in the 20th and 21st centuries.

Symposium 33.4 – *Geology in Tropical Regions*
Chair: Ken Taylor

Keynote presentation: Silvia Figueirôa – Problems and achievements of geology in tropical regions: a viewpoint from Brazil.
Peter Downes – Encounters with Charles Hartt, Louis Agassiz, and the diamonds of Bahia: the geological activities of the Reverend Charles Grenfell Nicolay in Brazil, 1858–1869. (Invited)
Luz F. Azuela – Prospecting Imperial Mexico (1864-1867).
Bernie Joyce – From 1800 to 1900: Explorers by sea and land and the growth in knowledge of the geology of Australia's tropical Regions. (Invited)

Tuesday afternoon 7 August

Symposium 33.3 – *Achievements in 20th-Century Geology*
Chair: Carol Bacon

David Branagan – George Davenport Osborne and the Hunter Thrust.
Leonid Kolbantsev – The first international meeting of geologists in Russia: Field excursions and feedback from participants at the 7th IGC, St Petersburg, on its 115th anniversary.
Irena Malakhova – The failed mission of Dmitry Mushketov: to the 75th anniversary of the 17th IGC (Moscow, 1937).
Keynote presentation: Ian McDougall – Retrospective on the plate tectonic revolution focusing on K/Ar dating, linear volcanic island chains and the geomagnetic polarity time scale.
Gennadiy Trifonov – Scientific discoveries and periodization of the history of geology.
Jiuchen Zhang – The 'mass movement' for earthquake prediction during the period of the Chinese Cultural Revolution.

Symposium 33.5 – *Geologists, Resource Exploration and Development*
Chair Ken McQueen

Keynote presentation: Tony Hope – An historical account of selected Queensland, New South Wales and Papua New Guinea mineral discoveries.
Maggie Hayes – Rocks in their heads.
Paul Kay – Minerals and energy: supporting economic growth in Australia and the region.
Donald Perkin – Post-war revolution in mineral exploration activity and the economic remaking of Australia.
Don Poynton – How misconceptions, the space race and perseverance led to the discovery of 27 Tcf of gas on Australia's northwest shelf forty years ago.
Mike Johnston – Dunite, rodingite, hydrogrossular, awaruite and wairauite - rocks and minerals named from the Dun Mountain Ophiolite Belt, New Zealand.

Tuesday evening – INHIGEO BUSINESS MEETING (see pp. 11-17)

Wednesday afternoon 8 August

Symposium 33.2 – *The early history of Continental Drift and associated subjects*
Chair David Branagan

Keynote presentation: Allan Krill – Leading textbooks built the consensus against Wegener's continental drift.
Silvia Figueirôa – Debating continental drift in Brazil: the ideas of Alberto Betim Paes Leme (1883– 1938).
Toshihiro Yamada – Quakes and queries: two Japanese geologists/geographers constructing geotectonic theories 1891–1929.
Chris Turney – 1912: The year the world discovered Antarctica.

Theme 33 – *History of Geosciences Posters*

Patricia Vickers-Rich – The Artist and the Scientists: Imaging the Past.
Kathleen Histon – Arthur Humphreys Foord (1844-1933): the story of an eminent palaeontologist without biography.
Randall Miller – Geosciences in Canada and the Natural History Society of New Brunswick (1862–1932).
Leonid Kolbantsev – Geological maps of Russia in the XIX century.

In addition to the above, there was a large well prepared display of posters on Australian topics relevant to the history of geology, in the preparation of which INHIGEO member Sue Turner of Brisbane took a leading role. There were posters from the Queensland, New South Wales and South Australian geological surveys which gave information about early geologists and outlined the progress of geological mapping in these parts of Australia. Other posters commemorated Australian women geologists and the history of fossil collecting in Queensland, gave details of Australian links with IUGS and featured the

Minerals Heritage Museum of the Mineralogical Society of Queensland. The Geological Society of Australia had prepared posters which credited the outstanding contributions to the understanding of Australian geology made by geologists such as T. W. Edgeworth David, Harold Raggatt and Germaine Joplin. A display of posters on Antarctica highlighted the pioneering work of geologists such as H. T. Ferrar from New Zealand.

Pre-Congress Field Trip

The field trip was introduced with an ice breaker meal hosted by David and Gillian Branagan at their delightful late Victorian house at Willoughby, on the north side of Sydney Harbour. This function was spread over two nights, with one half of the participants gathering on the Saturday evening and the remainder on the following night. The fieldtrip proper started on Monday 30th July, when all 21 participants assembled at the elegant Sydney Central Railway Station to board the train that followed the scenic route from Sydney to Newcastle. Initially heading inland across the Sydney Basin, the distant Blue Mountains were glimpsed from the Cumberland Plain. The plain itself is underlain by weathered Triassic Ashfield Shale that was extensively quarried for brick kilns before intensive urbanisation. After crossing the Parramatta River, a large tidal arm of Sydney Harbour, the train leisurely wound its way through undulating countryside developed on the Triassic Hawkesbury Sandstone. This is likely to be the only *in situ* rock unit, with its spectacular cross bedding, to be seen on a visit to Sydney. Those who did not wish to look at the numerous sandstone outcrops covered in gum trees, could read a voluminous fieldtrip guide compiled by David Branagan, which was crammed with information, maps, sketches and photographs.

A relatively rapid descent brought us to the Hawkesbury River, another river valley drowned by the sea, and the bridging of which, first for trains in 1889 and much later for road traffic, had provided numerous engineering challenges. North of the Hawkesbury the country presented a mixture of coastal and mountain scenery, the latter made up of the less sandy Narrabean Group, of Early Triassic age, lying beneath the Hawkesbury Sandstone. The final leg of the train trip was to the Hunter River Valley and the major coal port of Newcastle, some 110 km along the coast from Sydney. Alighting from the train, we transferred into a bus driven up from Sydney by Dave Mitchell who was assisted by Graham Campbell, who would drive us over the next five days north to Brisbane.

A short ride brought us to the coast at Flagstaff Hill and a stroll to Nobby's Head, formerly an island in the early days of European settlement but now connected to Australia proper by a sand tombolo reinforced with blocks dominantly of Waratah Sandstone from the Newcastle Coal Measures. The island and, after lunch, the nearby cliffs cut by the Tasman Sea, adjacent to Newcastle, allowed an inspection of a convenient and readily accessible sequence through the Newcastle Coal Measures, and of the site of the earliest coal mining in Australia. At the toe of the cliffs participants, with varying degrees of success, had to dodge small waves whipped up by a keen wind off the sea. Despite this minor inconvenience, the coastal exposures gave a good insight into the coal measure geology and afforded us the privilege of following in the footsteps of a long line of famous Australian geologists, including the Reverend William Branwhite Clarke, Ludwig Leichhardt, William Keene and T. W. Edgeworth David. Between visiting two coastal sections we had a brief interlude at the Strzelecki Lookout, which provided a good view over Newcastle. Some of the buildings in the older part of the town, in the vicinity of the lookout, are suffering structural stress as a result of ground subsidence due to past mining. If this was not enough, in 1989 the area experienced a major earthquake of magnitude 5.6 on the Richter scale, with its epicentre only 14 km below the surface. This resulted in much damage to buildings and caused the deaths of 13 of the town's inhabitants.

It was now time to move inland, up the Hunter Valley, passing former heavy industrial sites which owed their existence to the ready availability of coal. Although this industry has all but vanished, there was still ample evidence of the importance of coal to Newcastle and to the Australian economy. The journey was broken by a stop at extensive gardens, with plots and groves of all sorts of different species of plants from cacti to forest trees. At Raymond Terrace, settled because the area is located on Permian sediments, on slightly higher ground above the flood-prone Quaternary alluvium of the Hunter Valley, we viewed a church that has a stained glass window as a memorial to William Keene. We were also told how Keene had married into an important grape-growing family but, being a geologist, he was not fully accepted by his in-laws. From here we travelled northwest to see the Hunter Thrust Fault, with Carboniferous rocks thrust over Permian sediments, although in places the contact is apparently a conformable one. Of great interest, in Late Carbonifreous to Early Permian rocks, were folded varves of the Seaham Formation, still well exposed in the Seaham quarry, the first locality where glacial deposits were recognised in New South Wales. The quarry has since 1925 been a scientific site. Following the New England Highway west from Maitland we arrived at our night quarters, the Monte Pio Motel at Rutherford. This complex of buildings had been a religious school.

The excursion leader, David Branagan, introduces his captive audience to the geology of the New England region

The next day was initially cool and partly cloudy, although being well inland the easterly wind had lost its bite. We were soon in the South Maitland Coalfield and in the heart of Edgeworth David territory with its coal seams, including the Greta Seam. Our trip leader, having written the definitive work on David's career, provided us with much interesting information about the life of this outstanding geologist's work in the important South Maitland Coalfield in 1886. David was not one to let personal matters interfere with work, and apparently he and his wife Cara spent their honeymoon camped in the Greta Coalfield. After a stop to take in the surrounding countryside, a short deviation along a country road near Scone brought us to an *in situ* tree stump in the coal measures within the Permian Singleton Supergroup. The stump had been uncovered when the road was cut into a bank bounding the broad floodplain of the Kingdon Ponds Stream.
Then it was on to Wingen and the nearby Burning Mountain, initially interpreted as a volcano in 1828. If this had been correct it would have been the only active vent then known in Australia. Within a few years Wingen, through the independent work of C. P. N Wilson and T. L. Mitchell, was shown to be a burning seam of high volatile coal within the Greta Coal Measures. Although its ash content is low, the seam contains an abundance of marcasite, which on burning produces a sulphurous smell consistent with the early idea that the mountain was a volcano. The seam dips steeply northwest and rests on basalt. From the road on the valley floor it was a pleasant 30-minute walk along a graded track passing through open forest to the summit of the mountain. Along the way areas of burnt ground were observed and on the summit there were areas of collapsed ground from which whiffs of smoke emerged. Because of the easterly breeze the smoke was being dissipated from the northwest side of the mountain rather than the summit 'crater'.

Continuing on in a northwest direction we left the Hunter Valley catchment and crossed over the Liverpool Range, composed of Tertiary basalt flows and of intrusives into the Gunnedah Basin sedimentary rocks. These form part of the catchment of the huge Darling-Murray rivers system, which discharges into the South Australian Bight, east of Adelaide. The basin was formerly typical Australian grazing land but is now the scene of more versatile farming. It is also geologically part of the Sydney Basin, and contains huge coal reserves. Although mining in the basin has been insignificant, it is somewhat controversially being assessed for opencasting as well as a source of gas by fracking. However, the main reason for the trip extending into the basin was to observe the Mooki Thrust, a northwesterly continuation of the Hunter Thrust, which was recognised by W. N. Benson in 1917 and named by S. W. Carey eighteen years later. The Mooki Thrust marks the southwestern margin of the New England Orogen, which stretches from northern New South Wales into southern Queensland, and comprises a complex of Devonian to Permian rocks of various types

and structural settings. It is also a major mineral province. To become better acquainted with the thrust and the Permian rocks the route turned east through The Gap which crosses various Permo-Carboniferous rock units at right angles, ranging from varves to conglomerate, along with ignimbrite and basalt. Emerging from The Gap it was a drive over country roads southeast to the small historic gold mining town of Nundle and a satisfying pub meal in the Peel Inn.

In the morning, after a frosty start, the first objective was to take the road east of the town to Hanging Rock Lookout, but halfway to it there was a stop to examine a spilitic basalt outcrop, one of a number in the area which Tom Vallance had examined over several decades, and which culminated in his pioneering papers on the origin of spilite. Hanging Rock provided an excellent panorama westwards over Nundle, nestled in the Peel Valley, to Tamworth trough to The Gap in the distance. Returning to the Peel Valley, we followed the river, whose course is controlled by the Peel Fault, north towards Tamworth. On the banks of the river there was ample evidence of past alluvial gold mining.

The Peel Fault is a major structure that extends north-south for some 360 km, and separates gently deformed Devonian to Permian sedimentary rocks of the Tamworth Belt in the west from more strongly deformed Ordovician to Silurian sedimentary rocks and Triassic granites, of the New England Orogen. The first stop was to view serpentinite exposed in a road cutting, which had been studied by Benson as part of a major mapping exercise of the Nundle area. Although then interpreted as an intrusive rock, with the advent of Plate Tectonics it is now considered to be part of a dismembered ophiolite belt, perhaps originally Cambrian, but emplaced in the Permian. Further downstream at the Chaffey Dam, a 54 m rock-fill structure completed in 1979, spectacularly folded banded red, white and rarely black cherts were impressively exposed in cuttings. The relationship of the Late Silurian to Middle Devonian cherts to the surrounding rocks is uncertain.

Participants enjoy the winter sunshine and some spectacular views

On reaching Tamworth, lunch was at the scenic Oxley Lookout situated east of the city and carved out of Devonian dolerite. Named for John Oxley who explored the area in 1818, it provided an overview of the Tamworth Trough. In the afternoon the drive northeast to Armidale, in the heart of New England, was interspersed with a stop at the Moonbi Lookout where large rounded tors of Late Permian to Early Triassic granite provide a convenient lookout over the country we had just traversed from Tamworth. Granites in New England were studied by Bruce W. Chappell and Allan J. R. White who devised a granite classification that is primarily based on whether the granite was derived from igneous rocks (I-type) or from the melting of quartzo-felspathic sediments (S-type). The Moonbi Granite represents coarse I-type granite in the classification. Reaching Armidale in mid-afternoon, there was ample time to drive around the campus of the University of New England and visit the Aboriginal Art Centre and the adjacent New England Regional Art Museum.

A happy band of ladies on the Sydney to Brisbane excursion

The objective on the fourth day of the trip was a circuit, based on Armidale, around the southeastern part of the New England Plateau, particularly its eastern boundary, the Great Escarpment, and to learn of the concepts of landscape evolution propounded by Ernest Clayton Andrews. Much influenced by the thinking of W. M. Davis and G. K. Gilbert in the United States in the early 20th century, Andrews proposed that there had been a series of peneplanations and uplifts that had culminated in the New England Plateau. However, subsequent work has shown that the evolution of the landscape was a lot more complex than this and also involved a considerably longer period of geological time than Andrews and others had envisaged.

The first stop, after another frosty start, was at the Wollomombi and Chandler Falls where the rivers of the same names, separated by only a few hundred metres, plunge over the escarpment, here composed of Early Permian folded slates forming deposits in the Barnard Basin. At 220 m above sea level, the Wollomombi Falls are the second highest in Australia. Similar rocks were again seen at the nearby Chandler River Gorge, downstream of the Wollomombi River junction and were viewed from the escarpment at Edgars Lookout. Then it was on to the 1600 m high Point Lookout to look at a deeply eroded Pliocene volcano that gave rise to basaltic flows. Some of the flows were observed in Kangaroo Hill Creek, where we also inspected a state government run fish hatchery, and at the two Ebor Falls. At the Ebor Falls the basalt shows spectacularl columnar jointing. On the return leg to Armidale through the appropriately named Rockville there was an abundance of tors developed in the Late Triassic Round Mountain Granite, of leuco-adamellite composition. In the evening at dinner we were treated to a musical interlude by David Branagan's son Martin, a lecturer at the University of New England, playing the didgeridoo. As well as playing, Martin also explained some of the associated Aboriginal traditions.

On the second to last day we were again heading north, initially along the New England Highway, and although there was a report of snow blocking the road, this had all but melted by the time we crossed the highest points on the road in brilliant sunshine. The first stop was at Glen Innes and the standing stones comprising a variety of different granitic rocks. Unlike the tors seen so far, these were man-made obelisks, arranged as a southern variety of Stonehenge and other northern stone circles, and are a monument to Australia's Celtic pioneers. Deviating slightly westward from the New England Highway at Glen Innes, a 41 km drive brought us to the small town of Emmaville. Centred in a former major tin-mining district, its main attraction is its marvellous museum containing a large and varied geological collection, including many fine examples of local minerals and gemstones. Nearby, the abandoned Ottery Mine at Tent Hill was visited. It opened as a cassiterite mine about 1880, about a decade after the discovery of alluvial cassiterite deposits at Emmaville. From about 1920 it was primarily a source of arsenic, which was extensively used as a sheep and cattle dip to control ticks and other pests. The various shafts, open cuts, stopes and treatment plant are well preserved, although the fine film of arsenic over everything was a deterrent to fossicking.

Returning to the New England Highway by way of the mining district of Torrington we passed Thunderbolt's Lookout, the reputed vantage point of a local bushranger who referred to himself as Captain

Thunderbolt. Once back on the highway it was a quick run to the town of Tenterfield. It was here we experienced more Australian culture by dining in the restaurant of the local bowling club. Being a Friday night the club was literally humming. Tenterfield, typical of the inland towns, has a marvellous collection of late-Victorian commercial and residential buildings that handsomely display the many fine building stones Australia is blessed with. However, the town's main claim to fame is as the place where, in 1889, federation of the Australian colonies into the Commonwealth of Australia was first publicly proposed. Federation came to pass in 1901.

The final day took us from Tenterfield to Brisbane, with the first stop at Wallangarra on the New South Wales-Queensland border. Formerly an important railway station, where the gauge between the two states changed, this is now less apparent as the southerners have closed their section of the railway. Then it was through low rolling country of the Clarence-Moreton Basin and the adjacent Surat Basin, with a brief stop at Warwick and its Triassic sandstone buildings. Sedimentary rocks gave way to low ridges of basalt in between fertile flats extensively used for vegetable cultivation. At Toowomba, the largest inland city in Australia, the first stop was at the world-renowned Japanese gardens, a joint venture between the local council and the University of Southern Queensland. Then we continued on to the Picnic Point Lookout on a Tertiary basalt plateau on the edge of the city, with views into the Lockyer Valley dropping steeply eastwards. As well as a convenient lunch stop, the lookout was an ideal setting for the INHIGEO Secretary-General to thank all those involved in the field trip and in the INHIGEO part of the forthcoming International Geological Congress. David Branagan was thanked for the tremendous amount of work he had done in organising the fieldtrip, compiling the trip guide and providing a detailed commentary on the geology, the geologists and explorers, and on the history and natural history of New England and the great coal basins to the south. Contributing to the success of the trip was input from Greg McNally, Bernie Joyce and David Oldroyd. This was followed with thanks to the work of Carol Bacon as convenor of one of the IGC sessions, and Dave Mitchell and Graham Campbell for their excellent driving. Barry's remarks were endorsed by the incoming president of INHIGEO, Ken Taylor.

After lunch it was a steep descent down the Lockyer Valley, the scene of devastating floods and debris flows, a little over a year earlier. Quarries and outcrops of the Triassic Helidon Sandstone, a much favoured building stone, were evident. The final stop was at Denmark Hill in Ipswich, now part of greater Brisbane. The importance of this site was the discovery of fossil insects of Triassic age. These were studied by Robin J. Tilyard, who later went on to have a distinguished career in entomology at the Cawthron Institute, in my home town of Nelson. An added attraction for the visitors to Australia was a koala bear in the trees near the Interpretation Centre. The final part of the trip turned into a crawl as the bus got caught up in a traffic jam arising from a bridge closure, by fans leaving a major rugby league match and, at the Brisbane Convention and Exhibition Centre, the venue for IGC, by a multitude of people attending the Sexpo Exhibition 2012. This led to the abandoning of the bus some distance from the centre with participants taking a leisurely walk to their accommodation in Brisbane.

Despite many delegates to IGC being hit by flu, it was undoubtedly a successful meeting for historians of geology as testified by a wide range of informative and excellent papers. The pre-Congress field trip was well run, blessed with fine weather, and proved to be a great introduction to eastern Australia from the Sydney Basin to the southern New England Orogen. Those attending both the historical geology sessions and the field trip owe a huge debt of gratitude to David Branagan, Greg McNally, Bernie Joyce, David Oldroyd, Carol Bacon, Barry Cooper, Ken McQueen, Graham Campbell and Dave Mitchell. For those who would like more information on the area visited during the field trip, David Branagan is revising the tour guide with plans to have it more readily available. It will be a great reference book for geologists and historians.

Mike Johnston, Nelson (New Zealand)

7th International Conference on Mineralogy and Museums (M&M7) Dresden 2012, Germany

Since 1988, the International Conference on Mineralogy and Museums has been held every four years under the patronage of the International Mineralogical Association (IMA) and the Commission on Museums (CM). Curators and employees of mineralogical collections and museums as well as scientists and teachers at colleges, universities and institutes attend these meetings to exchange experiences.

The 7th conference was held at the "Deutsches Hygiene-Museum" in Dresden, Germany, from August 27-29, 2012. More than 140 participants from about 20 countries helped to make it a success. The combination of 44 talks, 47 posters and a bus trip to Freiberg during the meeting provided a good balance between theory and practice. The talks and posters addressed four different themes: Museums and Research,

Museums and History, Museums and Collection Management and Museums and Society. At session two, Museums and History, 12 talks and 20 posters were presented on the history of collecting minerals and mineralogical collections. The keynote lecture of this session was given by the Hungarian INHIGEO member Gábor Papp and was titled "From palaces to museums: Pathways of aristocratic mineral collections to public institutions in Hungary during the 18th and 19th centuries".

Abstracts of the talks are published in the conference proceedings: Thalheim, K. and Schlüter, J. (comp.), 2012. 7th International Conference on Mineralogy and Museums, August 27-29, 2012, Dresden. Program Abstracts, Field trips. *Schriften des Museums für Mineralogie und Geologie Dresden (Senckenberg)*, 18: 200 p., Dresden. (ISBN 978-3-910006-47-8).

At the welcoming party on the evening of 26 August, at the Museum of Mineralogy and Geology of the Senckenberg Natural History Collections, Dresden, the conference delegates were treated to a "behind the scenes-tour" of the important mineralogical-geological collections held there.

In Freiberg, the participants had a choice between three trips in the morning – to the mine "Reiche Zeche" or to the mineralogical collection of the TU Bergakademie Freiberg in combination with a visit to the St. Marien Cathedral or, alternatively, to the brand new mineralogical collection at the Krüger-Haus in combination with visiting the St. Marien Cathedral. In the afternoon everyone gathered to visit Schloss Freudenstein, with its impressive mineral exhibit "terra mineralia". The day ended with a typical Saxon buffet at a local Dresden restaurant.

Pre-and post-Conference field trips through Germany framed the meeting, with a northern trip led by Jochen Schlüter, starting in Hamburg, and a southern trip led by Birgit Kreher-Hartmann, which departed from Jena.

The conference chair from the Senckenberg Museum, members of the working group "Mineralogical Museums and Collections" of the German Mineralogical Society (DMG) and Conventus Congress Management look back with pleasure to the conference and hope that every participant enjoyed it as much as they did. Photographic impressions of the conference can be seen at http://www.conventus.de/mm7.

Klaus Thalheim, Dresden, Germany (Conference Chair)

Participants at the M&M7 Conference held at Dresden, Germany, 27-29 August 2012.

Historical perspectives on Antarctica
XXXII Open Science Conference of the Scientific Committee on Antarctic Research
Portland (Oregon, USA), 16-19 July 2012.

The XXXII Open Science Conference of the Scientific Committee on Antarctic Research (SCAROSC) on the theme "Antarctic Science and Policy Advice in a Changing World", took place in Portland (Oregon, USA) from 16-19 July 2012. During this meeting, attended by about 900 participants, the SCAR History Expert Group organised two sessions on 17 July 2012. Session 37, titled "Historical views on Gateways to Antarctica", focused on the significance of port cities – the so-called "gateways" – in the history of the Antarctic continent and that of the rest of the world. The session explored Antarctic logistics, science, and rescue expeditions, and asked questions about the role of "gatekeepers" in these histories. It also paid particular attention to the history of exchanges between Antarctic expeditions and local communities.

The keynote lecture, on the "Third German Antarctic Expedition (1938/39)", was given by Cornelia Lüdecke (Germany) and Colin Summerhayes (United Kingdom) and described the meteorological, oceanographic and geographical results which guided later expeditions to Dronning Maud Land. Adrian Howkins (USA) explained how the classroom can be used as a "Gateway to Antarctica" in the past and present, especially in interdisciplinary education focussing on the environment. Jason Kendall Moore (Chile) used Antarctic theatre in the classroom to describe the political relations between Chile, Great Britain and the USA by comparing his own play "Tierra de San Martin" to Peter Greenaway's film "The Cook, the Thief, his Wife and her Lover". Aant Elzinga (Sweden) examined Punta Arenas in Chile and Ushaia in Argentina through the eyes of some early polar explorers, and showed how these two settlements in southern Patagonia changed from colonial outposts to important harbour cities. Additionally, Rudolf Greku (Russian Federation) displayed a poster about three generations of his family and their work in Antarctica (1955-2012).

Session 36, also sponsored by the History Expert Group, was titled "Voicing Silences in Antarctic History" and addressed historical "silences" as opportunities to ask new questions in addition to simply adding new facts. The aim was to showcase the increasingly diverse – and sophisticated – nature of historical scholarship on the Antarctic region. These included new methodological approaches like material culture, labour history, and environmental history in addition to new contributions in fields such as the history of science, Cold War geopolitics, and the history of European imperialism. Papers addressed various time periods and national contexts or employed perspectives from cognate disciplines such as archaeology or science studies.

The session began with the inaugural Lewander Lecture, henceforth an annual event in memory of Lisbeth Lewander (Sweden), a founding member of the Expert Group, who passed away early this year. The lecture aims to showcase the value of dealing with polar history from diverse points of view, as well as the importance of sharing ideas and experiences with the next generation of scholars in order to widen involvement in the field, qualities that Lisbeth embodied in both her scholarship and her mentoring of younger colleagues. The lecture was presented by Heidi Prozesky and Lize-Marié van der Watt (both South Africa) and was titled "The triple burden of masculinity: A gender analysis of South African Antarctic and sub-Antarctic science, c. 1961-2011", and drew on bibliometric analysis as well as more traditional historical methods to examine the continued gender imbalance in Antarctic science.

Following the Lewander Lecture, Andrés Zarankin (Brazil) gave a keynote presentation on the "in-corporation" of the landscape as a phenomenological approach to the archaeology of the South Shetland Islands, and the power of material culture to reveal the unwritten past. Joanna Rae and Ellen Bazeley-White (United Kingdom) introduced the British Antarctic Oral History Project (BAOHP), run by the British Antarctic Survey, a new collection of interviews and recollections that promise to augment existing records. Peder Roberts (France) considered the question of who discovered Antarctica within the context of personal and international rivalries during the early twentieth century, while arguing that the question itself has little chance of being incontrovertibly answered. Lize-Marié van der Watt (South Africa) concluded the session by considering the "White Continent" within the context of the racialization of Antarctica in South Africa (c. 1955 – 2005).

During the following poster session, Berry Lyons and Adrian Howkins (both USA) displayed Griffith Taylor's "missing lake" as an example of how history can aid science in the McMurdo Dry Valleys. Ximena Senatore (Argentina) explored how archaeology can give voices to the sealers and whalers who worked in the Antarctic during the early nineteenth century and who are otherwise underrepresented in documentary records. Finally, Dora Scott (South Africa) presented the Antarctic Legacy Project, a digital platform for South African Antarctic history.

The second part of the session began with a presentation from David Walton (United Kingdom) on the history of SCAR and its influence on the Antarctic Treaty during the past half-century. Brandon Luedtke (USA) discussed changing perceptions of Antarctic wildlife, showing how penguins were pliable symbols of more than the mythical pristine Antarctic landscape and indicator of global change. Consuelo León Wöppke (Chile) revealed the history of the personnel of the first Chilean Antarctic expeditions to the Base O'Higgins in 1948, "unsung heroes" brought to light from army archives that included accounts of individuals without scientific education. Finally, Alessandro Antonello (Australia) discussed the scientific and environmental diplomacy of Antarctica's marine living resources and ecosystem in the period 1968-1980, using the negotiations of CCAMLR as case study of the relationship of scientific ideas with international environmental protection and management.

The history sessions of the SCAR OSC 2012 were the best-attended in the Group's history, with audiences of up to 70 people and 19 presenters from eleven countries.

Under the topic "Antarctic Perspectives - Connecting the Arts to Science" the music, art, and story event "Tales in Science" entertained an audience at the Mission Theatre in Portland, on Monday 16 July 2012. Steve Parker (piano) composed and performed "Memories of the White Planet", Richard Alley (guitar) sang an Antarctic glacier song, while Julianne Stafford (accordion), Allan Cooper (violin) and Larry Schemel (guitar) presented "Magic and Music" in the history of Antarctic collaboration. Then Cornelia Lüdecke showed several historical pictures to explain the background of two funny songs from the first German South Polar Expedition (1901-1903), which were performed by J. Stafford and L. Schemel and her (viola).The keynote presentation of the session on "Antarctic Communication and the Arts" also included a life performance by Cooper, Lüdecke, and Stafford. The evening in the Mission Theatre continued with "Tales from the Weddell Sea", told by Ian Dalziel, Ed Stump's account of "The Aesthetics of Fieldwork", and John Berhrendt's souvenirs of his time being an innocent on the ice during the period of Antarctic exploration 1957-62. The work of earliest photographs was shown by Joan Booth. The introduction of Mitsuo Fukuchi's traditional Japanese Gyotaku art of printing demonstrated the evolution of Antarctic fishes, while Christine Sidoway and Elle Emery used printmaking techniques to express glacial and volcanic processes of West Antarctica's "Rim of Fire". In the end the whole audiences joined Eugene Domack in the song "Imagine - A Wonderful World".

The aim of this evening was to introduce a different audience to polar expeditions and polar sciences. The enthusiastic applause at the end indicated the great success of this concept, which should be continued in the future.

Cornelia Lüdecke, Munich (Germany) (Chair SCAR History Expert Group)

Annual Meeting of the Austrian Working Group on the History of Earth Sciences, Vienna, 14 December 2012

The conference was held in the National Defence Academy of Vienna and had as its theme: "Geology and the Military: From its beginnings to the MilGeo Service". The talks presented explored the application of geology to military use. In addition to biographical lectures on geologists who had participated in the last two wars, talks were presented on military geology, cartography and the geological mapping of theatres of wars. Geological knowledge was particularly important in alpine environments during World War I, where the enemy hid behind inaccessible rocks, and where military action often relied on the use of tunnels dug into the rock, a method of warfare that became known as the "mine war". This war proved to be a milestone in the use of applied geology to war strategy. Although this research topic is not central to everyday geological work, it was chosen as the conference theme in order to attract and to increase interest in the part played by the application of geology to military history.

The next meeting of the Austrian Working Group will be held in the autumn of 2013, when the theme will be Geology and Education.

Volume 5 of the series "Scripta geo-historica", edited by members of the working group, is available now.

The publication "Physicians and their contribution to the early history of Earth Sciences in Austria" presented by members of the Working Group at the International Conference "The History of Geology and Medicine" November 2011, in London is now available online.

Daniela Angetter, Vienna (Austria)

Third Chilean Symposium on the History of Geology

This symposium was held on August 8, 2012, in conjunction with the XIII Chilean Geological Congress in Antofagasta, and was organized by INHIGEO members Francisco Hervé and Reynaldo Charrier. Five talks were given preceded by an invited talk entitled "*Chile, país Minero*" (Chile: The Mining Country) by historian Rafael Sagredo, from the Catholic University, Santiago de Chile.

The following talks were presented at the symposium:

Álida Pérez Fodich - "*Reconocimiento de los personajes de la geología de Chile, a través de la Mineralogía*" (Hommage through Mineralogy to personalities in the Geology of Chile).

C. A. Ramírez Salvo and Francisco Hervé - "*Antecedentes históricos acerca del tiempo geológico*" (Historical evidence about time in Geology).

Reynaldo Charrier - "*La noción de Tiempo Geológico y su influencia en el desarrollo de la Teoría de la Evolución*" (The notion of geological time and its influence on the development of the Theory of Evolution).

Marco Cisternas - "*El terremoto de Chile central de 1647 como un evento intra-placa*" (The 1647 earthquake in central Chile: A posible intraplate event).

Francisco Camus, Reynaldo Charrier, Francisco Hervé y Marcos Zentilli. "*Legado de Roberto Araya A. (1939-1976): un geólogo inusual*" (The legacy of Roberto Araya (1939-1976): An unusual geologist).

The Geological Society of Chile will organize the Fourth Chilean Symposium on the History of Geology.

Reynaldo Charrier and Francisco Hervé, Santiago (Chile)

FUTURE INHIGEO CONFERENCES

39th INHIGEO SYMPOSIUM - Asilomar Conference Grounds, Pacific Grove, California, USA
Sunday 6 July (p.m.) – Thursday 10 July, 2014

This INHIGEO conference will be sponsored jointly by the Geological Society of America (GSA). Together with American members of INHIGEO, the GSA Division for the History and Philosophy of Geology is a partner in planning the meeting.

We are pleased to invite all interested participants to attend the 2014 INHIGEO conference. The meeting locality, the Asilomar Conference Grounds, is a noted meeting facility beautifully situated by the Pacific Ocean on the Monterey Peninsula. It provides an attractive and congenial setting for extensive interaction among meeting participants, with meals taken in common at the center's dining hall. www.visitasilomar.com .

The First Circular has already been distributed by email to members announcing the main contours of the meeting and its associated excursions, asking members to complete an 'Expressions of interest' form. Please return this form at your convenience, preferably by 31 May 2013, to: ktaylor@ou.edu .

The information below includes details on the conference themes, and the likely cost of lodging (meals package included) at Asilomar. Costs for the mid-meeting excursion options, and the post-meeting field trip, are yet to be determined.

Conference themes:

Doing the History of the Earth Sciences: What, Why, and How?

California in the History of the Earth Sciences

In 1994 the Geological Society of America hosted the Penrose Conference, "*From the Inside and the Outside: Interdisciplinary Perspectives on the History of the Earth Sciences.*" The focus of that meeting was on how practicing scientists ('insiders') and professional historians ('outsiders') approached research in our field.

Twenty years later, it is fitting to ask where we stand presently on fundamental questions about scholarly inquiry into the development of the geosciences.

What is properly encompassed within historical studies of the earth sciences? How is the domain of investigation defined? Where do its boundaries lie?

Why should the history of the earth sciences be investigated and analyzed? What purposes are served by such historical examination? Who should care?

How should research on history of the geosciences be conducted? How should the results be formulated? How can constructive dialogue between scientists and historians be promoted? How can our research be better shared with colleagues and with the public at large?

Since the meeting will be held in California, along with the conference's principal theme a second theme will be "California's Place in the History of the Earth Sciences."

Some useful information about Asilomar, and arrangements for the 2014 meeting

The Asilomar Conference facility has been the site of many notable conferences over a period of several decades. More information is available at www.visitasilomar.com

The facility is owned by the California State Parks system, which contracts with the Aramark Corporation in running the operation. [http://www.parks.ca.gov/?page_id=566]

For highway travellers, Asilomar is located approximately 120 miles (190 km) south of the city of San Francisco, and about 330 miles (530 km) north of Los Angeles. Air travellers can reach Asilomar via the nearby Monterey Regional Airport (MRY) www.montereyairport.com , with service from San Francisco, Los Angeles, San Diego, Las Vegas, Phoenix, and Denver. The much larger international airports of San Francisco (SFO), about 110 miles away (177 km), and San Jose (SJC), 80 miles distant (130 km) are linked by direct shuttle (Monterey Airbus, www.montereyairbus.com .

Currently advertised driving times and fares for these airport shuttles, with delivery at Asilomar: From SFO, 2 hours 45 minutes; $60 per person; from SJC, 2 hours, $50 per person. (These are rates for online bookings, which evidently are $5 cheaper than reservations not made online.)

The meeting sessions and mid-meeting excursions will occupy four days: Monday 7 July 2014 through Thursday 10 July 2014. We plan to have the mid-meeting excursions on Wednesday 9 July 2014. The meeting will open with a reception and dinner Sunday evening, 6 July 2014.

Asilomar lodging arrangements include three meals per day in the Crocker Dining Hall. Bookings will be available through the Asilomar Housing Bureau starting six months prior to the meeting (i.e. in early January 2014). Reservations will require a deposit of the charge for one night's accommodation, plus a one-time housing bureau fee of $20 per person. Participants should plan to arrive the afternoon of 6 July, with departure the 11th. Dinner on the day of arrival is the first of the three daily meals included in a nightly lodging package.

Based on daily rates for 2013, with assurances that 2014 rates will not increase by more than 5 percent, we anticipate the combined lodging-and-meals daily costs to be approximately as follows: Single occupancy — $265; double occupancy — $170 per person; youth (age 3 to 12, in a shared room) — $97. (There is also the possibility of triple and quad accommodation, at the daily rates of about $151 and $135 per person, respectively.) These rates are inclusive of all fees and taxes. It is important to remember that these daily amounts include three meals as well as lodging. (These figures do not include costs of any alcoholic beverages, however.)

Program

More details will be available in the Second Circular, which we anticipate making available in mid-2013.

Proposals for presentations, in either oral or poster format will be reviewed by the Program Committee (Vic Baker, Jim Dawson, Mott Greene, Sally Newcomb and Ken Taylor).

For those who may need this encouragement, it should be said that research into any area of the history of the geosciences could be organized so as to address the programmatic, historiographical, and methodological issues stated in the main conference theme.

An important point of information: Membership in INHIGEO is not a prerequisite for participation in the meeting and for a place as a presenter in the meeting program (nor is GSA membership required). The organizers strongly encourage attendance and participation by everyone taking an interest in the conference, and we hope for active involvement by many who are not INHIGEO members.

Mid-meeting excursions

In concert with members of the GSA meetings staff, Léo Laporte and Steve Rowland are presently working up scenarios for field excursion options, for 9 July, in the vicinity of Asilomar.

One especially interesting destination will be the very picturesque (and geologically fascinating) Point Lobos State Natural Reserve (http://www.parks.ca.gov/?page_id=571).

Other nearby points of interest include the Monterey Bay Aquarium (www.montereybayaquarium.org), and the Monterey Bay Aquarium Research Institute (http://www.mbari.org/), as well as the towns of Monterey and Carmel. Packed lunches are included for those lodged at the Asilomar Conference Grounds.

Post-meeting field trip

Tony Orme, Ken Aalto, and Ken Taylor are working with GSA staff to develop an ambitious post-meeting field excursion, limited to about 30 participants. The proposed 6-day itinerary will take the group from Asilomar eastward across the San Joaquin Valley to Yosemite National Park, then across the Sierra Nevada to the western margin of the Great Basin. On the return, possibly via Lake Tahoe, the group will be able to visit localities from the mid-19th century California Gold Rush. An option on the return, for those who prefer not to terminate the trip at Asilomar: a drop-off is envisioned at a major airport (probably San Jose).

Organizing Committee:

Kenneth R. Aalto (Humboldt State University, California)
Victor R. Baker (University of Arizona)
Kennard B. Bork (Denison University)
Renee M. Clary (Mississippi State University)
James C. Dawson (State University of New York, Plattsburgh)
Gregory A. Good (American Institute of Physics)
Léo F. Laporte (University of California, Santa Cruz)
Kenneth L. Taylor (University of Oklahoma)

Scheduled Conferences

As recorded in the Minutes of the Business Meeting, held in Brisbane in August 2012 (see page 14-15 above), the following Conferences have been scheduled:

40th INHIGEO Conference 2015 – Chinese University of Geoscience, Beijing, China
41st INHIGEO Conference 2016 – Cape Town, South Africa
42nd INHIGEO Conference 2017 – Yerevan, Armenia
43rd INHIGEO Conference 2018 – Mexico City, Mexico
44th INHIGEO Conference 2019 – Saint John, New Brunswick, Canada (proposal only)
45th INHIGEO Conference 2020 – New Dehli, India

OTHER FORTHCOMING MEETINGS

University of Sheffield Geology Department Centennial (1913-2013)

The UK University of Sheffield's Geology Department was established in 1913, when Sheffield geologist Henry Clifton Sorby left as a legacy funding to endow a professorship in geology. The department flourished through much of the century, doing important work in many areas, such as palynology and the geology of Mount Kilimanjaro. Earth Science historian William Sarjeant was a graduate of the department, and began his historical work by interviewing pioneers in palynology. The department fell on hard times in 1989, surviving only as an Earth Science Unit. It regained departmental status in 1992, but was finally closed in 2001.

Nevertheless, its former staff and many graduates, who are now working all over the world, plan to celebrate the centenary of the department in 2013. A book, covering the department's history, achievements and eventual closure, is being prepared as a fitting monument to this influential institute. Following an appeal for information for the book, it became clear that there was a strong demand from both ex-staff and alumni for a full-scale reunion, and a Centenary celebration seemed most appropriate. This event will take place on Saturday, 21 September 2013. A field trip to Derbyshire and an alternative visit to Chatsworth are being organized, to be followed by an evening dinner in Firth Hall, University of Sheffield.

Further information and booking forms are available to download from:
www.geologyatsheffield.co.uk

David A.E. Spalding (Canada) (with information from Alison Hunter)

Geological Society of South Africa – Geoheritage 2013
Buffelsdrift Game Lodge, Oudtshoorn, South Africa, 9-11 September 2013

The Geological Society of South Africa takes great pleasure in inviting you to attend this event in Oudtshoorn on 9-10-11 September 2013. The Klein Karoo of South Africa is a domain with a dramatic geological history, preserved as mountain ranges, deeply incised valleys, ancient landsurfaces, and caves. The area has long been used by humankind. A large part of the area is incorporated into the UNESCO-designated Gourtiz Cluster Biosphere Reserve. There are many aspects of the geology and geomorphology of the Klein Karoo and the Reserve deserving of GeoHeritage and GeoConservation status.

Guided field excursions:

8th September - Pre-Conference Excursion: Red Hills at Calitzdorp, Cango Caves with lunch at Wilgewandel.
11th September - Geology of the Cango Valley and the famous World Heritage Swartberg Mountain and historical Pass, Prince Albert Museum fossil collection, lunch, Meiringspoort (Swartberg Canyon).
11th September - Landscape in the Kammanasie river valley, African landsurface and duricrusts, erosion caves and rock art, lunch at Uniondale, red Cretaceous conglomerates (Enon formation).

For more information please contact – cal@global.co.za or info@marketing-4u.co.za

AWARDS

International Union of Geological Sciences (IUGS)
IUGS Scientific Awards of Excellence

History of the Award

In February 2011, at its meeting in Paris, IUGS approved guidelines for a "Scientific Award of Excellence, in recognition of outstanding original contributions or achievements that mark a major advance or contribution to the Earth Sciences". In August of that year, in a letter to the Secretary-General, Barry Cooper, INHIGEO was invited "to nominate one candidate as recipient" for this award in the field of the History of Geology. IUGS further advised that the award "could bear the name of an outstanding individual" within a "respective specific field of interest/research" in each of the IUGS Commissions. The INHIGEO Board chose the name "Vladimir V. Tikhomirov Award for the History of Geology", in honour of the first President of the International Commission on the History of Geology. Hugh Torrens was the first recipient of this award, which was bestowed on him at the Opening Ceremony of the 34th International Geological Congress in Brisbane, Australia, in August 2012.

Award Guidelines

Rationale

IUGS is an international scientific union representing scientists and professionals from 122 member countries, who work in all field of activities related to the Earth sciences, many of whom do so with outstanding relevance in specific fields.

Thus far, IUGS has not sufficiently recognized and expressed its appreciation for such outstanding professional geoscientists. Herein, is a proposal to create IUGS Awards addressing specific scientific fields of study to acknowledge such exceptional individuals.

Target persons

The awards should be in recognition of outstanding original contributions or achievements that mark a major advance or contribution to the Earth Sciences. Eligible candidates must be alive and able to accept the award personally at the time of recognition. Active officers of the IUGS Executive Committee, other Committees, Commissions, Task Groups and Initiatives are excluded.

Award

The award will consist of two components:

1. A medal with the name of the prize, name of recipient, date and place of reception.
2. A certificate with the name of the prize recipient, field of activity, date, and place of reception.

Procedure

1. Every four years and one year prior to an IGC session the IUGS Executive Committee shall invite each IUGS Commission to nominate one candidate as recipient of an IUGS Award within their respective specific fields of interest/research.
2. The Commissions shall define the nomination and selection guidelines, which will require IUGS Executive Committee ratification.
3. The Call for Award Nominations and the subsequent Award Recipients will be acknowledged to the Adhering and Affiliate Members, and through the E-bulletins, the IUGS webpage and EPISODES.
4. Nominations, which can be made by anyone in the IUGS family, shall be forwarded directly to the pertinent Commission.

Presentation

The awards will be presented by the IUGS President during the Opening Ceremony of an IGC session.

The IUGS Award for the History of Geology is named after the eminent Russian historian of geology, Professor Vladimir Vladimirovich Tikhomirov (1915–1994).

After completing a Masters degree on the Cretaceous of the lesser Caucasus in 1938, Tikhomirov was an active field geologist and economic geologist until he was called to active military service in the Russian airforce in late 1942. During his distinguished military career he was severely wounded, becoming almost totally blind, and was demobilised in 1945.

However disability did not deter Tikhomirov from completing a Doctoral degree in 1949. In 1951 he was elected head of the newly founded History of Geological Sciences Section, within the USSR Academy of Sciences.

In his new role as historian of geology Tikhomirov became, and remains, widely known for A short essay on the history of geology, published in 1959, and the two-volume monograph Geology in Russia in the first half of the 19th century, published in the early 1960s.

In addition he edited the journal Contributions to the history of geological sciences from 1953 to 1991.

Most importantly for the history of geology, Tikhomirov gained wide international recognition in a field for which international recognition hardly existed at the time.

During the early 1960s he worked energetically within the IUGS to establish the International Commission on the History of Geological Sciences (INHIGEO), of which he became the Foundation President. INHIGEO continues today as a very active IUGS Commission.

For a different reason the name of Tikhomirov has become almost legendary within INHIGEO. Russian members relate the anecdote that Tikhomirov commonly began and finished presentations with the words “I have seen” – even though he was blind.

INHIGEO has been delighted to nominate Emeritus Professor Hugh Torrens of Keele University, in England, as the worthy inaugural recipient of the V. V. Tikhomirov Award for the History of Geology.

The V. V. Tikhomirov History of Geology Award

Citation for Emeritus Professor Hugh S. Torrens

Professor Hugh S. Torrens

Professor Hugh Torrens is one of those rare geologists who has bridged the divide between science and the humanities and made a huge contribution to the studies of the history of the geological thought as well as being a notable university teacher.

Over most of his career Hugh has been based at the University of Keele in the United Kingdom where he remains today as Emeritus Professor of History of Science and Technology.

After initial geological contributions in Jurassic stratigraphy and ammonites, Hugh's life work has been devoted to studies in the histories of geology, technology, and industrial archaeology. He is the world authority on the work of William Smith.

His investigations have extended from the history of local natural history societies to the minute details of otherwise forgotten geological researchers. He is remarkable for his ability to locate rare and significant archival materials, particularly hitherto unknown maps, some of which are of signal importance and interest.

Typical of many history-of-geology specialists, Hugh's work has chiefly focused on his home country, in his case the United Kingdom, with its exceedingly rich geological tradition and legacy, but his knowledge and interests and professional contacts extend far beyond the shores of the British Isles. In his adopted field Hugh is author of some 345 books, papers, and reviews. Notably his 47 articles for the *Oxford Dictionary of National Biography* constituted more than enough material for a major book and as editor for the Dictionary's geological entries he encouraged and painstakingly checked and edited all the history of geology contributions and provided large amounts of unacknowledged information to other contributors. Hugh also had a collection of his major papers published as a 'variorum' book in 2002, entitled *The Practice of British Geology 1750–1850.*

His contribution has further extended to numerous historical organisations, in which he has served with distinction, including the following positions:

Chairman of Geological Curators' Group of the Geological Society of London (1976–1980),

President of the British Society for the History of Science (1990–1992) (a notable honour for a scientist),
Councillor of the History of Earth Sciences Society (1996–1998),
Conseiller étranger of the Comité Français d'Histoire de la Géologie (1991–1992).

Most significantly, Hugh has long been a member of the INHIGEO, the IUGS Commission for the History of Geological Sciences, and a strong supporter of the Commission's activities. He is notable for the immense amount of assistance he willingly gives to younger scholars and to colleagues in need of information, of which he seemingly has an infinite supply. He is also notable for his strong sense of humour, as much as his dedication to scholarship over a wide range of fields and interests.
Hugh served as INHIGEO President in the years 1996–2000 and has since been recognised as an Honorary Senior Member of INHIGEO.

Hugh has also been internationally recognised for his history of geology contribution as recipient of the Mary Rabbit History of Geology Award of the Geological Society of America and the Sue Tyler Friedman Medal of the Geological Society of London.

It is, then, with great pleasure that IUGS honours today Professor Hugh Torrens as the worthy inaugural recipient of the V. V. Tikhomirov History of Geology Award.

Hugh Torrens' Response

I am greatly honoured by this award. I take the greatest pleasure from its being so truly international (named after a Russian, announced by an Argentinian, and awarded to an Englishman at a Congress held in Australia—the adopted country of my daughter). Professor Tikhomirov was the founder of the International Commission on the History of Geological Sciences.

Ever since I took up geology, at school in the 1950s (where sadly it was an entirely extra-curricular subject), and then history in the 1970s, I found the skills needed to be an historian were very similar to those needed to be a geologist. This was despite their long separation, at least in my own culture, as explored by Charles Percy, Baron Snow (1905–1980). In his The Two Cultures and the Scientific Revolution (1959), he charged that ignorance of science by professed humanists (including historians) was as harmful to society as ignorance of the arts, by narrowly focussed scientists. (But in general scientists were more alert to the arts and humanities than vice versa.)

But the objects used to decipher records of the geological past (sediments, fossils, rocks and minerals, whether in outcrop or hand-specimen, etc.) seemed in many ways similar to those needed to uncover human history (images, maps, documents, books, objects, manufacts). And both have suffered the same problems: non-deposition/non-recording, and erosion/destruction. Both have also yielded wonderful 'eureka moments'. As two of the most recent ones for me, I might recall:

1. the geological re-discovery of the first soft-bodied fossils ever to be recognised. These I found in a Philadelphia Museum over 21–24 August 1992, having been lost ever since the collection yielding them had been sold to America in 1848 (thus the specimens were lost for 144 years; see cover of Proc. Acad. Nat. Sci. Phil., 2000, Vol. 150, and pages 75–79); or

2. the re-discovery of the only copy that William Smith had had printed of the first part of his lost book on Norfolk, in 1807. This I found in January 2006, after it had been sought for 199 years (see Geoscientist, March 2006, pp. 22–23). It had been lost even longer than those soft-bodied fossils.

But it has not been all such fun. First, the amazing revelations that the internet has exposed, have had to be countered by the new problems that it has engendered. One needs to be alert to its possible shortcomings. Looking electronically, for example, for the name PARSLOW (the actual author of the 1818–1819 MSS poem The Lymiad (recently published in 2011)—who was the female commentator on the Lyme Regis scene at the height of Mary Anning junior's fossil-hunting career), meant one had to try also PARSLOE (from those days of 'alternative spellings'), and PARFLOW (in these days of problems with OCR, when long s's will become fs). Also, the too uncontrollable nature of the internet, and its newly 'anti-social media', produced a charge that I had been a plagiarist. It took me no less than ten years to reply, but in print, in the second edition of The Complete Dinosaur, published in June this year (pp. 40–42). So not everything is sped up by the internet!

Alas, the arrival of digitization has also caused major disposals by too many of our once fine libraries. It was claimed, in 2007, that "2 million books and journals [were then] being thrown out of British Universities each year" (Times Higher Education Supplement, 23 November 2007, p. 15). An absurd

'Gadarene Swine' situation has since developed, in which Jesus gets replaced by so-called 'information managers' (who have replaced 'librarians'), while swine are replaced by books. But both have ended up irretrievably over a cliff, or into a mine, to disappear.

My most recent historical contributions have been writing three chapters for a book about the English polymath and philanthropist, Thomas Beddoes (1760–1808), who was not just the "chemist and physician", claimed in the new Oxford Dictionary of National Biography. These chapters discuss:

a. his major contributions to geology;

b. how he was the first to envisage, and try to promote, 'rational toys', which could be dismantled to show children , and others, how machines operated; and

c. his forgotten first biographer (1810) the dissenting John Edmonds Stock (ca 1774–1835). He had been indicted for high treason in 1794, but then escaped, avoiding the public beheading which befell one of his co-conspirators, and finally reached safety in Philadelphia. It was no wonder that Stock's book gave Beddoes' political activities rather little attention!

But, as I was working on these matters, my former University Library was pushing over the 'cliff of disposal', masses of highly relevant volumes, on both chemistry and geology. These were among over 1,400 disposed of over December 2011–January 2012 and another 700 disposed of over May–June 2012. The problem was not one of space, or that they were now available in digitized form (in fact many are not), but simply that they had fallen foul of that Library's lunatic Policy Statement (as revealed on its website). This grandly, but ignorantly, announced how it was the Library's policy "to withdraw items for which there is no reasonable justification for retention. Old and superseded texts can, [the managers suppose], be misleading or worthless, and unsought material can obstruct the search for relevant items" . . .

How this extraordinary statement can be reconciled with the presence of a good History Department at Keele University, which encourages the scholarly study of history by qualified historians, who were surely unlikely to be misled by 'old and superseded texts', has never been explained. Nor can it be.

So Keele University, which when founded had deliberately endeavoured to provide an undergraduate programme that helped to form a bridge between the 'two cultures' has now largely abandoned its original remit. Nevertheless I am grateful to it for providing me with the opportunity of a career in which I have been able and happy to try to have a foot in both camps.

And working as a historian has taught me how universal an interest in history is, and what fun international collaboration can be in this field (much more so than in science). I particularly want to applaud the work of INHIGEO in this regard. My journey with them has been full of wonderful friendships across the world, much helped for me, since I started, by the 'Darwinian survival' of the English language. This has allowed us English to become lousy linguists, but has demanded instead that we become careful editors of Japlish, Franglais, etc. Of these friendships, I should like to single out a few; the late François Ellenberger, of Paris, who taught me why, in his Second World War prison camp, they opened a 'university' and did not try to return home; the late John Thackray, archivist extraordinaire - and for the Geological Society; the Essex book dealer Stuart Baldwin, whose book-hunting skills have been of inestimable assistance to me; David Oldroyd of Sydney, who is both one of the best historians of geology, and one of the best editors of its output; Peter Rozsa of Debrecen, who organised a wonderful Hungaro-tour and Ezio Vaccari of Varese, who did the same in Italy. The lives of both my wife and myself have been much enhanced by such friendships. Long may the truly international work of INHIGEO continue.

In this vein I have suggested to IUGS president Alberto Riccardi how a joint Anglo–Argentine history project might be promoted and, if the idea is pursued, how the work of the English-born first Director of the Argentine Geological Survey, Henry Davis Hoskold (ca1831–1904), might prove a highly suitable bridge to start with. It will need the sort of international collaboration with which only INHIGEO can help. Geology is a world-wide activity. And so too, as time passes, the study of its history is becoming ever more international in character. I am mightily pleased to see this development and to have been privileged to play some part in it.

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Earth Sciences History Group of the Geological Society of Australia
Tom Vallance Medal

History and dedication of the Award

The "Tom Vallance Medal" was introduced in 2011 to recognize individuals who have made outstanding contributions to the history of the geological sciences in Australasia. It will be awarded biennially, and will be presented at the biennial Convention of the Geological Society of Australia (or similar event).

Dr Thomas George Vallance (1928–1993), geologist and historian of science, was formerly Associate Professor at the University of Sydney. Originally a petrologist, his work, tracing geological expertise in Sydney during the late 18th and early 19th centuries, shed unexpected light on scientific activity in the young colony and ignited his interest in the history of geology and in early workers in the earth sciences. He researched and published many articles and papers on famous, infamous and little-known early pioneers in this field. His legacy is preserved in the form of 4 000 index cards of information, memorabilia and jottings on miners, geologists, surveyors, prospectors and mining engineers, which he compiled over a number of years and gathered from a wide variety of sources – especially from 19th century mining journals. After his death, this rich resource was compiled into a database, which should prove invaluable for future researchers. The 1994 meeting of INHIGEO, at Sydney, was dedicated to the memory of Tom Vallance, a foundation member and for some years one of its Vice-Presidents. The ESHG is proud to name its medal in honour of Tom Vallance.

The Tom Vallance Medal

Award of the medal

The Committee of the Earth Sciences History Group will consider nomonations for the award of the "Tom Vallance Medal" and select a researcher who has made major contributions to the history of geology in Australasia. The award will be made bi-annually and will normally co-incide with the holding of the Convention of the Geological Society of Australia.

The first recipient of the "Tom Vallance Medal" was David Branagan. It was presented to him by Hilary Vallance, the widow of Tom, at an INHIGEO symposium in his honour, at the 34th International Geological Congress held in Brisbane, in August 2012.

Citation for David Branagan on the presentation of the Tom Vallance Medal

The following short citation was compiled by the ESHG committee, using submissions from members who nominated David for the award. It was felt that although his numerous achievements are known to many members of ESHG, there are many more only now starting to appreciate his enormous contributions to scholarship and his energy in documenting the history of geologists and their ideas, especially in Australia, for more than half a century.

David Branagan was born in 1930 in Broken Hill where his father was a maths teacher. At that time most of the streets were unpaved and fierce sandstorms still swept the town as the famous greenbelt was only just being started. But the mines were booming. His family moved to Sydney when he was seven to provide David and his brother with better opportunities in education (he subsequently obtained a scholarship at the Jesuit School "Riverview").

By the time of his enrolment at Sydney University, David was already interested in geology and decided to add this subject to chemistry, physics and mathematics, as part of the requirements for a science degree. During the course of his studies he encountered memorable teachers and made contact with such famous figures as Leo Cotton (through whom he was first introduced to the ideas of Edgeworth David), W. R. Browne, Germaine Joplin, Florence Quadling and George Osborne. Following the retirement of Leo Cotton, Charles Marshall, a 'coal man', introduced a broader range of subjects that included geophysics, sedimentology and micropalaeontology. He appointed staff to teach in these new fields, one of whom was the Dutchman Emile den Tex.

An honours project on the coal measures at Newcastle started what was to be David's lifelong interest in coal and coal mining. This was followed by three years with the Geological Survey of New South Wales working on a wide variety of projects including coal, the geology of dam sites and radioactive minerals. A further year was spent in industry, exploring for copper near Cloncurry.

However, geology was not David's only interest. His passion for music, and in particular singing, had initially developed at secondary school, had blossomed at university and led to a decision to go to London in 1955 and try to make a career as a singer. Wonderful musical experiences, travel and architectural history followed. However there was little prospect of making a living in early music, which was his real interest. So to avoid "living in a garret" he and his wife Gillian returned to Australia. And after a stint as a school teacher, which involved little geology, he obtained a position at Sydney University in coal geology in 1958, which was, he has said, "the start of my career proper". He retired from the university in July 1989, but remained as Honorary Research Associate.

Research for a doctorate on the coal seams in the Newcastle region led to the expansion of his nascent interest in the history of science and geology. As described by David: "I found a lot of old maps and papers in the local library records from the 1840s to the1850s, and I found myself unrolling maps that hadn't been looked at for a hundred years or more. It was a real treasure trove". He also obtained a lectureship teaching first-year geology, which matched his desire to learn about many aspects of geology new to him, including engineering geology.

David's interest in the history of geology and science was enhanced further through his contact and friendship with Tom Vallance, who taught petrology at Sydney University and had an encyclopaedic knowledge of the history of geology (particularly Australian geology). Tom introduced David to the International Commission on the History of Geological Sciences (INHIGEO). He began to attend the Commission's conferences and continues to be an active contributor. He was President of INHIGEO for four years and contributed not only conference papers but also his intellect and energy in arranging the INHIGEO conference in Sydney in 1994. Recently he arranged a field trip (that started in Sydney and ended in Brisbane) for INHIGEO as part of the Brisbane IGC in 2012.

Although having an international perspective, David has for many years emphasised the achievements of Australian geological and scientific ideas through his extensive research, lectures and publications. He has written on the long-term development of people and their ideas by documenting the careers and achievements of numerous geologists, and his appetite for learning led to contributions in a wide range of aspects of geology with a versatility that is uncommon today. At present, in his eighties, he is collaborating on a translation from the Latin of Agricola's *De ortu et causis mineralium* (perhaps making use of the Latin he would have learnt at "Riverview"?). He is also well read in general literature, in music and the history of architecture. In addition, he has been a keen amateur sportsman and still takes a daily swim.

David has nearly two hundred publications to his credit, of which about half are concerned with the history of geology, of mineral exploration, the history of ideas in science, as well as biographies of geologists, engineers, and metallurgists. His most important work is his definitive biography of Edgeworth

David, described as a masterful work on an Australian pioneering geological academic and explorer. In 2007 he was awarded an honorary D.Sc. by the University of Sydney, chiefly in recognition of this biography. Examples of his major works range across coal mining (*Geology and coal mining in the Hunter Valley 1791–1861*); history (*Science in a sea of commerce: the journal of a South Seas trading venture (1825–1827)* by Samuel Stutchbury) and *Rock me hard—Rock me soft*, a history of the Geological Society of Australia, compiled and edited with Barry Cooper. He has contributed to the education and public interest in geology through many lectures and various field guides (notably his popular, in a positive sense, *Field Geology of New South Wales*, with Gordon H. Packham), as well as an edited text book: *Beneath the scenery: geology for senior students*. His knowledge of the exposures of rocks in New South Wales and elsewhere in Australia is truly remarkable.

David's knowledge of the early history of geology in Australia is without equal today and he has continued to build on the tradition established by Tom Vallance in a remarkable way.

David Branagan with his wife Gillian (left) and Hilary Vallance (right), the widow of Tom Vallance, at the award ceremony in Brisbane

David Branagan's Response

It is an honour, indeed, to receive the inaugural Tom Vallance Medal, awarded by the Earth Sciences History Group of the Geological Society of Australia. I thank the present executive of ESHG, particularly Chairman, Peter Dunn and Secretary, John Blockley, for the work they have done behind the scenes to bring this award to fruition, and Hilary Vallance, for generously funding this award in memory of her late husband, Tom, and also for coming to Brisbane to make this presentation.

It is good that the specialist History group of the Society, thirty years old next year, brought into being by Barry Cooper and South Australian colleagues, continues to produce research that bears comparison with the best in the broad fields of 'real' geology, reminding us that geological knowledge has come through the hard work of individuals and organizations who went before us.

I feel more than a little guilty about receiving this award, as many might feel that it has almost essentially occurred 'in house'. It is hard to realise that it is now almost twenty years since Tom died. In our time together we published jointly, from 1967, ten papers. In preparing this reply I was surprised to find, in fact, that I had published my first history paper before Tom did, although his patient research, by that time, had already made considerable progress on his very large and detailed card index of nearly 4000 Australian geologists and miners. At the same time, he was, of course cementing his reputation as a geological researcher of note, his spilite studies giving him international status in the pantheon of geology, as acknowledged in his obituary notice in the London *Times*, a respect given to few Australian geologists.

I can note, too, that Tom would have been delighted that his great friend, Hugh Torrens, of Keele University, this evening is being awarded, at this same Congress, the inaugural IUGS V. V. Tikhomirov History of Geology Medal.

As time is limited and there is a session full of interesting history papers waiting to get underway, I say my thanks again, with apologies for my voice which would place me well down in the basses of any respectable Russian choir. This is the result, I must say, of a week haranguing a mixed group of international and local fellow travellers from Sydney to Brisbane about the wonders of Australian geology and those geologists who have worked to explain it all.

The Sue Tyler Friedman Medal

The Citation given by the President of the Geological Society of London

The Sue Tyler Friedman Medal

The Sue Tyler Friedman Medal, awarded for excellence in research into the history of geology, was endowed by a Foundation established by one of this Society's senior Fellows – the distinguished carbonate sedimentologist and historian of science, Professor Gerald Friedman, who sadly died in November, of last year. Let us take the occasion of this award to remember and salute a great benefactor of the Society.

The Award, named for Gerald's wife, goes this year to a geologist who has straddled many worlds in her career – Dr Cherry Lewis. With a childhood interest in fossils, Cherry came to study geology as a mature student, obtaining academic qualifications in geochemistry which led to a career in oil exploration. Until her recent retirement, she worked at the University of Bristol as an editor and media relations manager, promoting that institution's scientific research to a wider public.

Cherry's interests, however, have long lain in the history of our science. An active member of the History of Geology Group (HOGG), she served as Chair from 2004 to that crucial anniversary year of 2007, when she convened a conference on the Society's history, with its memorable dinner in costume dress, and co-edited the subsequent Special Publication.

Cherry is well known as the biographer of Arthur Holmes, and for her book about his life and work, *The Dating Game*. She is currently working on a biography of one of this Society's founders, James Parkinson – best known today for giving his name to the neurological disease he first described.

Cherry Lewis, you have been pivotal in developing the History of Geology as a discipline within this Society. Your personal drive and energy have been major factors in making HOGG one of this Society's most active and exciting specialist groups. Please accept with our respect and gratitude, the Sue Tyler Friedman Medal of The Geological Society of London.

Cherry Lewis receives the Sue Tyler Friedman Medal from Bryan Lovell, President of the Geological Society of London

The Response given by Cherry Lewis:

Thank you so much – I cannot say how delighted I am to be recognised for doing something I enjoy so much, but I would not be here had it not been for Bristol University and the Open University where I took my degrees, and who took me on as a mature student; to them, undying thanks. Never did I imagine I would one day be standing on this podium, let alone sharing it with my PhD supervisor, Chris Hawkesworth, this year's Wollaston medallist.

I joined HOGG about 15 years ago, when it had been in existence about three years and our membership was very small. In fact, as John Fuller, one of the founders of HOGG who also sadly died this year, recalled for our oral history project: "At the time … the Geological Society, as the world's premier Society, seemed to be only distantly attached to its own history".

But over the years, this attitude has changed and it's now wonderful to see even diehard geologists becoming interested in the subject. A few weeks ago I was at a meeting where, to my amazement, there were Professors John Dewey and Rob Butler, both giving historical papers. Even Chris [Hawkesworth] emails me on occasions, seeking bits of historical information.

The history of geology seems to have come of age. Today, the Society's publications on geohistory are some of its best sellers and you may have noticed that hardly a month goes by without *Geoscientist* carrying an article on geohistory. Ours may be a young science but its history is full of vitality. It's the story of geologists and how they think, how their ideas have evolved and how we come to be where we are now in the understanding of our science. It's an astonishing story that all of us are part of – and it's a history we should all be proud of.

Other awards to INHIGEO members

Hirai Hiro (Japan) **–** The Japan Society for the Promotion of Science Prize
Tatiana Ivanova (Russia) – Honored Worker of Science and Technology
Jorge Ordaz Gargallo (Spain) – Critics Prize of Asturias for Fiction
Martin Rudwick (UK) – The Levinson Prize (History of Science Society, USA)
Rogelio Altez (Venezuela) – The Francisco González Guinán National History Prize

MEMORIALS AND OBITUARIES

In Memory of V.V. Tikhomirov, Corresponding Member of the USSR Academy of Sciences

V. V. Tikhomirov

Professor Vladimir Vladimirovich Tikhomirov, Corresponding Member of the USSR Academy of Sciences, eminent historian and geologist, was 95 years old in 2010. His life is a heroic efforts deed as a man and a scientist.

Tikhomirov was born on October 12 (25), 1915, in Petrograd to the family of a teacher of physical chemistry (later professor, honored scientist of the Azerbaijan Soviet Socialist Republic). In 1921, the family moved to Baku, where he finished secondary school and entered the Geological Faculty, Azerbaijan Industrial Institute, in 1932. In 1938, he successfully defended the MSc thesis devoted to the lithology of Cretaceous rocks in the Lesser Caucasus.

On graduating from the institute, he joined the Azerbaijan Geological Department (Azgeolupravlenie), where he worked as a geological engineer.

Until 1942, Tikhomirov was engaged in the geological mapping of some regions in Azerbaijan, calculation of commercial resources of the Karagaul gypsum deposit, prospecting for combustible shales in the northeastern part of the republic, investigation of the Kabristan bentonite, and feasibility study of the Khpek and Kazardikam cinnabar deposits, which could be exploited for the production of mercury urgently needed for the Wolrd War II front.

In the late 1942, Tikhomirov was recruited to the Army. Meanwhile, he graduated from the Aviation College and the Military Political Academy for political workers.

Since January, 1943, he participated in battles on the Leningrad Front as vice-commander of the 22nd aviation escadrille equipped with light-engine air planes and accomplished about 40 raids as a navigator. He was awarded the *Order of Patriotic War* (grade II) and many medals.

On April 18, 1944, a shell exploded in hands of a soldier standing near Tikhomirov during the demining of runway for a new aerodrome. The soldier died, whereas Tikhomirov lost vision nearly completely. He was demobilized from the Army in 1945 as a group I invalid.

Almost complete loss of vision did not warp his life. In 1945, he started postgraduate studies at the Department of General Geology, Ordzhonikidze Moscow Geological Exploration Institute (MGRI). Professors V.V. Belousov and A.A. Bogdanov rendered great assistance to his work over dissertation. In 1949 Tikhomirov became nearly completely blind, but he successfully defended dissertation entitled *Geological Evolution of the Lesser Caucasus in the Upper Cretaceous*. Later, this dissertation was reconsidered as a DSc work and approved by the Scientific Council of the Institute of Geological Sciences, USSR Academy of Sciences (IGN AN SSSR). In June, 1949, Academician N.S. Shatsky suggested that Tikhomirov should join IGN as a scientist engaged in geological history.

In 1951, Tikhomirov headed a newly founded Cabinet of the History of Geological Sciences, renamed in 1956 into the Sector of Geological History, Geological Institute (GIN), USSR Academy of Sciences. In1953, based on support by academicians N.S. Shatsky and D.I. Shcherbakov, he initiated the publication of a periodical series *Essays on the History of Geological Knowledge* and worked as its chief editor from 1953 to1991.

In 1955, Tikhomirov received the academic rank of professor and headed the Commission on Geological Study of the USSR (KOGI). Academicians D.V. Nalivkin, N.S. Shatsky, A.V. Peive, A.L. Yanshin, and N.P. Laverov, as well as other leading geologists and organizers of science, were members of the KOGI Bureau in different years.

Tikhomirov was Head of the Laboratory of Geological History at GIN since 1956 and became the Member of International Academy of Science History in 1966. In 1967, he initiated the International Committee on the History of Geological Sciences and worked as its first president in 1968–1976. On

December 29, 1981, he was elected Corresponding Member of the USSR Academy of Sciences (Division of Geology, Geophysics, and Geochemistry). In 1988–1991, he was an adviser to administration of the Geological Institute. In 1991–1994, he was advisor to administration of the Vernadsky State Geological Museum.

Tikhomirov's key works are devoted to the history and methodology of geological knowledge, regional geology, and geotectonics. In 1956, in cooperation with V.E. Khain, he published the book entitled *Brief Essay on the History of Geology*, which served as a handbook for many years like his monograph *Geology in Russia in the First Half of the 19th Century* (1960, 1963) consisting of two parts. The latter work included the state-of-the-art analysis of geology and several inferences on the evolution of geology in general. In1965, the monograph was awarded the First Prize of the Moscow Society of Naturalists (MOIP). The monograph entitled *Geology in the Academy of Sciences: from Lomonosov to Karpinskii* (1979) became his last significant work.

Tikhomirov accomplished a great scientific exploit. Despite a dreadful illness, he worked much and remained at duty. His works will forever remain a monument to vital fortitude of a person. Tikhomirov passed away on January 18, 1994. He was buried in the Troekurovskoe Cemetery in Moscow.

The Editorial Board is grateful to Zoya Antonovna Bessudova, senior researcher at the Department of Geological History, Vernadsky State Geological Museum, Russian Academy of Sciences, for consultations and materials placed at our disposal.

The Editorial Board of the Journal *Lithology and Mineral Resources*, the Interdepartmental Lithological Committee, Staff of the Geological Institute and the Division of Geological History, Vernadsky State Geological Museum, RAS.

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Please note: As this article has been reprinted from the above journal, no editorial changes have been made.

Nikolay Pavlovich Yushkin 1936-2012

Nikolay Pavlovich Yushkin

Nikolay Pavlovich Yushkin, Academician of the Russian Academy of Sciences, died on the 17th of September, 2012, in his 77th year.

Yushkin was born in the village of Ivangora in the Kalinin region. He graduated from the Kirov Mining Chemical Technical College in 1955 and from the Tashkent Polytechnical Institute (Department of Geology) in 1965. In 1968 he defended his doctoral thesis at the Leningrad Mining Institute. From 1956 to 1961 he worked with geological parties in Central Asia, prospecting for sulphide deposits. In 1961 he joined the Institute of Geology in Syktyvkar (Komi Scientific Center of the Ural Branch, Russian Academy of Sciences), and worked his way up from laboratory assistant to Director of the Institute, which he headed from 1985 to 2008. He was a professor at the Syktyvkar State University from 1981.Yushkin was elected a corresponding member of the Academy of Sciences of the USSR in 1987, and has been a full member of the Russian Academy of Sciences since 1991.

In 2008, Yushkin was appointed a councellor of the

Russian Academy of Sciences and headed a group of long-

term researchers in geology and mineralogy at the Institute of Geology in Syktyvkar, and became chair of geology in the Syktyvkar State University.

Yushkin had a wide range of interests in various fields of the geosciences, which he pursued at various periods of his career. However the study of minerals and mineral system in all their diversity was his predominant interest. He did much work in theoretical and regional mineralogy, crystallography, mineral deposits, the history of science and applied mineralogy. He was a pioneer in some fields of theoretical and applied mineralogy: genetic-information mineralogy, evolutionary mineralogy, topomineralogy of ore regions, vitamineralogy (life mineralogy) and mineralogical diatropics. He developed the original concept of hydrocarbon crystallisation of life – mineral organismobiosis, proclaimed organic laws of biomineral coevolution, and formulated general theoretical concepts of nanomineralogy and archeomineralogy.

Yushkin published more than 700 scientific works, including 34 monographs. He was the co-author of an international discovery "Law of spatial-temporal change in the morphology of mineral individuals in the process of natural crystal formation", and was credited with six inventions.

Yushkin made a big contribution to the exploration and development of raw materials in the north of Russia and the Urals, and to new mining areas.

Yushkin shared his scientific and social duties with international activities. For many years he was a member of the Council and Vice-President of the International Mineralogical Association, Vice-President of the Russian Mineralogical Society, member of the Earth Sciences Bureau, member of the Presidium of the Ural Branch of the Russian Academy of Sciences and of the Presidium of the Komi Scientific Centre of the Ural Branch of the Russian Academy, member of the National Committee of Russian Geologists and the International Commission on the History of Geological Sciences, as well as an honorary and full member of many international and national academies and scientific institutions.

Many prominent Russian geoscientists have graduated from the 'School of Yushkin'. His disciples, A. Askhabov and Yu Voytekhovsky, head geological institutes of the Russian Academy now.Yushkin's scientific achievements were recognised by high State awards: the orders of "Merit of the Fatherland" of the 4th and 3rd degrees, the order of the "Red Banner of Labour", and by many medals and badges of honour. He was the winner of the award of "Lenin Komsomol" (1968), awards of the Ministerial Council of the USSR (1982), awards of the Academician A.E. Fersman (1995), the "Demidov Award" (1998), the "Gold Diploma of Leader of European Science" (2007) and others. He was an Honorary Professor and a Visiting Professor of many foreign universities. The mineral *yushkinite* was named in his honour.

Michel Durand-Delga (1923-2012)

Michel Durand-Delga

The long life of Michel Durand-Delga, who was the oldest member of the French Committee on the History of Geology, ended in Fontainebleau, near Paris, on August 19th, 2012. Although he had been ill for several years, he had almost convinced us that he was able to be the winner of his struggle against illness. He was an intelligent, modest, cordial and clever man and had so many friends in the French geological microcosm, that we already miss him.

Michel Durand-Delga was born in Gaillac (Tarn, southwest France). He studied geology at Toulouse University and was awarded his bachelor's degree (called "licence") in science, in 1943. At that time France was occupied by German troops. This decided him to join the French Free Army in North Africa. To achieve this he fled France and travelled through Spain, where he was imprisoned for a time in a camp, before reaching Morocco. Finally, he moved to Algeria and, as a member of the French paratrooper commandos, took part in the "Campagne de France" (1944-45).

After World War II, in 1945, Michel Durand-Delga was appointed as a demonstrator of Paul Fallot (1889-1960), who held the chair of geology in the "Collège de France" and who became his research "patron". Two years later he was appointed to a position in the National Institute for Agronomy and was given the opportunity to carry out fieldwork in Algeria. He defended his thesis in 1955 titled: *Etude géologique de l'Ouest de la chaîne numidique*.

In 1958, Michel Durand-Delga was invited to apply for a position at the Sorbonne, where he was first appointed as a lecturer before being rapidly promoted professor (1960). By that time he had edited a two-volume collective homage to Professor Paul Fallot. After Fallot's death, he supervised many young geologists who were mostly engaged in preparing their thesis on the structural geology of the alpine chains of southern Spain, northern Morocco (Rif) and Algeria. The great scientific influence of Michel Durand-Delga became apparent at that time through the field work of his students who interpreted the structural geology of the Betic Cordillera and the alpine coastal chains in North Africa. The most significant result of these researches was the demonstration that the formation of the Gibraltar Arch was caused by severe torsion of this alpine chain, as demonstrated by the continuation in North Africa of the main components of the Betic Cordillera.

In 1972, Michel Durand-Delga decided to return to his native region and was appointed Professor of Mediterranean Geology at Toulouse University, where he taught until his retirement in 1985. In 1975, he had been elected president of the French Geological Society and in 1980 corresponding member of the French Academy of Sciences.

Michel Durand-Delga has also been recognized as an influental European geologist by the Carpathian countries, and was elected as an honorary member of the Geological Societies of Poland, Czechoslovakia and Bulgaria, and also as Foreign Member of the Polish Academy of Sciences (1980), Foreign Corresponding Member of the Royal Academy of Sciences and Arts of Barcelona (1982), Foreign Member of the Academy of Rumania (1992) and Honorary Foreign Member of the Hungarian Academy (1998). He was also honored in 1993 by the University of Cagliari (Italy), which confered on him a doctorate *honoris causa* for having successfully carried out an important research program in the Western Mediterranean (1993). Later, the University of Granada (Spain) offered him the same honour for his significant achievements in the geological interpretation of the Betic Chain.

It was some time after his retirement when Michel Durand-Delga became interested in the history of geology. His first contribution, in 1991, was a lengthy address to the *Société Géologique de France* (published in *Travaux du Comité français d'Histoire de la Géologie*, available on line). In this he defended the memory of Jacques Deprat who, in 1917, had been unjustly dismissed from his position in the Geological Survey of Indochina and excluded from the country in 1919, as the result of a probable conspiracy. He was subsequently expelled from the SGF, which ended his scientific career. The story was made famous by the British journalist Roger Osborne, who used information collected and analyzed by Michel Durand-Delga, to write his bestseller "*The Deprat affair…*" (1999). Michel Durand-Delga made use of several opportunities to bring this incident, also known as "the trilobite affair", to the attention of the public. The last of these came in 2009, with the re-issue of *Les chiens aboient*, a novel, first published in 1926, in which Jacques Deprat (alias Herbert Wild) told his own story. Michel Durand-Delga wrote for it a postscript in which he identified the pseudonyms used by Herbert Wild, in order to avoide legal proceedings against himself. And again, in 2012, helped by a geologist with knowledge of the geology of the particular region, he defended Jacques Deprat against an embittered French geologist who had accused him of having made use of "unfindable fossils" in his thesis, for the dating of strata in Euboea (Greece).

The second major interest of Michel Durand-Delga in the field of history of geology was the French tectonician Marcel Bertrand, famous for his interpretation of the Glaris Thrust, and the subject of his recently published biography: *Marcel Bertrand (1847-1907), génie de la tectonique* (2010).

In collaboration with a microbiologist, with an interest in the life of the famous French biologist Louis Pasteur, Michel Durand-Delga wrote a book titled, *Jules Marcou (1824-1898), précurseur français de la géologie nord-américaine* (2002). Marcou, who had gained his financial independence by marrying a rich American heiress, had an interest in a wide variety of fields in geology. His research activities ranged from geological studies in the French Jura, to active participation in one of the great American expeditions to the Western Territories. Later in life he was appointed professor at the Zürich Polytechnikum.

His more than 30 publications in the field of the history of geology, include a study of the cordial relationships between Eduard Suess and French geologists (2009), a paper on the French expedition to Andalusia, which followed the 1884 earthquake (2002), several contributions on Ami Boué, founder of the French Geological Society (1996, 1997) and papers on early geological studies of the Pyrenees (Dolomieu, Picot de Lapeyrouse and Abbé Palassou). He also wrote two biographies of the geologists Eugène Maury and

Dieudonné Hollande (2002, 2010), who had carried out geological work in Corsica. At the time of his death, he had almost completed research for a book on the history of geological studies in Corsica.

In 2004, the *Société Géologique de France* bestowed on Michel Durand-Delga the "Eugène Wegmann Award" for his contributions to the history of geology.

Jean Gaudant, Paris (France)

Peter Krüger (1934–2012): Mineralogist and geohistorian

Peter Krüger

The German INHIGEO-member Peter Krüger died in Berlin, on 3 November 2012. He was born on 24 October 1934 in Gera to the carpenter Willy Krüger and the apothecary assistant Marianne Krüger, née Heinig. From his early years, he was interested in geology and mineralogy, and became the youngest member of the *Geraer Geologen-Mineralogen-Gruppe*, a local society of geology enthusiasts gathering around the geologist Rudolf Hundt (1889–1961). From 1953 to 1958 he studied mineralogy and geochemistry at the mining academy in Freiberg (Sachsen), including one semester at the University of Jena.

In 1956, he married the mineralogist Annemarie Krüger, née Höbelt, with whom he had three children, two daughters and one son, born between 1957 and 1965.

Until 1963, Krüger worked as scientific assistant at the Mineralogical Institute of the Mining Academy of Freiberg, where he undertook research and also lectured on ore and rock microscopy, mineralogy and the geology of mineral resources.

From 1963 to 1974, Krüger became the technical director of a complex of geoscientific laboratories at the *Zentrales Geologisches Institut Berlin* (ZGI), where he also undertook geochemical research into the Cainozoic genesis of ore deposits.

In 1967, he obtained his doctorate from the Mining Academy in Freiberg with a dissertation on sulphur isotope partition in sedimentary iron sulphides, under the supervision of Hans Jürgen Rösler (1920–2009).

In 1970, Krüger was entrusted by the ZGI with the development of a department of marine geology, which allowed him to join the delegation of the Germany Democratic Republic on the 10th journey of the Russian research vessel *Akademik Kurchatov*, which spent two months surveying the Mid-Atlantic Ridge around Iceland and the island of Jan Mayen.

Following this expedition, German research expeditions could operate independently and, in 1972, the *Alexander von Humboldt*, a research vessel of the Institute of Oceanography of the East-German Academy of Sciences, under the directorship of Peter Krüger, embarked on its first scientific North Atlantic cruise.

From 1974 to 1979, Krüger worked as geochemist in the geological department of the Council for Mutual Economic Assistance in Moscow. After his return to the ZGI in Berlin, in 1979, he became a scientific member of the department for foreign geology and, from 1981 to 1982, head of the large ZGI research library and the department of scientific information and documentation.

During these last years, Krüger's interest in the history of the geosciences must have grown considerably as, in 1984, he successfully applied for a position as historian of geology in the department of the history of sciences at the Humboldt University in Berlin, with a special focus on the history of geology in the 19th century. In 1985, he was promoted head of a research group in the history of science, which was given the task of editing the geological and chemical-agricultural writings of Karl Marx (1818–1883), as part of the *Marx-Engels-Gesamtausgabe* (MEGA), i.e. an edition of the complete works of Karl Marx and Friedrich Engels (1820–1895). Krüger was a member of the German *Arbeitskreis zur Geschichte und*

Philosophie der Geologischen Wissenschaften, a founding member and board member of the *Berlin-Brandenburgische Geologie-Historiker Leopold von Buch e. V.* and a member of INHIGEO.

Following the reunification of Germany, Peter Krüger's department was suspended and, after his contract ran out, he retired in 1992. He remained active in research as a self-styled 'private scholar', until the time of his last illness.

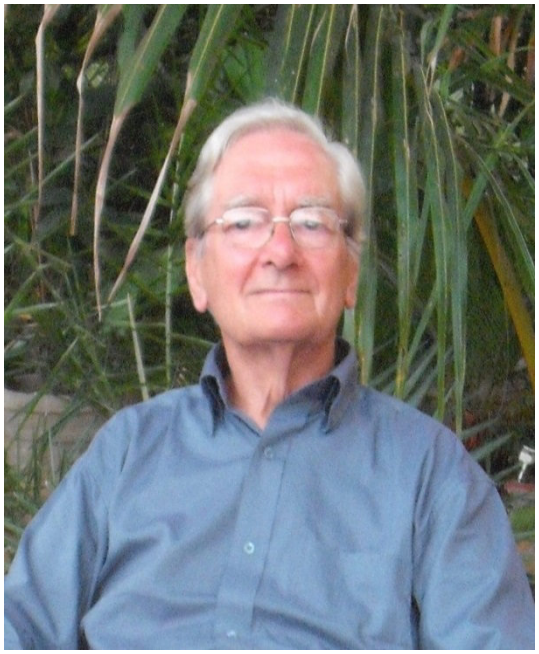
Peter Kühn & Martina Kölbl-Ebert (Germany)

Josef Haubelt (1932-2013)

Josef Haubelt, one of our Czech INHIGEO members, died in March this year. Born in 1932 in Olšovec, near Přerov, to the southeast of Prague, he studied history at the Charles University in Prague from 1952 to 1957. After graduation he joined its academic staff in the department of general history and prehistory. In 1979, he was appointed Associate Professor, a post he occupied until 1991. He was awarded a Ph.D. degree in 1966 and a D.Sc. in 1987. Josef Haubelt had a wide interest in the history of science, including the history of geology. During his career he spent periods of time at the Karl Marx University, in Leipzig and in the Institute for the History of Natural Sciences, at the J. W. Goethe University at Frankfurt am Main. His publications include studies titled, *Kaspar Maria Šternberk, naturalist and geologist* (1988) and *Radim Kettner, Geologist* (1991).

A more detailed appreciation of Josef Haubelt's life and work will appear in next year's Newsletter (editor).

John George Charles Martin Fuller (1926-2012)



John Fuller in 2009, while on holiday in Sri Lanka. The photo was taken by his then 12-year-old granddaughter,Jumana.

John G. C. M. Fuller, a valued member of INHIGEO, distinguished petroleum geologist and historian of geology, died in January last year. With his passing, the international geological community has lost a committed champion of the history of our science. Through his writings and his determined efforts to promote his views, he created a heightened awareness amongst many geologists of the relevance of a historical background to contemporary studies in geology.

John was born on 14 December 1926, in the seaside town of Hastings, in the south of England. He received his basic education at a Grammar School in the small town of Bromley in Kent, near London. In 1945 he entered Queen Mary College, University of London, with the intention of studying botany and chemistry. However he did not seem to have developed a great enthusiasm for these subjects – he once claimed, probably jokingly, that he was thrown out for poor performance – and was probably glad when he received a call-up to join the Royal Navy in the following year.

During his two years in the Navy, his duties included the maintenance of radio and radar equipment. By the time he was demobilised he had reached the rank of Radio Electrician's Mate 1st Class. John's two years in the armed services also gave him ample time to reflect on his future. He considered applying for a commission in the "Education Branch" of the Navy, and in a testimonial in support of such an application was described as "a man with ideas and who has no difficulties in making them clear to others".

But the inclination to continue his tertiary studies proved stronger and, in 1949, he became a student in the department of geology at the Chelsea Polytechnic, which was linked to London University. Three years later, in 1951, he graduated with a B.Sc. degree with First Class Honours. His studies at this institution brought him under the influence of W. F. Fleet, who passed on to John his interest in sedimentary rocks and their composition. Passing up a job offer from the Shell Oil Company, he decided instead to embark on a study for a Ph.D. degree at Cambridge University. There, first under the tutelage of the world-renowned sedimentologist, Percival Allen, before his appointment to a professorship at Reading University in 1952, and then Maurice Black, a distinguished sedimentary petrologist, John completed a study of the origin of the Permo-Triassic New Red Sandstone in South-West Scotland.

While still in London, possibly in 1951, John met Anne Nightingale. Many years later, in a short CV, John, who had just received news of his academic success, rather amusingly combined the two occasions into a happy conjunction of events, when he wrote, "Met Anne Nightingale, and got a First from London University". Anne had read Natural Sciences at Reading University and was working at that time in the Water Department of the Geological Survey in London. The pair married at Cambridge in 1952.

The prospects for geologists in Britain at the time John completed his tertiary education were not promising. However opportunities were more plentiful in its Dominions and former colonies. On hearing of openings in Canada, the newly-weds travelled to Regina, Saskatchewan, in 1954, where John started work in the Department of Mineral Resources. During his four-year stint in government employ, he rose to become the departments' Principal Geologist. Anne also joined the Department for a short time but stopped work to care for her children, Nicholas and Simon, both born in Canada. Today, the former lives in Canada, while the latter has moved to Sri Lanka.

In 1958, John joined the Amerada Petroleum Corporation and, with the exception of one year (1961-1962) in academia, spent the remainder of his working life occupying a variety of senior positions in the petroleum industry. At first his work kept him in North America, where he was working first for Amerada to 1969, and then for Amoco. In 1971, he was transferred to the latter company's London office, with responsibilities for Europe and West Africa. John retired from Amoco in 1986, but continued in a consulting role for about another five years. On returning to England, the family established their home in Tunbridge Wells, where Anne still lives.

During his career, John published an impressive number of articles on the stratigraphy, sedimentology and petrology of petroleum-bearing strata, particularly carbonate sequences and evaporites, and on general geology. Noteworthy among these are his studies of the Early Palaeozoic rocks of the extensive Williston Basin, which crop out in adjoining areas in both Canada and the United States. For his outstanding contributions to North American geology he was awarded the Barlow Medal by the Canadian Institute of Mining and Metallurgy, in 1956, and the President's Award of the American Association of Petroleum Geologist, in 1961.

Of particular interest to INHIGEO members is John's wide range of publications relating to the history of geology. As much of his work involved the mapping and defining of the stratigraphic succession of rock sequences and, consequently, the interpretation of the geological history of a region, it is perhaps not surprising that his thoughts should turn to the first critical observers of strata, and to the means they employed to gain an understanding of the significance of rock successions. His realisation that scant attention was paid by his contemporaries to the work of those who had laid the foundations for the study of stratigraphy, John set out to fill this gap by publishing a series of papers that highlighted the work of John Strachey and William Smith.

His historical writings also encompassed topics on the progressive social impact of geological activity, and on the influence of the biblical narrative on thinking about geology.

John will be fondly remembered in Britain for his energetic efforts to bring about the founding of the History of Geology Group (HOGG) in that country. First proposed by him in 1984, its establishment was finally approved in 1994. John himself served on the Group's first committee and helped to guide it in its early years. In addition, he was a Council member of the Geological Society and its Vice-President from 1977 to 1978.

In his later years John wrote that, "I can summarize my career in geology to the present as forty-five years learning about it". This quote bears witness to the unassuming nature of a man who has been described as having a "pleasing character and personality". John's son Simon, in his funeral address, gives us a glimpse into the life of his father in his later years:

"My father's retirement was as active as his career. Besides his continuing geological work, particularly on William Smith, he researched and spoke on historical topics such as the debate over the supposed "Date of Creation" and the role of the Schneider Trophy Races in the development of the Spitfire

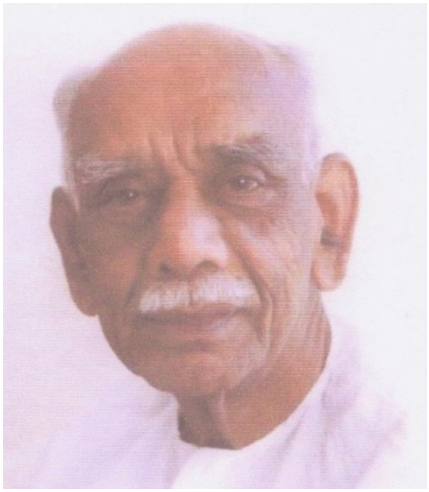
engine. He wrote a history of the Church of King Charles the Martyr, the oldest building in Tunbridge Wells, where he served as a churchwarden. In the tradition of his aunt and uncle with whom he spent many happy summers on the Isle of Wight, he routinely prepared jams and jellies from locally sourced fruit. He maintained a garden stocked with unusual varieties and was particularly interested in cultivating runner beans."

John Fuller's contributions to the history of geology are highly regarded by the present generation of historians of the science and will provide welcome guidance to those who follow.

Wolf Mayer, Canberra (Australia)

(The writer thanks Nicholas Fuller for providing the photo (above) and a number of documents relating to his father's life and work. He also acknowledges the use of information in Alan Bowden's obituary notice, which was published by The Geological Society.)

Bangalore Puttaija Radhakrishna (1918-2012)



B. P. Radhakrishna (BPR), who has been described as the "Doyen of 20th century Indian geology" passed away on 26 January 2012. He strode the scene of Indian Earth Science like a colossus for nearly five decades. His demise has left a void that will be difficult to fill.

Radhakrishna was born on 30 April 1918 in Bangalore. His father, whose biography BPR wrote, had been a well known public figure in the then princely state of Mysore. BPR obtained his B.Sc. (Hons.) degree in 1937. He joined the Mysore Geological Department as a field assistant in the same year and served as its director from 1967 to 1974. He was awarded a Ph.D. degree from Mysore University in 1954 for a dissertation on"The Closepet Granite and Peninsular Gneisses".

Bangalore Puttaija Radhakrishna

BPR was instrumental in founding the Geological Society of India in 1958. He served as its Secretary (1958-1973), Editor (1973-1992) and President (1992-1996). Radhakrishna devoted himself to building up the Society as an important institution and set high standard for its journal in order to maintain its status as the best earth science journal in the country. He trained a band of committed workers and never compromised his principles. He oversaw the publication of almost 80 monographs on geology and mineral resources. Radhakrishna firmly believed in the relevance of geology to scienc, society and human progress. The Society remains as a monument to his memory.

Kottapalli S. Murty, Nagpur (India)

Please note: B. P. Radhakrishna was not a member of INHIGEO. However, given his high and revered status in Indian geology this notice, sent in by our only member in that country, has here been included (editor).

ARTICLES

The French geological expedition to Imperial Mexico (1864-1867)

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Introduction

During the short reign of the Emperor Maximilian (1864-1867) scientific practice in Mexico underwent changes with regard to general perspectives and methodology. The practice of science was promoted and, while scientists were encouraged to pursue work already commenced, many others accepted invitations to participate in new projects. The progress of the geological sciences was greatly assisted, at that time, by the arrival of the French expedition sent to Mexico by Napoleon III, in 1864. This paper discusses the goals and accomplishments of this expedition and evaluates its influence on Mexican geological research in the years during and after the Empire's tragic end.

Instructions issued by the French Scientific Commission

In 1864, following the example of his famous uncle, Napoleon I, in Egypt, Napoleon III authorized the establishment of a French Scientific Commission (FSC), representing the major scientific disciplines, to draw up plans for the exploration of the Mexican Empire. The Commission was set up by the *Institut de France* and organized into four committees, with geology included in the Natural and Medical Sciences Committee. Five members of the *Institut* were appointed and charged with the drawing up of instructions for this expedition. They were Henri Milne Edwards (1800-1885)[1], a celebrated zoologist; the botanist Joseph Decaisne (1807-1882)[2]; the naturalist and anthropologist Jean-Louis-Armand de Quatrefages (1810-1892)[3]; Charles Sainte-Claire Deville (1814-1876)[4], geologist and mineralogist and Félix Hippolyte Larrey (1808-1895), a military surgeon and politician[5].

A summary of the general instructions issued by the Commission with regard to the natural sciences stated that:

> Scientific prospecting of any given region should involve the study of all ethnic groups, living and extinct; description of all botanical and zoological species, living and extinct; research on the constitution of soil and the observation of geological phenomena.[6]

Detailed instructions for the study of the country's geology and mineralogy were prepared by Saint-Claire Deville. He emphasized the need for the preparation of a general geological map. As such a map was expected to represent a graphical summary of the expedition's geological research, its preparation "had to be the outcome of a long and elaborate effort", the more so, as it depended on an "exact and sufficient knowledge of the local topography". Work on this map was recognized as a long-term and difficult project.

At the same time "general data of the Mexican Empire's geognostic constitution" was to be obtained, and/or previous research in Mexico, already commenced by scientists such as Alexander von Humboldt (1769-1859), Joseph Burkart (1798-1874?), Friederich von Gerolt (1798-1879) and Carl Berghes

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[1] Director of the Natural History Museum in Paris and the author of the book: *Leçons d'anatomie et de physiologie comparées*.
[2] President of the *Academie des Sciences* from 1847 to 1865.
[3] Member of the *Academie des Sciences* in 1852.
[4] Member of the *Academie des Sciences* in 1857 and founding director of the O*bservatoire de Montsouris*. Studied sulphur properties and fashioned a theory on volcanoes.
[5] Larrey was Professor of Medicine in *Val de Grâce*, Paris, and a member of the *Academie Impériale de Medicine*, as well as of the War Counsel.
[6] Comité des Sciences Naturelles et Médicales, "Instructions Sommaires", *Archives de la Commission Scientifique du Mexique*, Ministère de l'Instruction Publique, Imprimerie Impériale, vol. 1, p. 19, Paris, 1865.

(1792-1869), to be completed.[7] The names of the Mexican nationals, who had been associated and who had collaborated with the above scientists, were not mentioned.

In fact, the instructions advised that research carried out by Mexicans should not be consulted, except "in particular cases and for regions of major interest, whether from the point of view of eruptive phenomena, or of stratigraphic or paleontological geology". In the latter cases, "selectively chosen, science would be well served by the writing of monographs on similarities and anomalies of European eruptive or sedimentary formations with those found in Central and North America".

Saint-Claire Deville expressed a personal interest in the "chemical analysis of volcanic emanations and organic remains in stratified formations". He also asked for attention to be given to metallic veins, considered to represent "Mexico's most valuable natural resource", as well as to the location and study of mineral waters and volcanic vents. Saint-Claire Deville also asked for the description and cataloging of mineralogical collections, prior to engaging in lithological studies, and emphasized the need to "collect meteorites" or at least their fragments, for a chemical analysis. All reports, he added, had to include graphical representations and photographs, where possible.

Sainte-Claire Deville's "General Recommendations" advised explorers "to gather all existing data, printed or handwritten, dealing with Mexico's geography, topography, geology and mineralogy". He also recommended the preparation of precise drawings of explored formations; the sketching of geological sections; the recording of meteorological data at particular altitudes; the identification of mineral and paleontological samples *in situ*, if possible. The labeling of each sample had to include details of its precise geographical location. With regard to mines, the instructions advised the collection of all surveys conducted by "local engineers", and recommended a thorough examination of the order and succession of substances present in mineral veins, as well as the collection of samples, especially of crystalline material. The location and chemical analysis of mineral waters and the composition and temperatures of volcanic fumes were to be determined.

The instructions included details on the use of appropriate tools and precision instruments, and gave tips on how to deal with specific situations. In regard to these particular aspects, the instructions served as a guide to the further geological exploration of Mexico, as they introduced frontier methodology on geological research.

The scientific work of the expedition

The French geologists chosen to accompany this expedition were Auguste Dollfus, Eugène de Montserrat and Guillemin Tarayre (1832-1920). It is important to note here that the ability of both the French and the Mexican geologist to survey the country was severely limited at that time by the simultaneous conduct of a war between French and Mexican Armies, conducted during the years1861 to 1866. As a result, the envisaged research program was very much downsized. However work that could be carried out led to an increase of wider territorial recognition and geological knowledge of Mexico, and resulted in the publication of numerous scientific papers.

In their exploration of Mexico's regions the geologists followed the instructions of Saint-Claire Deville to make detailed notes of all their observations and to sketch sections of outcrops in parts of the areas they traversed. They carried out major geological surveys extending over parts of the Mexican States of Puebla and Veracruz,[8] and made additional studies of areas stretching from Naolinco to Huatusco and from Perote to Tehuacan and back to Puebla. Their publication on the latter region included parallel and transverse section of the Sierra Madre Oriental Mountain Range, as well as a geological chart of the Zomelahuacan district and a plan of the mineral springs at Puebla. [9]

Auguste Dollfus and Eugène de Montserrat studied the Nevado de Toluca volcano and drew geological cross sections and a plan of its crater, together with a geological and topographic sketch of the surrounding area. They also co-authored a paper on the Colima Volcano, and collaborated with the French mineralogist Paul Pavie, in a study of Popocatepetl.[10] Dollfus and Monserrat also travelled to Guatemala and

[7] During Maximilian's Empire, geological studies by Berghes and von Gerolt, carried out and published in 1827, were reprinted in New York. (Cserna, Zoltan de, 1990. "La evolución de la geología en México (c. 1500-1929)", *Revista del Instituto de Geología*, UNAM, México, 9(1):1-20, p. 5-6)

[8] See note 6, vol. 2, pp. 124-127

[9] See note 6, vol. 2, pp. 363-408

[10] See note 6, vol. 3, p. 29-35; 43-55; and vol. 2, p. 187-201.

El Salvador. They wrote a brief report of the Tacana Volcano in Chiapas in Southern Mexico, and published a note "on volcanic earthquakes and volcanic eruptions".[11]

The two geologists also published a comprehensive study of the mining district of Sultepec, in which they described its physical geography (mountains, hydrography and climate); its geological formations, volcanoes, mineral waters and its sources of "gas emission"; the occurrence of metalliferous veins and the working of the districts' mining industries. This paper includes three geological sections along the expedition's route.[12]

At the same time their colleague, the mineralogist Guillemin Tarayre, explored areas in central and northern Mexican States that included San Luis Potosí, Zacatecas, Durango, Chihuahua, Sonora and Baja California and, after the fall of the Empire in 1867, continued his journey into the United States. His surveys in northern Mexico allowed him to compare the geology and mineral occurrences in this region with those of Alta California and Nevada in the United States.

Tarayre was the expedition's most prolific writer. He produced a 300-page report on the "mineral exploration of Mexican regions", which, in addition to providing data on mining districts, also includes temperature records and comparative tables of meteorological data from the American and French coastlines. Tarayre also wrote on asteroids and meteorites, particularly the Casas Grandes iron-meteorite from northern Mexico.[13]

In 1870 Tarayre published a book on "Precious Metal Production in North America", which included a map and geological sections of "Both Californias, Nevada and Surrounding Territories". This publication also contains a geological profile of the region "between the two Oceans" (the Pacific Ocean and the Gulf of Mexico), charted during his journey from San Blas, on Mexico's west coast, to Veracruz.[14] For each settlement along this route he provided historical information, a profile of its local population and a description of its surrounding landscape. In addition, his work provides paleontological, archaeological and ethnographic information of then unknown areas and of forgotten communities, such as that of Casas Grandes. All of his information was accompanied by statistical and economic data of mines and their surrounding region.

Perhaps the most important contribution of the French geologists lay in their role as instructors of local scientists who had joined their expedition. The latter participated as research associates in the expedition's field work and carried out laboratory work. Some of them were later appointed as corresponding members to the Ministry of Public Instruction in France.[15]

Among the most valued contributions by Mexican geologists,[16] is a book by Virlet d'Aoust (1800-1894) *Coup d'Oeil sur la Topographie et la Géologie du Mexique et de l'Amérique Centrale*, published in 1865. José Guadelupe Aguilera (1857-1941), a noted Mexican geologist, praises this work for its description and the dating of the Sierra Madre system; for its soil type identification and mineral inventory. He also commends d'Aoust's contributions to the study of metamorphism and his work on the origin of meteorites.[17]

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[11] This journey was published in *Mission Scientífique au Mexique et dans l'Amérique* Centrale, Paris, 1868, Civol, in Aguilar y Santillán, Rafael, 1904. *Bibliografía geológica y minera de la República Mexicana completada hasta el año de 1904 [Geological and Mining Bibliography of Mexico]*, Imp. y Fototipia de la Secretaría de Fomento, México, 1908, p. 65.

[12] See note 6, vol. 3, pp. 471-496.

[13] Guillemin Tarayre produced 6 publications, the last of which was "Rapport à son Exc. M. Le Ministre de l'Instruction Publique sur l'exploration minéralogique des régions mexicaines". According to Maldonado-Koerdell, this paper was later reprinted as "Exploration minéralogique des Régions Mexicaines suivie des Notes Archéologiques et Étnographiques". (*Archives...*, vol. 3, p. 173-470, 6 planos; Maldonado-Koerdell, Manuel, 1965. "La obra de la Commission Scientifique du Mexique", en Arnaiz y Freg, Arturo y Claude Bataillon (eds.), *La intervención francesa y el Imperio de Maximiliano cien años después, 1862-1962*, Asociación mexicana de historiadores, Instituto Francés de América Latina, México, p. 180)

[14] Aguilar y Santillán, *Bibliografía geológica y minera de la República Mexicana completada hasta el año de 1904*, p. 102.

[15] Only the most outstanding researchers who contributed to the geological sciences are mentioned.

[16] Only works used and validated in Mexican bibliography are mentioned. Nonetheless, Aguilar y Santillán refers to numerous papers published in France and elsewhere, that could be related to the work of the expedition during Napoleon's adventure.

[17] Aguilera, José G. 1905. "Reseña del desarrollo de la geología en México", *Boletín de la Sociedad Geológica Mexicana*, 1ª época, 1:35-117, México, p. 59-60.

Carron de Fleury's work with the French expedition resulted in the publication of "Geological and statistical notes on Sonora and Baja California…".[18] Antonio del Castillo (1820-1895) completed a "Mexican Mineralogy Chart", in which, following the system of Professor Dana, he ordered mineral species according to their chemical composition and mode of crystallization. He also examined meteoric iron from Yanhuitlán, Oaxaca.[19] Pierre Laur wrote a 300-page treaties on the metallurgy of silver in Mexico, which was published in *Annales des Mines* in París, in 1871.[20]

The scientific output of the expedition conducted under the auspices of the French Scientific Commission are contained in three large volumes, which include minutes of working sessions, travellers' reports, and major scientific studies.[21]

In addition to their scientific exploration in Mexico, members of the expedition also collected many specimens of scientific value from the countries' natural environment, as well as material of historical significance and objects of art. Many of these were taken to museums in Paris, increasing further the richness of that country's scientific and cultural collections. A prime example of the loss of a significant object of Mexican scientific heritage was the removal of the Charcas iron-meteorite, weighing some 780 kg, from San Luis Potosi to Paris. Its relocation to France was directed by François Achille Bazaine (1811-1888), then a general in the French Army in Mexico. This can be seen as a material metaphor of scientific and cultural transfer.

A brief discussion of the first geological mapping by the Austrian monarchy and its relationship to the Czech lands, with biographical notes on Johann (Janos) Jokély

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The Imperial Geological Institute, now Geologische Bundesanstalt (Geological Survey of Austria), was founded on the 15th November 1849, following the signing of a charter by the Austrian Emperor Franz Joseph I, in Schönbrunn. This Institute, based in Vienna, became the first institution of its kind on the European continent, and for the first twenty years of its existence was the only geological institute in the Austrian Empire.

The Vienna Institute, from the second half of the 19th century, accomplished an ambitious and professionally very challenging task. The aim was to create modern geological maps of the Austrian Empire on a scale of 1:144 000. This work resulted in a new interpretation of the geological structure of the territory. The manager of this project was the first director of the Imperial Geological Institute, Wilhelm von Haidinger, an excellent organizer and a knowledgeable geologist. Bohemia and Slovakia, then part of the Austrian Empire, were mapped between 1853 and 1862.The mapping activity occurred in conjunction with the compilation an inventory of mineral resources, including the springs of mineral-bearing waters and drinking water.

The results of these surveys were published in the form of hand-colored geological maps on a scale of 1:144 000. This rather unusual scale was governed by the scale of then available topographic maps – 1: 28 800 – which in turn was determined by a requirement that the length of one Viennese inch on maps should correspond to a distance of 400 yards on the ground, i.e. 758.6 m. According to map makers this distance corresponded to 1000 military marching steps (1Viennese inch equals 26.34 mm, and 1Viennese fathom 1 896,484 mm = 72 inches).

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[18] Carron de Fleury, 1869. "Notas geológicas y estadísticas de Sonora y la Baja California. Situación geográfica. Descripción física. Origen de la población actual", *BSMGE,* 2ª época, vol. I, p. 44-52, 112-118.

[19] Castillo, A., 1864. "Cuadro de la mineralogía mexicana..." y "Descripción de la masa de hierro meteórico de Yanhuitlan, recientemente traída a esta Capital y noticia y descripción de las masas de hierro meteórico, y de piedras meteóricas caídas en México", *BSMGE,* 1ª época, (10):564-571 y 661-665.

[20] According to Aguilar, this work became one of the most important in the field. (Aguilar y Santillán, Rafael, 1904. *Bibliografía geológica y minera de la República Mexicana completada hasta el año de 1904*, p. 133-134).

[21] Other inquiries were published under the title *Mission Scientífique au Mexique et dans l'Amérique Centrale* (Paris, 1868), in an elegant collection of large folio volumes, profusely illustrated with colour plates. In addition, the military published its own studies in a separate series –*L'Éxpedition au Méxique*–. (Maldonado-Koerdell, M., 1965, "La obra de la Commission Scientifique du Mexique" [The works of the French Scientific ommission], p.179).

The first geological maps produced were rather simple, whether on a scale of 1:144 000 or 1:28 800. Detailed maps (1:28 800) were used only as co-called working or field maps. They included notes which provided basic geological information, such as the description and definition of rock types, evidence of tectonic fault systems, the presence of quarries and working mines, and other information, revealed by geological mapping. The general topography on these maps was indicated by hatching; height measurements were limited by the presence of triangulation points. In the Czech lands, topographic contours were added to the maps after the completion of geological mapping. Geologists themselves plotted altitude data on the maps during their geological fieldwork. The Imperial Geological Institute also published geological studies and reports, based on the mapped areas.

Between1849 and 1862 seventeen geologists and their assistants worked in Bohemia, Moravia and Austrian Silesia. They made up an 'international' team drawn from member states of the Austrian Empire (Germans, Austrians, Slovenes, Hungarians, Czechs, etc.). Some of the names of these geologists are recorded on the edges of the map (see Table 1). The name of Johann Jokély appears most often – seven times as the sole author and 11 times as co-author of one of the maps. His biography provides us with information about this geologist, and also about the time in which he lived and about the techniques then used in geological mapping.

Johann (Janos) Jokély was born in 1826 in Eger (Erlau), in Hungary, in a region well known for its wine production. In 1852, after graduating from the Mining Academy in Banská Štiavnica (in German Schemnitz, in Hungarian Selmecbánya), he started work in the service of the Imperial Geological Institute in Vienna. Jokély was initially assigned to Johann Čžjžek (Cizek), who was the chief geologist and who with his colleagues launched a research project in southern Bohemia, in a region arround the towns of Pisek, Mirovice and Vodňany. After the death of Čžjžek, in 1855, Jokély collaborated with other geologists, including Ferdinand von Hochstetter, Victor von Zepharovic and F. von Lidl (mostly in the years 1855 and 1856). From 1857 to 1861 he gradually started to work on his own on the compilation of geological maps of Bohemia, including in areas arround the towns Teplice, Děčín, Liberec, Česká Lípa and Šluknov and Mladá Boleslav. Some of the last maps which Jokély produced between 1860 and 1863 cover the area of the Krkonoše (Giant) Mountains (Riesengebirge) and that near the towns of Jičín and Broumov. He also participated in the geological mapping of the land around České Budějovice, Český Krumlov, Třeboň and Karlovy Vary and Cheb.

During the course of these activities Jokély gained considerable experience in geological mapping and a wide knowledge of regional geology. For the area of the Giant Mountains (Riesengebirge), Jokély produced a geological map in the modern style, accompanied by cross sections, and gave the first scientific interpretation of the area's geological structure. He also described the characteristics of its major rock types and gave his views on their origin. Jokély also recorded the occurrence of mineral springs and gave an overview of the area's mineral deposits. The thoroughness he applied to his work and his sound reasoning in reaching his conclusions still impress today. There is no doubt that his geological work in the Giant Mountains (including also the Jizerské hory Mountains), published in a 25-page study, provided the basis for an understanding of this region. Jokély's precise and detailed discussion of the ore deposits and mining activities in the Giant Mountains remained the main source of information for geological work in this area for decades. Up to the 1960s, some hundred years later, Jokély's publications and interpretations of the area's geology were still accepted and cited in the literature. Jokély was an outstanding geologist whose contributions brought a fresh understanding to the fields of geology in which he was active. His life ended tragically and unexpectedly, by suicide, when he was only 36 years old.

It is clear that mapping carried out by geologists of the Viennese Institute in the mid-nineteenth century, differed in many respects from contemporary practice and presented huge organizational challenges. The work of field geologists was then often associated with a sense of adventure and romance, especially when working in less accessible terrains. With a limited amount of time available they often used carriages as their mode of transport. They acquired useful information about rock outcrops and mineral occurrences in particular areas from locally hired employees, who were sent off in different directions in the mapping areas to reconnoiter the easiest and most accessible routes for the geologists to follow. The professionalism and expertise of these geologists, who in a relatively short time mapped large areas and interpreted their geological structure, still engenders admiration today.

The indication of time horizons on these old maps have a practical use today in allowing the transfer of such data to current maps, where areas have been disturbed by human activity. Information shown in old geological maps can also contribute to the solution of current problems with regard to landscape restoration. Examples include the damage caused by anthropogenic activities to hydrogeological conditions, the effects of irrigation and changes of the microclimate on the landscape, areas subject to landslides, and the impact on

the land of surface and underground mining. A study dealing with these issues has been published by V. Brůna, in 1999, titled: "Reconstructive maps northwestern Bohemia - The use of historical maps in restoring landscapes in the northwestern coal basin." (See reference below).

Table1 - List of published geological maps – "Special-Karte des Königreichs Böhmen" on a scale of 1:144 000 and the names of the geologists who mapped them.

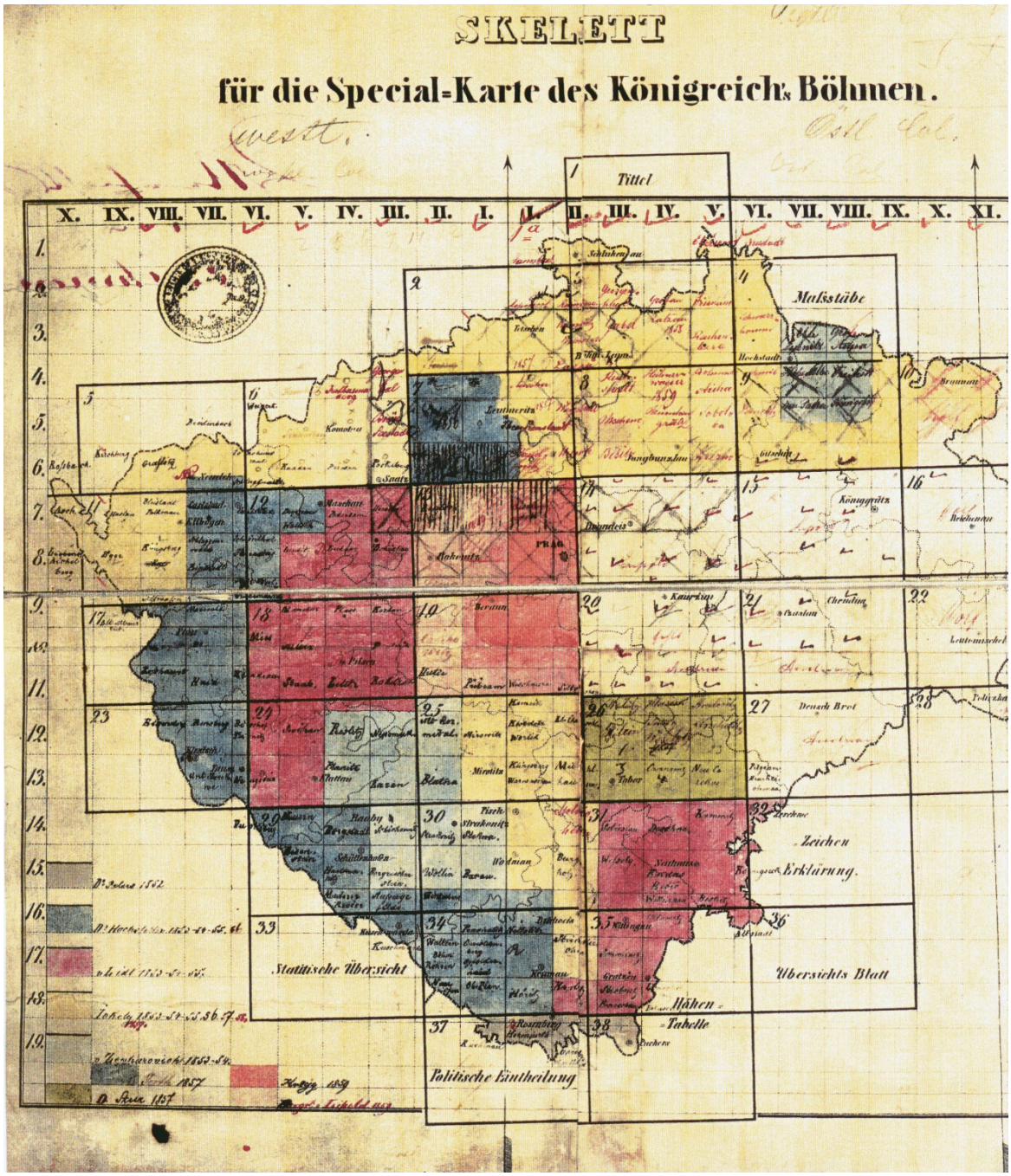
Note: The list contains the titles of map sheets making up the "Special-Karte des Königreichs Böhmen", stored in the archives of the CGS. The table lists the names of the cities that define the map sheet areas and the order in which the maps were produced.The word "Umgebungen" in the titles of the map sheets refers to the surrounding area of a particular town. The Czech language equivalents to the old German names on the map sheets are given below (from J. Beneš 1996):

Hainspach *(Lipová),* Schlukenau *(Šluknov),* Teplitz *(Teplice),* Reichenberg *(Liberec),* Neustadt *(Nové Město),* Hochstadt *(Vysoké nad Jizerou),* Neudek *(Nejdek),* Kommotau *(Chomutov),* Saaz *(Žatec),* Leitmeritz *(Litoměřice),* Theresienstadt *(Terezín),* Braunau *(Broumov),* Carlsbad *(Karlovy Vary),* Eger *(Cheb),* Prag *(Praha),* Beraun *(Beroun),* Przibram *(Příbram),* Skalitz *(Stříbrná Skalice),* Beneschau *(Benešov),* Reichenau *(Rychnov nad Kněžnou),* Neu Bidsow *(Nový Bydžov),* Königgrätz *(Hradec Králové),* Brandeis *(Brandejs),* Neu Kolin *(Kolín),* Plan *(Planá),* Hayd *(Bor),* Pilsen *(Plzeň),* Klattau *(Klatov,* Klentsch *(Klenčí pod Čerchovem),* Schüttenhofen *(Sušice),* Berg-Reichenstein *(Kašperské Hory),* Chrudim *(Chrudim),* Mirotitz *(Mirotice),* Deutsch Brod *(Havlíčkův Brod),* Bistrau *(Bystré),* Tabor *(Tábor),* Leitomischel *(Litomyšl),* Böhm.Trübau *(Moravská Třebová)*, Pisek *(Písek),* Wodnian *(Vodňany),* Schweinitz *(Trhové Sviny),* Wittingau *(Třeboň),* Budweis *(České Budějovice),* Krumau *(Český Krumlov),* Wessely *(Veselí),* Neuhaus *(Jindřichův Hradec),* Ober Zerekwe *(Horní Cerekev)* , Kuschwarda *(Strážný)*.

Special-Karte des Koenigreiches Boehmen 1:144 000

Nr. Ia. Umgebungen von Hainspach in Böhmen und Dresden in Sachsen	Jokély, J.
Nr. Ib. Umgebungen von Schlukenau in Böhmen und Seidenberg in Preussen nebst Titel	Jokély, J.
Nr. II. Umgebungen von Teplitz und Tetschen	Jokély, J.
Nr. III. Umgebungen von Reichenberg	Jokély, J.
Nr. IV. Umgebungen von Neustadtl und Hochstadt	Jokély, J.; Porth, E.
Nr. V. Umgebungen von Neudek	Jokély, J.; Hochstetter, F.
Nr. VI. Umgebungen von Kommotau und Saaz	Jokély, J.
Nr. IX. Umgebungen von Jičin und Hohenelbe	Jokély, J.
Nr. VIII. Umgebungen von Jung Bunzlau und Melnik	Jokély, J.
Nr. X. Umgebungen von Braunau	Jokély, J.; Wolf, H.
Nr. VII. Umgebungen von Leitmeritz und Theresienstadt	Jokély, J.; Hochstetter, F.
Nr. XII. Umgebungen von Lubenz	Lidl, F. von; Hochstetter, F.
Nr. XI. Umgebungen von Carlsbad und Eger	Jokély, J.; Hochstetter, F.; Laube, G.
Nr. XIII. Umgebungen von Prag	Lipold, M. V.; Krejčí, J.
Nr. XIX. Umgebungen von Beraun und Przibram	Lipold, M. V.; Krejčí, J.
Nr. XX. Umgebungen von Skalitz und Beneschau	Lipold, M. V
Nr. XVI. Umgebungen von Reichenau	Wolf, H.; Paul, K. M.
Nr. XV. Umgebungen von Neu Bidsow und Königgrätz	Lipold, M. V.
Nr. XIV. Umgebungen von Brandeis und Neu Kolin	Lipold, M. V.

Nr. XVII. Umgebungen von Plan und Hayd	Hochstetter, F.
Nr. XVIII. Umgebungen von Pilsen	Lidl, F. von; Lipold, M. V.
Nr. XXIV. Umgebungen von Klattau und Nepomuk	Lidl, F. von; Hochstetter, F.; Zepharovich, V.
Nr. XXIII. Umgebungen von Klentsch	Hochstetter, F.
Nr. XXIX. Umgebungen von Schüttenhofen und Berg-Reichenstein	Hochstetter, F.; Zepharovich, V.
Nr. XXI. Umgebungen von Chrudim	Andrian, F. von
Nr. XXV. Umgebungen von Mirotitz	Zepharovich, V.; Jokély, J.
Nr. XXVII. Umgebungen von Deutsch Brod	Andrian, F. von
Nr. XXVIII. Umgebungen von Bistrau	Lipold, M. V.
Nr. XXVI. Umgebungen von Tabor	Štúr, D.
Nr. XXII. Umgebungen von Leitomischel und Böhm.Trübau	Wolf, H.; Lipold, M. V.;Paul, M.
Nr. XXX. Umgebungen von Pisek und Wodnian	Zepharovich, V.; Jokély, J.
Nr. XXXV. Umgebungen von Schweinitz und Wittingau nebst einem Theile der Höhen Tabelle	Lidl, F. von; Jokély, J
Nr. XXXIV. Umgebungen von Budweis und Krumau	Hochstetter, F.; Jokély, J.
Nr. XXXVI. Übersichts Blatt zur Special Karte von Böhmen	Lidl, F. von
Nr. XXXI. Umgebungen von Wessely und Neuhaus	Lidl, F. von; Jokély, J.
Nr. XXXII. Umgebungen von Ober Zerekwe nebst Zeichen Erklärung	Lidl, F. von; Jokély, J
Nr. XXXIII. Umgebungen von Kuschwarda und die statistische Übersicht	Hochstetter, F.



Index of the Special-purpose Map of the Kingdom of Böhmen (Bohemia)

The map provides an index ("Skelett") of the numbered geological map sheets on a scale of 1:144 000, corresponding to the numbered sequence in Table 1. Maps on a scale of 1:28 800 were used as so-called field maps, and served as base maps for the production of geological maps on a scale 1: 144 000. The names of several of the map makers (Hochstetter, F. 1853-54 55; Lidl, F. 1853-54, 55; Jokély, J. 1853-54, 55, 56, 57; Zepharovich, V. 1852-54'; Porth, E. 1857 and Štúr, D. 1857) are shown in the lower left corner against a coloured legend which corresponds to the areas they have mapped. This index served as a work document for the former Imperial Geological Institute in Vienna in planning the first geological mapping of the lands of the Austrian monarchy, in this case that of Bohemia.

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BOOK REVIEWS

Hirokazu Kato, Michiya Inomata and Yasumoto Suzuki, 2012. *Visual Images and Geological Concepts, Proceedings of INHIGEO 2011, Japan.* Tokyo: Japanese Association for the History of Geology, 223 p.

The book contains a collection of 24 papers, first presented at the 36th INHIGEO Meeting held at Aichi University in Toyohashi, Japan. The articles are published in three parts under the following headings:

1. *Geological Maps and Illustrations*, featuring articles on the history of geological maps and related geological images.
2. *Characteristic Geological Issues*, a series of articles which discuss matters relating to the history of seismology, volcanology and geotectonics, predominantly in Japan and the wider Pacific region.
3. *History of Geoscientists,* which records and discusses the achievements of individuals who have made early contributions to geology in Japan and elsewhere.

Ernst Hamm, in the opening article of the *Proceedings*, gives us a tantalising glimpse into attempts by the celebrated poet and naturalist, Johann Wolfgang von Goethe, to gain an understanding of geology and geological processes. He focuses in particular on Goethe's rarely discussed sketches and drawings of geological features, made during his journeys in the 1780s, and on what prompted him to draw these images. Hamm reaches the conclusion that Goethe did not intend to make a record in terms of a "visual language", as seen in geological maps and sections, but produced likenesses or pictures, to help him "make sense of his observations in the field".

The subject of the pictorial representation of the Earth surface also plays a role in **David Oldroyd**'s article, in which he traces the early development of geological maps, both in Europe and in China. His detailed and engaging chronicle follows the changes in methods to depict on paper the structure of Earth's rocky skin and its landscape forms, first in the character of pictures and later as diagrams and recognisable geological maps and sections. This change in presenting images of the land's physical features took place in Europe as early as the 1760s, but in China not until the start of the 20th century. The author suggests that this may be due to the oriental tradition, which in its art "sought to express ideas and feelings, not physical resemblances and diagrammatic representations".

Of particular interest in Oldroyd's article is his well-illustrated account of the changes from pictorial to diagrammatic representations of rocks in Western Society, starting with the cut-away illustrations of mines by Agricola in 1556, moving on to what the author regards as transitional geomaps, such as those drawn by Füchsel in 1762, and culminating in the forerunners of our modern geological maps compiled by Smith, Brongniart and Cuvier in the early 19th century. Oldroyd also engages in the debate on the respective merit of 'geognostic maps' – merely depicting "the arrangement and structures (or 'architecture') of rocks" – and 'genuine geological maps' that convey to the viewer a sense of Earth's history. He reaches the view that many of us may have been unjustly critical of the value and significance of the early attempts to portray the Earth's outer fabric on paper.

The two articles by **Hirokazu Kato** and **Naotoshi Yamada** provide an overview of early geological map-making in Japan. From the 1880s, initially relying on the know-how and tutelage of foreign geologists, such as the American B. S. Lyman, the Englishman J. G. H Godfrey and the German E. Naumann, and coordinated by the Japanese Geological Survey (est. 1882), geological mapping progressed rapidly and resulted in the complete coverage of the country as early as 1901. The first series of five geological map sheets, the "Reconnaissance Geological Maps of the Japanese Empire", were drawn on a scale of 1:400 000. Yamada give us a detailed account of the progress of this work and of the compilation of these sheets into a single geological map of Japan on a scale of 1:1000 000, in 1899. Kato continues the story and relates how the demand for greater knowledge of the county's geology resulted in more detailed surveys and the publication of geological maps on an increasingly larger scale, with more refined content, culminating in the present focus on 1:50 000 geological sheets. Both Kato and Yamada refer to the significance of these early mapping efforts in providing a more comprehensive understanding of the geological make-up of Japan and in the recognition and interpretation the country's tectonic elements.

Toshio Kutukake's article introduces us to some most curious, and, at the time, secret practices in mineral exploration during the Edo period (1603-1868) in Japan. According to the Sanso-Hiroku, a document with attached illustrations, completed in 1827, the methods used in the search for ore deposits involved the observation of the appearance of mountains from a distance, "a kind of remote sensing in modern usage", as the author expresses it. The illustrations of mountains included in Kutukake's article, are said to indicate by their physical features – size of their peaks, bald tops, prominent rock outcrops, etc. – the likely presence of certain ore deposits.

Masumi Osawa also discusses the significance of minerals in the Edo period, but with respect to their common knowledge and their uses at that time, particularly in medicine. His study relies on books and manuscripts from that period and on collections of minerals held in museums.

Junji Itoigawa discusses the use of illustrations in documenting natural disasters, such as volcanic eruptions, earthquakes and tsunamis, between 1868 and 1926, in Japan. The traditional Japanese forms of pictorial presentation, such as the woodcut, were partly succeeded by the introduction of lithographs and later photography, in the second half of the 19th century. The article is accompanied by illustrations of disasters that not only make a vivid impression on the viewer, but can also be appreciated as works of art.

The disaster theme is continued in an article by **Kanenori Suwa**, who acquaints us with a belief, held by Japanese people, up to the middle of the 19th century, that the accidental rousing of the Namazu (a giant catfish) living underground, would trigger earthquakes. Following such disasters a number of prints appeared which sold in large numbers. Some of these depicted scenes of the devastation caused – in this

article by the 1855 Tokyo earthquake – and the punishment meted out to the creature by the god Kashima Shrine, who appeared to have some power over it.

In the opening article of the volume's second part, **Toshihiro Yamada** raises the interesting question of the extent to which geopolitics may exert an influence on the activities of scholars in the geosciences. He notes that the interest and the activities of Japanese scholars did indeed spread rapidly into the expanding territories of occupied land in the 1930s and 40s. His main focus is directed at the work of the Japanese geologist/geographer Mochizuki Katumi, in particular his significant book on the geotectonics of East Asia and the Pacific, a work in which he incorporated ideas from geomorphology, geophysics and geology. The author examines the extent to which Mochizuki drew on and was influenced by Japanese geoscientists, either trained in the West or imbued with Western ideas, and by foreign scholars, in particular by the theory of Wegener. Yamada demonstrates that, while Mochizuki's early thinking "was much influenced by the works of overseas scholars", it is also clear that later research conducted in areas opened up by Japanese expansion, shaped his thinking and influenced his own work. The author believes that, in defining his "field of study as 'Greater East Asia', Mochizuki may have made a political statement", and reflects on the possibility that the latters "territorial awareness … could readily have 'resonated' with political and military thoughts".

The next two articles deal with the history of earthquake studies in the Japanese Islands. **Yasumoto Suzuki**, together with 17 co-workers, reviews early studies of stresses, associated with faulting and volcanic zones, which are considered to be responsible for the generation of both shallow and deep earthquakes. **Yo Akamatsu** and **Hisao Adachi**, with 16 co-workers, trace the history of deep earthquake studies. Not recognised until the 1920s, deep earthquakes were variously interpreted to occur on an inclined, landward dipping zone, along reverse or normal faults and, more recently, along contours that follow a block structure.

Kanenori Suwa divides the historical studies of volcanology in Japan into four periods, extending from the late-19th century to the present, and which are reflected in the work of seven geoscientists, all associated with the University of Tokyo. Bunjiro Koto, who had studied in Germany, introduced modern petrographical methods to Japan and pioneered the study of volcanoes. His student, Tadaichi Matsumoto was the first to carry out extensive fieldwork in volcanic regions and became best known for his studies of giant caldera in Japan. The second period is marked by the work of Seitoro Tsuboi and Hisashi Kuno, who introduced experimental and theoretical work, based on the work of Bowen in the United States, to the study and the interpretation of the volcanic rocks found in the Japanese Islands. The third period is marked by the more intensive studies of volcanic rocks in island arcs by Akiho Miyashiro and Arata Sugimura, while the last period includes the work of Ikuo Kushiro on the origin of basaltic magma.

Mike Johnston gives us an illuminating account of the recognition of a fundamental division of New Zealand into an Eastern and a Western geological province, marked by an extensive igneous rock mass known as the Median Batholith. These provinces are distinguished by dominantly Early Palaeozoic sedimentary and igneous rocks to the west and by mainly sedimentary rocks of Carboniferous to Cretaceous age, to the east; all affected by varying degrees of metamorphism. This separation was first mapped by the Austrian geologist Ferdinand von Hochstetter, in 1859, on the basis of differences in the trend and age of the rocks and on the basis of the similarity of geological sequences. These features were also identified further to the south, by the Survey geologist James Hector. The division was given a more concrete expression on maps by the recognition of the Alpine Fault by New Zealand geologists in 1941. The identification of different grades of metamorphism in the rocks on either side of the divide, in the 1960s – paired metamorphic belts – produced further proof of the proximity of two rock assemblages unrelated in origin. Following a Japanese example, the divide became known as the Median Tectonic Line, a term changed in the 1980s to the Median Tectonic Zone. The recognition in the 1990s that "the plutons of the MTZ were a contiguous coherent entity that comprised the roots of an extensive and long-lived volcanic arc on the Proto-Pacific margin of Gondwanaland" led to the bestowal of the name "Median Batholith".

Barry Cooper in his article tells the story of the discovery of the first submarine canyon off the coast of South Australia during a survey conducted by the Royal Australian Navy, in 1947. The author highlights the interest generated by this discovery and the subsequent work on such canyons carried out by the renowned geologist Reg Sprigg, best known today for his discovery of the Ediacara fauna. Sprigg showed a remarkable aptitude for producing outstanding research in a variety of fields in the earth sciences and, through his work on submarine canyons both in South Australia and New Guinea, earned a reputation as one of Australia's first oceanographers.

In a second article dealing with the marine environment, **Takao Nakajin** recounts the discovery and first description of a submarine ridge-seamount chain in the northwest Pacific Ocean, by Risaburo Tayama, who named it the Northwest Pacific Ridge, in 1952. Two years later, Robert Dietz re-named the submarine

ridge the Emperor Seamounts, and drew on its properties in the formulation of his theory of ocean basin evolution by sea-floor spreading.

Masatoshi Goto and **Masahiko Akiyama** "describe the foundation and development of the Fossil Research Society of Japan and its contribution to the advance of paleobiological studies". The published research carried out by its members, on a range of subjects, including on the 'Methodology of Fossil Research' and on 'Biomineralization', greatly enhanced knowledge in these fields of study.

The biographical section, which makes up the third part of this book, opens with two articles by **Kim Kwang-Nam**. In the first of these, he discusses aspects of the work of the American geologist, and Harvard graduate, Benjamin Smith Lyman in Japan, between 1872 and 1880. Lyman, who taught geology in Japan, is credited with the compilation of the country's first comprehensive geological map and also made contributions to coal and petroleum exploration. The article features a large selection of sketches and extracts from Lyman's field notebooks which, in addition to geological data, contain philosophical comments and observations on aspects of Japanese Society.

In his second article, Kim Kwang-Nam analyses the sketches drawn by the German mining geologist, Curt Adolph Netto, who resided in Japan between 1873 and 1885. After working several years in the mining industry, Netto was appointed professor of mining and metallurgy at Tokyo University. During his stay in the country he produced hundreds of drawings in pencil and watercolour depicting, in particular, Japanese landscapes as well as the country's people and their customs. These art works represent an accurate historical record of that time.

K. R. Aalto discusses the geological work carried out by Raphael Pumpelly during his travels in Japan and China, in 1861-1862. The geological maps Pumpelly compiled and his interpretation of tectonic histories of the regions he surveyed, contributed significantly to an early understanding of the geology of parts of these two countries. His recognition of a major orogen in China and its parallelism in trend with other mountain ranges in the northern hemisphere led him to attribute their common geomorphic expression to universal "harmonious laws of causes".

Takeshi Ozawa gives a brief account of the four-year sojourn of the German mining engineer Carl Augustus Schenk in Japan. Schenk lectured in chemistry and mineralogy at a school that later became the University of Tokyo. It should be noted that the abstract for this article does not seem to match its contents.

In a reversal of the trend that brought many Western geologists to work in Japan, **Stefano Marabini** and **Gian Battista Vai** write of a Japanese mining engineer, Toyokichi Harada, who mapped the geology of part of the Italian Alps, in 1882. After studying in Germany and Austria, the then twenty-one year old Harada produced a detailed geological map accompanied by skilfully drawn cross sections and sketches, an accomplishment highly regarded by both contemporary and later Italian geologists. Following his return to Japan, in 1883, Harada was appointed Vice-Director of the newly established Geological Survey.

Keiichi Shiraki and his four co-workers relate the discovery, in 1887, of the volcanic rock boninite, on a Japanese island, by Kikuchi Yasushi. While the latter did not name this rock, his analyses showed that it was unusually high in MgO. The German geologist, Johannes Petersen, who studied similar rocks from the same area, but with a lower content of MgO, gave to them the name boninite. Not until more recent times was the high magnesium content of boninite confirmed.

Michiko Yajima provides us with the unexpected information that a Western woman was the first female to carry out geoscientific studies in Japan. In 1910, Marie Stopes, better known as an advocate of birth control in Britain, but then living in Japan, co-published an article on fossil plants from Cretaceous coal measures. As in the early stages in the development of modern geoscience in the Western World, Japanese women, at an equivalent period in the emergence of the science in that country, entered the profession late and in even smaller numbers. Kono Yasui, in 1927, was the first woman to receive a doctoral degree for a dissertation on lignite and coal. Today women make up about one tenth of the membership of the Geological Society of Japan.

The final essay of the book, contributed by **Masaru Yoshida** and **Okitsugu Watanabe,** deals with the activities of the Academic Alpine Club of Hokkaido University. The Club has mounted expeditions to the Himalayas, Antarctica and elsewhere, which provided ideal opportunities for graduate students to gain experience in various fields of the earth sciences. The studies conducted as part of these expeditions have produced much new data and have resulted in many publications.

This volume of conference proceedings and excursion guides covers a wide range of topics within the three broadly-defined conference themes. The articles give the reader a fascinating introduction to many aspects of the history of geology in Japan and, in a few examples, to geohistorical subjects in other parts of the world. The volume is richly illustrated, an attribute that is further enhanced by two accompanying CDs. The first of these stores all of the book's illustrations in colour, while the second CD provides a "History of

Geological Maps in Japan". The authors featured in this volume and its editors deserve our congratulations for presenting us with a valuable contribution across a spectrum of the history of geology.

Wolf Mayer, Canberra (Australia)

To obtain a free copy of this publication please contact Dr Hirokazu Kato at h.katou@aist.go.jp (editor).

A Vast New Database of 19th century Letters relating to the History of Geology in New Zealand. *Geoscience Society of New Zealand GSNZ, Miscellaneous Publication 133* (parts A to F) available on the web at http://tinyurl.com/a28vs8s

Several years ago Simon Nathan commenced work on a biography of Sir James Hector (1834-1907), the leading scientist in New Zealand in the latter part of the 19th century. As in all such works, after the decision to write a biography is made, the next step is to locate and prioritise the source material. In trawling through various archives Nathan quickly established that a large amount of correspondence, both to and from Hector, had been preserved for posterity. This correspondence is principally housed in the National Library of New Zealand, the Museum of New Zealand Te Papa Tongarewa, in the Hocken Library of the University of Otago in Dunedin and, in England, in the Royal Botanic Gardens at Kew. Not that these were new discoveries as historians had previously dabbled with some of these archival letters, which had made it clear to them that Hector's handwriting was to all intents and purposes illegible. In order to train as a geologist, Hector had taken a medical degree, at the University of Edinburgh, and therefore his reputation for atrocious handwriting could at least be explained as being a common trait in this profession. Nevertheless, Hector's dual training was to give his career a head start for, in 1857, he was appointed both as geologist and doctor to the Palliser Exhibition, which spent three years traversing western Canada. With the successful conclusion of the expedition and Hector's survival of a near fatal accident at what became Kicking Horse Pass in the Canadian Rockies, he was, in 1861, appointed Provincial Geologist by the Otago Province Government in southern New Zealand. Largely through Hector's efforts a national geological survey was established in 1865, with him being appointed as its first director. As well as heading the Geological Survey, Hector was also in charge of the Colonial Laboratory, the Colonial Museum and Meteorological Office and, from 1867, was manager of the New Zealand Institute, now the Royal Society of New Zealand.

That Hector's reputation for having an unreadable handwriting may have been exaggerated was demonstrated in 2007, when Dr Tony Hocken completed his Ph.D. thesis on Hector's role as "Otago's Provincial Geologist", at the University of Otago. This is not to imply, however, that reading Hector's writing was easy, merely that it could, with considerable effort and perseverance, be done. Indirectly, this may have provided an incentive to have the Hector and related letters transcribed by a group that comprised Rowan Burns, Esme Mildenhall, Judith and Simon Nathan, and Sascha Nolden. The letters were grouped into broad categories and have been published in stand-alone volumes. Within each volume the letters were, with some variations, arranged in chronological order.

The volumes published comprise:

133A: *My Dearest Georgie: transcriptions of 22 letters from James Hector to his wife Georgiana written in 1890*. June 2012.
133B: *My Dear Hooker: transcriptions of letters from James Hector to Joseph Dalton Hooker between 1860 and 1898*. October 2012.
133C: *My Dear Doctor Haast: transcriptions of selected letters by Robert Langley Holmes to Julius Haast between 1862 and 1870*. October 2012.
133D: *The Correspondence of Julius Haast and James Hector, 1862-1887*. December 2012.
133E: *A Quick run Home: Correspondence while James Hector was overseas in 1875-1876*. November 2012.
133F: *Transcriptions of selected letters from Frederick Wollaston Hutton to James Hector and Julius Haast*. December 2012.

The contents of volume 133A, *My Dearest Georgie*, by Judith and Simon Nathan, are a series of letters written over a three-month period when Hector was a member of a board of inquiry into the sanitary condition of Dunedin Hospital, which at the time was probably the largest hospital in New Zealand. This was

followed by him chairing a board of inquiry into the safety of the coal mines on the West Coast of the South Island, where the mine owners and unions were flexing their respective muscles. In addition to giving some insight into how such inquiries were run, there are fascinating glimpses of travel in late-colonial New Zealand, as well as of the more personal aspects of family life. They are also the only known surviving letters which Hector wrote to his wife.

133B: *My Dear Hooker*, by Rowan Burns and Simon Nathan, is, with its 207 pages, the second largest of the volumes. It contains the correspondence between Hector and Sir Joseph Hooker, at Kew, over a 38-year period. While the letters contain much, as would be expected, on botanical themes, there is a wealth of information on a range of other topics, such as the financing of railways in New Zealand with borrowed money, and on family matters. It is obvious from these letters that there was a close personal bond between the two men – Hector did in fact regard Hooker as his mentor.

Rowan Burns and Simon Nathan's volume (133C) of the letters from Robert Holmes to Julius Haast, later Sir Julius von Haast, in the mid and late 1860s, are less wide-ranging in their content – those selected for publication mention Hector and his activities. Holmes was engaged by Haast, who was in charge of the Canterbury Provincial Museum, to oversee that province's exhibits at the New Zealand Industrial Exhibition, held in Dunedin in 1865, in the organization of which Hector was deeply involved. Another series of letters was written when Holmes was temporarily employed by Hector at the Colonial Museum. These letters, not all of which are addressed to Haast, contain much scientific and social gossip and are, in the words of the authors, "a delight to the historian".

The fourth volume dealing with the correspondence between Haast and Hector over a 25-year period, from 1862 until Haast's death, is, at 315 pages, by far the largest and arguably the most important of the volumes. These letters are mostly held at Te Papa (mainly those written by Haast) and in the Alexander Turnbull Library (mainly those written by Hector). Sascha Nolden, as part of his ongoing research of Ferdinand von Hochstetter, had already transcribed many of the Haast letters, a task later continued by Rowan Burns and Simon Nathan. The obvious outcome of their activities was to combine the results of the two separate endeavours to produce the present volume. In doing so, the authors have done scientists and historians a great service. Emerging from the huge amount of information contained in this volume, is the rivalry between Hector and Haast, and how this tended to divide the small scientific community in New Zealand, which included both professional scientists and, probably in the majority, lay people with a deep interest in science. Perhaps with an eye to posterity, Hector was a lot more guarded in what he wrote than the other players in this correspondence.

The penultimate volume, by Rowan Burns and Simon Nathan, deals with letters to and from Hector when he and his wife travelled to Britain in 1875-1876. At the time major alterations to the Colonial Museum allowed a window of opportunity for the trip. Left in charge of the museum was Walter Mantell, son of Dr Gideon Mantell of dinosaur fame. Some of the correspondence between him and Hector gives an insight into science administration and politics for that period.

The final volume concerns selected letters from the geologist Captain Frederick Wollaston Hutton and is compiled by Esme Mildenhall, Rowan Burns and Simon Nathan. The first group of letters are to Hector and cover the period 1866 to 1871, when Hutton worked for the New Zealand Geological Survey on short term contracts. For several reasons Hutton, who tended to treat Hector as an equal, was not employed. Instead Edward Heydelbach Davis was employed as the survey's first fulltime assistant geologist to Hector. However, Davis drowned barely a year latter and he was replaced by Hutton. The second group of letters cover the period from Hutton joining the Geological Survey through to his resignation in 1874 to take up positions in Otago, firstly as Provincial Geologist and Curator of the Otago Museum and then as Professor of Natural Science at the nearby university. Hutton was a brilliant scientist and this, and his argumentative nature, meant that his relationship with Hector became increasingly strained as is reflected in the correspondence to Haast.

While all the volumes contain an introduction, which summarises the lives of the main characters and include some explanations of the background to various matters that were topical when the letters were written, there has been no attempt to systematically annotate the letters. This was a deliberate decision by the authors, as it would have been a huge undertaking. Particularly when considering, as the correspondence clearly demonstrates, the very broad scope of the letters written by a number of prominent scientists. Instead the main objective of Publication 133 was to make the correspondence readily available and this has been very successfully achieved. This is even more important when considering the difficulties experienced in reading letters written by Hector. Being in a digitised format allows a huge number of letters, in several widely scattered archives, to be quickly searched, although, because of spelling differences, either due to errors by the original correspondents or later in transcriptions or proofing, this will not always be complete.

Provided it is recognised that, due to the poor writing, and/or subsequent deterioration of the letters, the transcriptions may not be 100% accurate, such misspellings can be accommodated when searching. Certainly these minor matters do not reduce the value of this huge data base, which was previously difficult to access, except by visiting the relevant archive, but is now internationally available. Geologists, scientists and historians owe a great deal to the transcribers and authors of the letters.

Mike Johnston, Nelson (New Zealand)

***Ferdinand Hochstetter and the Contribution of German-speaking Scientists to New Zealand Natural History in the Nineteenth Century*, edited by James Braund. Published by Peter Lang, Frankfurt am Main as Volume 10 in the *Germanica Pacifica* Series, 314 p. (2012).**

The volume has its origins in a symposium with the same title, which was held on 1-2 September 2008, at the University of Auckland, New Zealand. It was convened by James Braund and Sascha Nolden in commemoration of the 150th anniversary of the arrival of Ferdinand von Hochstetter (1829-1884) in New Zealand on board the Austrian frigate *Novara*, then halfway through a circumnavigation of the world. The symposium was attended by a significant number of participants from overseas countries, including Austria, Germany, Belgium and Australia. As part of the symposium a special exhibition, *Ferdinand von Hochstetter: the Father of New Zealand Geology*, curated by Sascha Nolden, was held in the Auckland City Library. It was later exhibited in Nelson, the only province, other than Auckland, where Hochstetter undertook research in New Zealand.

A total of 21 papers were presented at the symposium.Together with James Braund's comprehensive *Introduction: Ferdinand Hochstetter in Context*, all but five of these papers were published as Volume 10 in the *Germanica Pacifica* series. Part One, *Aspects of the German-Speaking Scientific Connection with New Zealand in the Eighteenth and Nineteenth Centuries*, consists of six papers. Horst Dippel examines the differing anthropological concepts regarding the Maori inhabitants of New Zealand that were promoted by George Forster and his father Johann Reinhold Forster, both naturalists on James Cook's second voyage to the Pacific. Peter Clayworth recounts the 1834 visit of jilted botanist Baron Carl von Hügel to northern New Zealand, in 1834. Another visit, by the Swede Sven Berggren, in 1873, is the subject of Ivo Holmqvist's paper. The final three papers in Part One are concerned with the remote Auckland Island in the Sub-Antarctic Ocean, south of New Zealand. Elliot W. Dawson and Hilmar Duerbeck give an account of the German Transit of Venus Expedition, mounted in 1874, and of the astronomers and photographers involved, notably Hugo von Seeliger, Wilhelm Schur, Guido Wolfram and Hermann Krone. In two complimentary papers, by James Bade and David Bade, more closely scrutinise Krone's role in the expedition, and the wider human contact with the islands.

Part Two of the book is titled, *Ferdinand Hochstetter and the Novara Expedition*. In this Hermann Mückler deals with some little known aspects of Austria's colonial ambitions in the 18th and 19th centuries and, in a related paper, David G. L. Weiss looks at the role of the Novara Expedition in assessing countries as potential colonies, and provides details of the photographers on board the frigate. An account of the *Novara* scientists Georg Frauenfeld, Anton Jelinek and Joseph Selleny is given by Christa Riedl-Dorn. Selleny's skills as a painter are delved into by Helge Selleny. The botanical activities of Frauenfeld, Jelinek, Eduard Schwarz and Hochstetter are documented by Robert Pils. James Braund and Mike Johnston, in two separate papers, investigate Hochstetters's fieldwork in colonial New Zealand. In the North Island, Hochstetter, while on leave from the *Novara*, undertook a major trip into the interior, including to the active volcanic zone, areas where the Maori people had not yet had significant contact with Europeans. On this trip he was accompanied by an outstanding draughtsman and sketcher, Augustus Koch, and a photographer Bruno Hamel, as described by Rolf W. Brednich and John Webster respectively. Koch and Hamel have left a remarkable pictorial record, including images of various volcanic features. The final paper, by Michael Organ, deals with Hochstetter in Australia, which he visited on two occasions. The first time, when the *Novara* berthed in Sydney in late 1858, prior to departing for New Zealand and, more extensively, on his way back to Vienna from New Zealand, when he took the opportunity to travel through the goldfields of Victoria.

In all, this is a book that describes the research undertaken by a surprising number of German-speaking scientists in the southwest Pacific, in territories that were then administered by Britain. Much of this research had not been documented before and its publication in Volume 10 of *Germanica Pacifica*

makes this an important reference work, as well as a fascinating read for anyone interested in the history of science down under.

Mike Johnston, Nelson (New Zealand)

'The Geological Karl Marx' – The Karl Marx/Friedrich Engels: Gesamtausgabe (MEGA). Herausgegeben von der Internationalen Marx-Engels-Stiftung. Vierte Abteilung. Band 26: Karl Marx: Exzerpte und Notizen zur Geologie, Mineralogie und Agrikulturchemie, März bis September 1878. Bearbeitet von Anneliese Griese, Peter Krüger, Richard Sperl unter Mitwirkung von Peter Jäckel, Daniel Neuhaus, Manfred Neuhaus und Gerd Pawelzig. Berlin 2011. XII, 1104 pp. ISBN 978-3-05-004673-0.

Of course, everybody knows the philosopher and political economist Karl Marx (1818–1883). But who knows that this most influential man, with his eclectic taste in reading, was also interested in geology? This side of the author of *The Communist Manifesto* and *Das Kapital*, 'the geological Karl Marx', so-to-speak, can now be explored by means of the 26th volume of the 4th section of the monumental edition of the complete works of Karl Marx and Friedrich Engels, the *Marx-Engels-Gesamtausgabe* (aptly abbreviated MEGA).

The history of the edition is full of tragedy in itself. A first attempt to edit the works of Karl Marx and Friedrich Engels (1820–1895), from the 1920s onwards, was violently truncated when several of the Russian and German editors became victims of the terror regimes of the Nazis and of Stalin. A new, second and historical-critical MEGA was begun in the early 1970s, under the auspices of various political organizations of the USSR and the German Democratic Republic. This edition was abandoned following the German reunification, but rapidly picked up again in 1992, in a scholarly manner free from ideological restriction, under the editorship of the *Berlin-Brandenburgische Akademie der Wissenschaften* (see http://www.bbaw.de/forschung/mega/index.html).

The volume here referred to was published in 2011 and edited by an editorial team that included the late INHIGEO-member Peter Krüger. Supported by a number of collaborators and referees, including another INHIGEO-member, Martin Guntau, it provides excerpts and notes on geology, mineralogy, earth history and chemical agriculture, which Karl Marx compiled between May and September 1878, and which are now published for the first time.

During this time, Marx was clearly concerned with educating himself about geological issues. He made excerpts from the following publications:

John Yeats: *The natural history of the raw materials of commerce* (2nd edition 1872). This textbook for British trade schools dealt with the origin and distribution of resources (among them geological resources), according to contemporary scientific knowledge.

Friedrich Schoedler: *Das Buch der Natur* (6th edition 1852), a textbook on natural history and natural philosophy for higher education in Germany.

James Finlay Weir Johnston: *Elements of agricultural chemistry and geology* (7th edition 1856), a textbook that provided essential knowledge in chemistry, geology and physiology for farmers.

1st Annual Report of the Bureau of Labour Statistics of Ohio for 1877, which provided Marx with a wealth of statistical data.

Short excerpts concerning the formation of agricultural soil from Johann Gottlieb Koppe: *Unterricht im Ackerbau und in der Viehzucht* (10th edition 1873) and Matthias Jacob Schleiden & Ernst Erhard Schmid: *Encyclopädie der gesammten theoretischen Naturwissenschaften für Landwirte bearbeitet* (vols. 1–2, 1850)

Joseph Beete Jukes: *The student's manual of geology* (3rd edition 1872), a geology textbook, which Marx excerpted most thoroughly.

In his notes, Karl Marx added chemical formulas and information from other sources, wrote summaries, restructured the information gained and compiled data in tables, which he extended from other sources. The text is bilingual, mixing English and German in a creative chaos.

The editors, in an extensive accompanying and scholarly *Apparatus*-volume, provide us with a wealth of information on context, history and sources; they offer explanations, indexes and references, which help to approach Marx's text.

From these we learn why Karl Marx was interested in geology at all. The above-mentioned excerpts were noted during a period when he made a major effort to learn about science, and it is quite possible that Marx intended to incorporate this newly-found knowledge into the third volume of *Das Kapital*, but never

did so. His study of geological matters co-incided with his reading in other sciences such as physiology (1876) and chemistry (1877–1883), revealing his general interest in science at that time.

The main focus of Marx's early theoretical work has been the relationship between human beings and nature, and the understanding of nature in the context of the history of philosophy. Science, in particular earth science history, was for Marx the basis on which to build an understanding of human history as part of natural history, rather than as part of a biblical history of salvation, which determined the place of every human in the order of creation and thus also implied a static stratification of human society.

Every account of human history, according to Marx, should start from natural foundations, such as geology and climate, and their modification through human action, and in this manner achieve an ultimate unification of natural science and the science dealing with humans and their history, all leading to a materialistic view of history.

Apart from such philosophical/ideological reasons, Marx's pre-occupation with the geosciences had quite practical reasons. He clearly saw the connection between geology and the local quality of soils and thus geology's influence on agriculture and, of course, the connection between geology and mineral resources as the foundation for a modern industrial economy. Geology and climate obviously influenced, or even determined, the whole chain of economic productivity. Consequently, scientific—in this case geological—knowledge and progress also influenced the economy and productivity, by devising innovative methods to exploit natural resources.

Beside such philosophical/ideological and practical/economic motivations, Marx with his interest in science, and especially geology, followed in the tradition of other economists before him. Johann Beckmann (1739–1811), one of the earliest economic thinkers in Germany and professor of philosophy in Göttingen, regarded science as an auxiliary to the economy, while the philosopher and political economist Adam Smith (1723–1790) counted James Hutton (1726–1797) and the chemist Joseph Black (1728–1799) among his scientific friends. Like these scholars of the eighteenth century, Marx, according to the volume's editors, still valued a universal education and encyclopaedic knowledge. Geology at that time was particularly popular, and various writers and philosophers spent considerable time to learn about it. These included Johann Wolfgang von Goethe (1749–1832), Georg Wilhelm Friedrich Hegel (1770–1831) and Ludwig Andreas Feuerbach (1804–1872). Their interest points to the high prestige of science, including geology, among scholars in the humanities at that time.

Consequently, Marx embraced scientific methodology as it was developed during his lifetime, and was convinced that philosophy was no longer feasible without a detailed scientific knowledge. He adopted technical terms from various fields of knowledge to apply their connotations to political economy, including 'metabolism' from physiology and 'formation' from geology.

For historians interested in Karl Marx, this volume offers insights into the methodology used by this philosopher and economist and into his grounding within the tradition of universal scholars of the 18th century. For geologists and historians of geology, the volume points to the significance of science in the 19th century and the extent to which geology was at the centre of social and political argument.

Martina Kölbl-Ebert, Jura-Museum Eichstätt (Germany)

Daszkiewicz Piotr, Tarkowski Radoslaw 2012. *Wpływ francuskiej myśli przyrodniczej na rozwój nauk o Ziemi w Polsce i na Litwie od końca XVIII wieku do roku 1830.* (L'influence de la pensée naturaliste francaise sur le developpement des sciences de la Terre en Pologne et en Lituanie de la fin de XVIIIe siècle jusqu'en 1830). Ed. Ksiegarnia Akademicka Krakow, bibliography, photographs) (in Polish, with French summary).

Before 1795, Poland and Lithuania were a united country named the Republic of Two Nations. It was made up of two administrative regions: Poland (referred to as Crown) and the Great Duchy of Lithuania. After 1795, the territory of this former Republic was taken over by three neighbouring states: the eastern part by Russia, the southern part, Galicia, by Austria and the western part by Prussia. From 1830 – with some intervals – Polish middle and higher educational systems were established in the regions occupied by Austria and Russia. After the defeat of the anti-Russian insurrection 1830-31, the Polish universities and colleges in the territory annexed by Russia, including those in Vilna, Krzemieniec and Warsaw, were closed. All of these academic schools had very active geology departments. Their scientific staff was mainly educated in western countries, particularly in France. For this reason, Polish-French contacts in the geosciences were significant. Jozef Makowski, for example, who lectured in chemistry and mineralogy at Cracow University,

had previously worked in France, for a period of 25 years. Other lecturers were often visiting scientific centers in Paris.

The authors of this book discuss first the contacts between Stanislaw Staszic and George Buffon, in about 1781, and the visit to Paris of Jan Jaskiewicz during the same period. They also mention the scientific researches of Jean Ėtienne Guettard in Poland (1760-1762) and the lectures given by Jean Ėtienne Gilibert in Grodno and Vilna, before 1783.

For Polish academics the French universities, at the turn of 18th century, were considered the best institutions for further study. On the other hand, French teachers of geosciences were often employed in Poland. They were also obliged to carry out research for the purpose of providing instruction and for economic reasons. They were particularly interested in the rock salt mines in Wieliczka, near Cracow, the lead and zinc ore deposits, near Olkusz and in copper deposits in the Kielce region. Mineral specimens from these regions were exhibited in the Museum of Natural History in Paris, and as part of other European collections. References to these mineral occurrences are found in the publications of Buffon and René-Just Haüy. One of the latter's monographs was translated into Polish, emphasizing the close scientific relationship between Polish and French naturalists. It should be remembered that Napoleon, when visiting Vilna University in 1812, stated that its professors had attained an equivalent level of scientific competence to their counterparts in Paris.

The contents of this book are based on detailed research in the archives of Paris, Vilna and other centers in Poland, particularly in Cracow, Wieliczka and Warsaw. It presents an accurate account of the development of the geosciences in central Europe, during the period when modern mineralogical, stratigraphic and other concepts were formulated. Moreover, it provides us with an awareness of the reception of French mineralogical and geological ideas which, in the second half of 18th century, started to be considered as more acceptable than those of the Freiberg master, Abraham Gottlob Werner. It is worth mentioning that Werner's publications were not translated into Polish, though his classification of minerals and his neptunistic ideas were copied by his Polish pupils. In contrast, the translation of French geoscientific works was common. The most important example of this was the translations of Buffon's *Les ėpoques de la nature*, by Stanislaw Staszic in 1786, 1803 and 1816.

Zbigniew Wojcik, Warsaw, Wojciech Narebski, Kracow (Poland)

Mo Xuanxue (chief ed.) 2012. *The distinguished and outstanding contributions of Academician, Professor Chi Jishang (1917-1994)* Beijing: The Geological Publishing House.

The year 2012 marked the 95th anniversary of the birth of the late Academician Professor Chi Jishang.

Professor Chi Jishang received her Ph.D. degree from Bryn Mawr College in the state of Pennsylvania, USA, in the year 1949. Following her graduation she returned to her homeland and took part in the reconstruction of the new China. In 1950, she taught as an associate professor in the department of geology of Tsinghua University in Beijing. She played a part in the founding of the Beijing College of Geology (which is now the China University of Geosciences), in 1952, and became a professor of petrology and dean of the department of geological survey and mineral resource prospecting, at this institution. She held the post of chief vice-president of Wuhan College of Geology from 1980 to1984. Based on her contributions to geological education in China and her achievements in the study of petrology, especially granites, kimberlite and lamproites in China, she was elected Academician of the Chinese Academy of Sciences in 1980. She was appointed committee member (China) of the executive bureau of IGCP, a post she occupied between 1979 and 1982. Sadly, Professor Chi Jishang died of cancer in 1994. She had dedicated all her life to the task of geological science and education.

This memorial volume is intended to commemorate both her distinguished career achievements and the modest and unassuming personality of Professor Chi Jishang. The first of this two-part collection contains precious photographs of the late professor, taken at various stages in her life, while the second part includes memorial papers written by her colleagues, former students, friends and relatives. Both the pictorial and written materials reflect on the fine qualities of Professor Chi and bear witness to her firm and unshakable ideals, her patriotic enthusiasm, and to the faithful discharge of her duties. They provide evidence of her spirited determination to scale the lofty heights of science and of her manner of seeking truth and a practical style of work. They also throw light on her meticulous scholarship, her indifference to fame or selfprofit, her strong spirit of dedication and on her upright and honourable character.

The Chief Editor of this book, Academician Professor Mo Xuanxue, was one of the distinguished former students of Professor Chi. He is active in the discipline of igneous petrology and in the study of geology of the Tibet-Qinghai Plateau.

Zhendong You, School of Earth Science, China University of Geosciences, Wuhan (China).

Xu Shaoshi (ed.) 2010. *The history of geological disciplines in China*. Beijing: China Science and Technology Press, 4, (1st ed.), 268 p.. ISBN 978-7-5046-5031-3

In the mid 19th century, when European countries were gaining power by utilising modern science and technology, China was still lagging behind and was going through a restless stage, just before the feudal system came to an end. The gamble between embracing progress and suffering possible decline, and the struggle between opening its society to western influences or to remain conservative, posed a major dilemma for this ancient oriental nation. However, the progressive eastward spread of western knowledge in science and technology, began to change minds and to transform society.

Over thousands of years the ancient Chinese society had accumulated many records and documents of observations, as well as the reasoning of sages. However these did not lead to the acquisition of scientific knowledge and methods, or to analytical investigations, in order to understand nature, at the time before modern geological science became established in China. In the first half of 19th century, geological ideas started to enter China and would gradually develop into an understanding of modern geological science.

From 1861 to the end of 19th century, the emergence of the westernization movement, also known as "the self-improve movement", had laid the foundation for the early industrialization in China. As a result a modern mining industry began to emerge. The decision to introduce modernisation was taken by the Qing-dynasty government, whose feudal autocracy was threatened, with the intention to change the status quo of China. At the same time, the Qing government sent graduate students abroad. Some of these men of insight had translated works of modern natural science. In addition, in the early days, foreign scholars conducted geological expeditions in China. All this provided the conditions for the introduction of modern geological science to China.

The revolution, in the year 1911, led to the overthrow of the Qing government and marked the end of the feudal system in China. In the following year, the provisional government of the Republic of China was established. A geological administration was set up, attached to the Ministry of Industry of the Provisional Government. Zhang Hongzhao, who had studied geology in Japan, returned to China and became the chief of this geological administration. Following him, Dr Ding Wenjiang (VK Ting) and Weng Wenhao also returned. In the year 1913, the name "Geological Administration" was changed to "The Institute of Geological Survey", and the "Institute of Geology" was also set up in Beijing, which had fostered a number of skilled personnel for the future development of geological science in China. This then was the origin of modern geological science in China. The Geological Society of China (GSC) was established in 1922, and provided a platform for geological research and academic exchanges between Chinese and foreign geologists and greatly promoted the development of geology in China.

During the first 30 years of the 20th century, until the establishment of the People's Republic of China (PRC), geology in China developed in difficult times. Numbering no more than 300 people, the geologists started with a clean slate and advanced their work in a pioneering spirit. This resulted in a series of admirable achievements in geological surveying, scientific research, geological education and academic exchange, and included the discovery of "Peking Man". Other important landmarks were the work on "geomechanics" by professor J. S. Lee; the "polycyclic development theory" proposed by professor T. K. Huang and the publication of "Geology in China", written by Professor J. S. Lee, in Great Britain. These accomplishments mark the first golden age in the progress of geology in China, and resulted in the diversification of geology into disciplines in China.

After the establishment of the PRC in 1949, geological work, due to its close relationship to the development of social economy, received much attention. In the year 1952, "The Ministry of Geology" was established and a number of research institutes in all disciplines of geology were set up. A strategic trinity of geological exploration, scientific research and geological education was formed. In the 30 years between 1949 and 1978, the guiding principle of the trinity was the promotion of further development in the geological sciences, to achieve a comparatively complete coverage of geological science in China. In the 70s and 80's of the 20th century, with the benfit of an open policy, geological science in China experienced a period of major growth. Directed by a strategy that promoted invigoration, the country's progress in science,

education and development surpassed the achievements of the previous 30 years and established China's reputation in all fields of the geological sciences.

As mentioned above, geological science in China has undergone a radical change during the past century and its achievements have attracted world-wide attention. However a summary account of the historical development of the geological sciences in China does not do justice to its achievements. In 2010, the monograph "The history of geological disciplines in China" was published, which has filled this gap. Before that, a number of works on the development of geological sciences in China had been published, but most of them were written by individuals, such as, "A brief history of the development of geology in China" by Zhang Hongzhao, published in 1937. It is a short book but it includes an account of the development of geology in China in the pioneering stage and is of much historical interest. In 1939, the late professor J. S. Lee, who was well-known at the time, published "Geology in China". In 1999, an editorial committee produced a new edition of Lee's "Geology in China", which was published by the Geological Publishing House in Beijing. The major point of the new edition was to emphasis that much progress had been made in the development of geology in China since the establishment of the PRC. In 1984, "Outline of the history of geological sciences", written by Sun Ronggui, was published by Beijing University Press. It is the first work about the development of the geological sciences in China, which refers to research of the 1980's. In 1985, Wang Zixian *et al.*, published "The concise history of geology in China", issued by the Henan Science and Technology Press. In addition, Liu Zhaoming from Taiwan had edited "The Chinese history of geology" published by Taiwan Commercial Press, in 1985. "A brief history of Geology" was written by Wang Yangzhi and published by China Press of Science and Technology, in 1994. It must be pointed out that all of these publications were written by individual researchers, and most of them represent summaries and make deductions with respect to certain periods of time, when discussing the histories of geological undertakings, geological researches, and the history of geological sciences in China.Therefore, they inevitably contain some shortcomings in terms of the geological information they provide, and in being limited to certain historic periods. The publication of "The history of geological disciplines in China", edited by Xu Shaoshi had filled this gap. It is a comprehensive work on the research of the history of geological disciplines in China and is well worth reading.

The book summarizes the research relating to a hundred-year period in the development of the history of geological disciplines in China. Although the presentation of the history of these disciplines is variable, the major framework and peculiarities are provided. However, some of the details may be over-simplified and affect the conclusions in the work.

In order to illustrate the present state in the development of disciplines in the geological sciences, the book includes a large number of historical facts which serve to delineate the changes and developments in a laudable manner. But there still remains a shortage of information relating to the development of these disciplines.

Wan Li, China University of Geosciences, Beijing (China)

The Lost World. Sir Arthur Conan Doyle, Collector's Centenary Edition, 2012.

Arthur Conan Doyle (1859-1930) published his science fiction novel *The Lost World* in 1912. In the story a British scientific expedition travels into a (then) remote area of South America and discovers living animals (including dinosaurs and hominids) that are extinct elsewhere, and carries back a living pterosaur which makes a spectacular appearance at a scientific meeting in London. The novel has never been out of print, has inspired many imitations, and inspired many boys (and girls) to become geologists and paleontologists.

To celebrate the centenary of its first publication, New Zealand writer, artist, and Doyle-enthusiast, John R. Lavas, has published a limited centenary edition. The work is dedicated to Earth Science Historian William Sarjeant, and Doyle-enthusiast Richard Lancelyn Green, both of whom are acknowledged by biographical sketches. The presentation of the complete text of the novel is followed by a selection of many classic and new illustrations, their generous display made possible by the book's landscape format. Unique to this volume are a further 70 pages, comprising a series of chapters offering a commentary on Doyle's work and on its context, as well as an extensive bibliography.

In this section, John Lavas presents a biographical chapter on Sir Arthur Conan Doyle. Geologist, and Doyle-expert, Dana M. Batory, discusses the background and chronology of the novel in a chapter titled, "Uncovering a Lost World". Norman J. Snelling, a geologist with first hand experience of South America, explains the real and fictional geology in his contribution, "The Geology of The Lost World". Historian of dinosaur paleontology David A.E. Spalding explores the scientific and fictional background to the book in

"Before the Lost World: prehistoric life in science and fiction to 1912". Finally, media specialist, Cory Gross, explores the treatment of the novel and of some of its successors in films, in the chapter "The Lost World in Popular Culture".

Further information about the edition may be found on a number of websites, including:
http://www.facebook.com/TheLostWorldCollectorsCentenaryEdition
http://list-archives.org/2012/12/19/nz-libs-acquisitions-lists-vuw-ac-nz/the-lost-world-centenary-edition/f/1215485792
Price = $NZ 140 plus postage
For information on ordering and payment, please contact John Lavas at
j.lavas@auckland.ac.nz

David A.E.Spalding (Canada)

Francesco Gerali 2012. L'opera e l'archivio spezzino di Giovanni Capellini, un geologo dell'ottocento.

This volume is the result of several years of accurate analyses of the unpublished and the largely unknown personal archive of Professor Giovanni Capellini, whose work sets a standard for geologists and natural scientists to follow in their research and publications. A large section of his vast heritage consist of scripts and scientific material, now housed in La Spezia and in Bologna, the description and analysis of which makes up the bulk of this book. It is organized in two complementary sections. The first part presents a detailed biography of Giovanni Capellini, with particular emphasis on his personal dedication to the fields of geology and paleontology. It is of particular interest to note that some of Capellini's geological research was also intimately related to pioneering studies on petroleum. The book introduces the reader to the methodology used in 1800, by geologist in the study of this fundamental discipline within the geosciences. The second part of the book deals with the vast heritage of scripts and scientific publication that Capellini produced between1858 and 1922, and includes an inventory of his personal archive. This section provides a fundamental tool to the understanding of the methodology and the approach to scientific publications of Giovanni Capellini.

The book is enriched by photographs of Giovanni Capellini, by illustrations of his beautiful freehand drawings, as well as by a number of images of the original archival material examined by the author. Some of the original documents presented in this study represent benchmark material in the history of geosciences, including the notes of Capellini for the standardisation of geological nomenclature and those relating to the first International Geological Congresses. The book includes a unique collection of rare and generally inaccessible documents, which are presented in a simple but thorough way by Gerali. It greatly advances our knowledge of the vast amount of material of Capellini held in archives. This monograph is an extraordinary example of a professional, historic-scientific publication.

Federico Fanti, Bologna (Italy)

Morelos-Rodríguez, L. 2012. *La Geología mexicana en el siglo XIX. Una revisión histórica de la obra de Antonio del Castillo, Santiago Ramírez y Mariano Bárcena*" (Mexican Geology in the 19th century. A review of the work by Antonio del Castillo, Santiago Ramírez and Mariano Bárcena), Plaza y Valdés, Mexico, 356 p.

In the last two decades, a considerable number of studies on the history of geology in Latin America have been published, particularly with reference to the larger countries, such as Mexico, Argentina and Brazil, but also some works concerned with a regional perspective. Most of these studies range widely over long time periods and/or cover large areas, which make them useful for gaining an understanding of the historiographical practices applied to geology prior to the 20th century, especially with regard to mineral exploration and prospecting or to applied processes *in illo tempore* (i.e., Alonso, 1992; Figueirôa, 1994; Azuela 2005, 2009; Escalante & Soto, 2007; and Ramos, 2011). There are now more in-depth-studies on the work and the geological contributions made by individuals for the benfit of society in a particular country and over a particular period. This book, written by Lucero Morelos-Rodríguez – a Mexican INHIGEO member – on the Mexican geology in the 19th century, is an exemple of this trend. The subject of the book is presented through the work of three outstanding practitioners in this field.

If the contents of a book can be judged by its cover, that enclosing Moreles' work makes a favourable impression. Its design is based on that of nineteenth-century books and shows illustrations of animal and plant fossils from an 1841 publication by the Mexican savant Andrés del Río.The book's attractive outer appearance is succeeded on its opening pages by a well written foreword by J. Omar Moncada.

The "Introduction" give us an overview of the beginnings of the geological sciences in Mexico from the late 18th century, particularly with regard to the process of its institutionalization, marked by the establishment of the *Real Seminario de Minería* (Royal Mining Seminary), in 1792.

The detailed first chapter introduces the course followed by the three engineers Antonio del Castillo, Santiago Ramírez and Mariano Bárcena with regard to geology, and points out the path that led from the presentation of geological features in practical dawnings in Mexico to professionalization of geology and its recognition as a scientific activity. A sub-chapter devoted to each of these pioneers gives much information on their personal and career achievements, as well as on their talents as entrepreneurs, politicians, academicians and more. It provides a vision of the great men in all their fallible human dimensions, freeing them from the stereotypic purity that is usually attached to the great men of the motherland and of science.

Another enjoyable chapter analyzes the geological work of these three men presented to scientific associations and outlets for scientific discoveries of the nineteenth-century Mexico.

The penultimate chapter centers on the teaching and research activities of the three heroes, where the legacy and importance of their work to Mexican institutions and to geology in the following century is emphasised.

The final chapter *Consideraciones finales* (final considerations) is written in the form of an epilogue of eight pages, and provides a concise summary of the book. It is preceded by five colour plates of historical geological maps and profiles, which geologists – I am sure – will enjoy examining.

The last 104 pages of the book (29.2% of all pages) are appendixes, which include a list of the 284 works authored by the three remarkable geoscientists, together with 18 pages of sources and bibliography, which alone provide a mine of information for scholars of the history of Mexican geology in the 19th century. In addition, 32 tables and 18 figures constitute an important part of the book and complement to the text.

An important remark in the "Foreword" states that the development of geology in Mexico is strongly linked to knowledge of the nation's territory. Geology was indeed a force in the conquest of the whole territory of Mexico, especially during the profound changes that affected the former New Spain, following independence. These resulted in a broadening of interests from mining to other activities, including farming and the creation of huge landholdings. Considering the vastness of the territory, the knowledge acquired by the three geological heroes and documented in their written and cartographic work, is remarkable. Particularly noteworthy is the work of del Castillo, the promoter and creator of the first geological map of the whole country, in 1889.

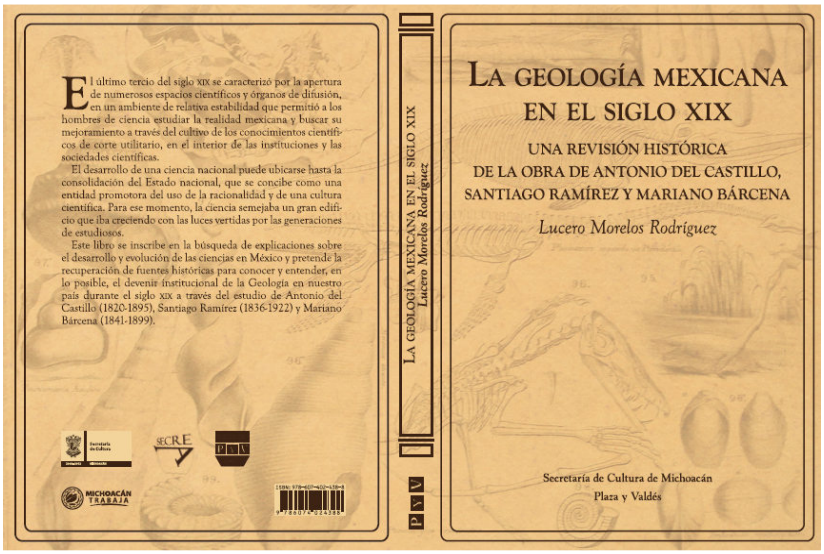
The development of mining activities and later geology, as both pure and applied sciences in Mexico, commenced with the foundation of the Royal Mining Seminary late in the 18th century. The knowledge of Old Spain was transferred and adoted in New Spain, and mining resource-rich teritories drove the economy. The foundation of mining schools was simply a logical necessity, and one of the desirable outcomes of these educational activities was that mining engineers became geologists. As would be expected, the three geological heroes who feature in this book, began their studies in the Mining Seminary. They adapted their skills to the practice of geology and then returned to teach in the Seminary. Despite dramatic changes that affected the country during the 19th century, both territorially and in its political identity, the three geoscientists continued their scientific and publishing activities and laid down a strong foundation for Mexican geology.

An inportant section in this book details the changes from mining practices in the Spanish style to mining based on authochthonous learning, and how empirism gradually gave way to geological knowledge, which supported industrial applications and the foundation of geological institutions in Mexico. It is also demonstrated how geology contributed to institutionalization and professionalization of the sciences, and how the State contributed and encouraged these developments for the good governance of the country. It is very important to note that home-grown geological knowledge and practice in Mexico greatly improved during the 19th century, built on a foundation of European thought (i.e., Steno, Hutton, Lyell) as well as on ideas from the USA. Mexico produced outstanding geologists at a time when no other country in Latin America had geology schools or home-grown geologists. Although in its development of the geological sciences Mexico had depended entirely from foreign input, it was the first country in America to appoint the first full Professor of Mineralogy, the aforementioned Andrés Manuel del Río.

The three geological heroes treated in the book all studied at the *Colegio de Minería de México* (Mexico´s Mining School), but despite this they could not be strictly regarded as geologists, Morelos has given them that title in recognition of their activities in that field, which they carried out with great distinction. She emphasises throughout the book, that the three heroes also worked in institutions dedicated to research and teaching, and played a role as entrepreneurs. Their most outstanding contribution was perhaps, their geological mapping of many different parts of Mexico, an activitiy in which they excelled and through which they contributed greatly to the knowledge of the Mexican territory.

Lucero Morelos' work is outstanding for framing the historical, scientific and territorial situation of Mexico during the 19th century, increasing previous knowledge and rediscovering the work and bibliography of del Castillo and Bárcena, and for unveiling many of the contribution made by Ramírez. In the "Foreword", Moncada states: "this text is one of the most outstanding contributions to the study of institutionalization of geology in our country (Mexico)". After reading and absorbing the contents of this book, there can be no doubt about the truth of these words. The book is written in a clear and polished Spanish, and provides a very pleasant reading experience.

For all those interested, as devotees or scholars, in the development of geology as a science in Latin America –and particularly in Mexico – this book by Lucero Morelos is a must. Readers will find themselves rewarded by a well-written and well-documented book.



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Gerardo J. Soto, San José (Costa Rica)

COUNTRY REPORTS

Australia

David Branagan – The major activity for 2012 was the preparation, (including the compilation of the Guide Book) for the INHIGEO Field Excursion from Sydney to Brisbane, held (over six days) in association with the 34th International Geological Congress in Brisbane, Australia, in August, 2012. The excursion, attended by some twenty-four people, from seven countries, was blessed with perfect weather, and a lack of any major travel problems. We were lucky to have the care and support of several drivers/attendants, David Mitchell of Sydney University (thanks to the permission of the Head of the School of Geosciences (Professor Jonathan Aicheson), and retired Geography teacher, Grahame Campbell. Greg McNally was co-leader, also working on the detailed route planning during the previous months.

I am grateful for the generous financial assistance of the Earth Sciences History [Specialist] Group of the Geological Society of Australia, which enabled the excursion to be properly insured, a necessary matter in the present litigious circumstances!

A revised edition of the guide book is in preparation for general use, and hopefully will be available as a DVD.

A write-up of the Excursion, by Dr Mike Johnson, is given elsewhere in this book (p. 25).

Through the good graces of Professor David Oldroyd I was honoured with the naming of an historical session at the Congress, at which papers were presented to quite large audiences. Some nine of these papers are appearing in a volume of *Earth Sciences History*.

I was also honoured by the award of the Earth Sciences History Group of the Geological Society of Australia of the initial Tom Vallance Medal for Australian Studies in the History of Geology, presented at the Congress by Hilary Vallance, Tom Vallance's widow.

A paper was presented at the Congress on George Davenport Osborne and the Hunter Thrust System of New South Wales, and a history of Geology session was chaired.

An invited paper 'Fleshing out the Landscape: Two Centuries of Australia's Geological Heroes', was published in *Episodes* (Special Issue for the 34th IGC), vol. 35, No. 1, March 2012, pp. 44-56.

The Australian Mining History Association's Annual meeting at Waihi, New Zealand, held in November 2012 was attended. A paper considering the work of G.D. Osborne and W.N. Benson in northern New South Wales on faults and related mineralisation was presented, and field excursions attended.

Biographical articles on Mosher, Kenneth George (1913-1990), Mulholland, Charles St. John (1903-1984), Noakes, Lyndon Charles (1914-1919), and Öpik, Armin Aleksander (1898-1983) were published in *Australian Dictionary of Biography,* vol. 18.

A paper 'The Open-Cut Era (Late 1940s – Mid 1960s) in the Western Coalfield, New South Wales, including some autobiographical memories', was published in the *Journal of Australiasian Mining History*, October 2012, Vol. 10, pp. 12-25.

A feature article: Geological Maps – have they had their day? was published (with a colour cover) in *The Australian Geologist*,162, March 2012, pp. 30-32.

Review of a significant publication: 'Rudolph Glossop and the rise of Geotechnology' was published in *The Australian Geologist*,162, March 2012, pp.44-45.

In association with colleagues, Drs. D.W. Emerson & Imogen Kelly, work was carried out on translating into English aspects of the work of Georgius Agricola, not previously available in English. Delays have been caused by the difficulty of obtaining copies of older German publications relevant to this research topic.

An obituary notice for the distinguished geologist, Dr. E.O. Rayner (1914 –2012) was published in the *Sydney Morning Herald*.

Barry Cooper – Barry was reappointed INHIGEO Secretary-General for the period 2012-2016 in Brisbane, in August. He also assumed concurrently the post of Secretary-General for a new IUGS historically oriented group entitled the "Heritage Stone Task Group" (HSTG). After dealing with administrative issues, Barry's historical research focus during the year has been principally oriented towards heritage building stone. However he did find time to prepare a paper on Ralph Tate for the Branagan symposium at the INHIGEO session in Brisbane. It is planned that Ralph Tate will be the subject of future papers by Barry and his co-author, Barbara Kidman. A last minute withdrawal due to illness of the nominated speaker, led Barry, also in August, to give a well-received after-dinner historical address at the annual dinner of the Geological Society

of Australia in Adelaide. Another historical address to the local "Field Geology of South Australia" was provided in October. At year's end Barry agreed to prepare a history brochure to be placed on the internet, dealing with building stones and their history along the main thoroughfare of Adelaide, *viz*. North Terrace.
Barry is delighted to report that two non-INHIGEO members in Adelaide have been taking a serious interest in the history of geology. Eminent local geologist Brian McGowan has submitted two historical papers for publication dealing with eminent local geologists Reg Sprigg and Martin Glaessner. Brian is currently preparing a paper on no one less than Charles Darwin. Retired paediatrican, John Wilson, has also published a book entitled "Julian Tenison Woods in South Australia: Priest and Scientist" which focuses on Tenison Woods's geological contribution in South Australia from 1857-1868.
Barry's 2012 historical publication list includes:

The 1947 Discovery of Submarine Canyons in Australian Waters. In: Kato, H., Inomata, M. and Suzuki, Y. (Editors) "Visual Images and Geological Concepts: *Proceedings of the INHIGEO 2011 Japan*" pp. 115-120.

Towards international designation of a heritage dimension stone. *Proceedings of the Global Stone Congress 2012, Portugal, Alentejo (Borba) Wednesday 18 July* – Estremoz, Teatro Bernardim Ribeiro/ Bernardim Ribeiro Theatre PO30 (with B. Marker and I .Thomas) 8 p.

Ralph Tate (1840-1901): Pioneering Australian Geologist. *Abstract #1336 34th International Geological Congress, Brisbane Australia,* August 2012 (with B. Kidman)

International designation of heritage dimension stones: the examples of Portland stone and Welsh slate from the United Kingdom. *Abstract #3029. 34th International Geological Congress, Brisbane Australia,* August 2012 (with B. Marker)

Using geology to conserve architectural stone heritage: the example of Salamanca, Spain. *Abstract #3030, 34th International Geological Congress, Brisbane Australia,* August 2012. (with D. Pereira Gomez)

The historical use and trading of building stone in South Australia, and support for the associated industry. *South Australian Geographical Journal* 110: 5-29.

Tom Darragh – submitted the final version of the translation of Ludwig Leichhardt's five Australian diaries, written in German, for publication in 2013. He added transcriptions and translations of labels in sketches from the diaries, to be incorporated in the images of the sketches by Will Smith of the Queensland Herbarium, who has performed a magnificent job in enhancing the images ready for publication. Tom has proofed images for diaries one and two and has corrected proofs of those diaries in December. Proofs of the next three diaries are expected early in 2013.

Publications
Darragh, T.A., 2012. Review. John Bailey: *Into the Unknown: The Tormented Life and Expeditions of Ludwig Leichhardt*. Pan Macmillan: Sydney, 2011. *Historical Records of Australian Science* 23(1): pp. 85-86.
Beu, A.G., Nolden, S. & Darragh, T.A., 2012. Revision of New Zealand Cenozoic fossil Mollusca described by Zittel (1865), based on Hochstetter's collections from the *Novara* Expedition. *Association of Australasian Palaeontologists Memoir*, 43. 69 pp.
Darragh, T.A., 2012. Review. *The life and work of Professor J.W. Gregory FRS (1864-1932): Geologist, writer and explorer*. Geological Society, Memoir 34, 2011, 248 pp. *Historical Records of Australian Science* 23 (2), pp. 232-3.
Darragh, T.A., 2012. The death of William Blandowski. *Transactions of the Royal Society of Victoria*, 124, pp. 234-5.

Ken McQueen – Ken convened and chaired Symposium 33.5 as part of the INHIGEO 'History of the Geosciences' (Theme 33) contribution to the very successful 34th International Geological Congress, held in Brisbane in August 2012. This symposium entitled 'Geologists, resource exploration and development: An historical Perspective' had a full session of seven speakers and was well attended. In April Ken presented a paper at the International Mining History Congress in Johannesburg, and also represented Australia and the Australian Mining History Association at the main business meeting. It was agreed that the next International Mining History Congress will be held in 2014 in Charters Towers, Queensland, in association with the 20th Australian Mining History Conference. During the congress Ken visited the underground workings of the TauTona gold mine at Carltonville and the historic Rand Club in Johannesburg. The 18th Australian Mining History Conference was held in Waihi, New Zealand in November 2012. Ken presented a paper on the

history of mercury mining in Australian and New Zealand and also chaired a session on mining history in Queensland and New South Wales. He participated in the excellent field trips to the Coromandel Peninsula, Waihi and Karangahake historic mining areas. Also during the year Ken contributed to a special 'Thoughts on Mining History –Mining Symposium' organised by Warren Dym for the *Earth Sciences History* journal.

Publications
McQueen, K.G., 2012. Early developments in treating pyritic and refractory gold ores in Australia. *Journal of Australasian Mining History*, 10, pp. 88-102.
McQueen K.G., 2012. The importance and future of mining history: An Australian perspective, *Earth Sciences History*, 31, pp. 316-320.
McQueen, K.G. 2012. Early developments in treating pyritic gold ores: the Australian perspective. *9th International Mining History Congress,* 17-20 April 2012, Johannesburg, Abstracts, p. 38.
McQueen, K.G., 2012. Mercury Mining: A quick history of quicksilver in Australia and even quicker in New Zealand. *Australian Mining History Association 18th Annual Conference*, 4-11 November 2012, Waihi , New Zealand, Abstracts pp. 25-26.

Wolf Mayer – was elected to the Board of INHIGEO and was appointed to the newly created position of INHIGEO Editor, at the Commissions 37th Meeting in Brisbane. He also presented a talk on the geological work of William Noel Benson, as his contribution to a symposium in honour of David Branagan. The subject matter of this paper will be published in the first issue of *Earth Sciences History*, in 2013. Wolf has continued his research on the scientific work of the French expedition of discovery to Australia, led by Nicolas Baudin between 1801 and 1803.

Publications
Mayer, W. 2012. Baudin's naturalists in Australia: Early scientific surveys of the fauna, flora and geology of the country's coastal regions, 1801-1803. In: Gerritsen, R., King, R. and Eliason A. (eds.) *The Freycinet Map of 1811. Proceedings of the symposium commemorating the 200th anniversary of the publication of the first map of Australia*. Canberra: Australian Hydrographic Society, pp. 37-57.
http://www.australiaonthemap.org.au/the-freycinet-map-of-1811
Mayer, W. 2012. Book Review. Graeme Barrow, *Magnificent Lake George: the Biography*. In: *Canberra Historical Journal*, 69, pp. 50-52.

David Oldroyd – continued with his time-consuming work as editor of *Earth Sciences History* but will retire from that position at the end of 2013. He organised a symposium at the Brisbane IGC in honour of David Branagan, which was well attended and had numerous contributions. The theme was biography in geology, in recognition of David's notable biography of Sydney University's great geologist and Arctic explorer, Edgeworth David. Papers from this meeting are being published in the April issue of *Earth Sciences History*. DO's 'map paper' from the INHIGEO meeting in Japan in 2011, will be published by the GSA in 2013, in a somewhat modified and extended form, and a paper is in preparation on the first global geological maps of Ami Boué and Jules Marcou for the INHIGEO meeting in Manchester in 2013. He has also been interesting himself in the geological ideas of John Ruskin.

Publications
'The genesis of historical research on the history of geology, with thoughts about Kirwan, de Luc, and Whiggery', in: Jed Z. Buchwald (ed.), A Master of Science History: Essays in Honor of Charles Coulston Dordrecht, Heidelberg, London andGillispie, Springer, New York, 2012, pp. 167–177.

'Maps as pictures or diagrams, with comparisons between Chinese and Western aesthetic traditions', in: H. Kato, M. Inomata, and Y. Suzuki (eds), Visual Images and Geological Concepts, Japanese Association for the History of Geology, Tokyo, 2012, pp. 21–49.

Rhoda Rappaport (edited Kenneth L. Taylor and Martin J. S. Rudwick), Studies on Eighteenth-Century Geology. Ashgate Publishing Limited, Farnham (UK) and Burlington (USA), 2011 in Metascience, 2012, 21, pp. 569–573 (review).

William Poole, The World Makers: Scientists of the Restoration and the Search for the Origins of the Earth, Peter Lang, Oxford, 2011, in Archives Internationales d'Histoire des Sciences, 2012, 62, pp. 355–359 (review).

Sue Turner – At the Natural History Museum Archives in early 2012, Sue Turner investigated material on 'the Woodwards' at the museum in general, especially on Sir Arthur Smith Woodward, former Keeper of Geology, with the help of Museum Volunteer, Mike Smith. He is planning a memorial meeting for Woodward in 2014.

Sue has continued to investigate the history of vertebrate palaeontologists Professor Friedrich von Huene (1875-1969) and his daughter Erika, and the history of palaeontology and geology in Germany in the mid-20th century. As a result of her earlier work in Germany, she had the chance to meet family members again and to discuss their history with them. In September she created a Facebook page for people interested in this family. https://www.facebook.com/FriedrichErikaVonHuene

Work on the 19th century self-taught geologist and polymath Thomas Sopwith continues in conjunction with Dave Greenwood of London. Sue revisited the large 'Sopwith Forest of Dean 3D-model' in the Museum of Oxford University, in September, and then enjoyed a wonderful visit to the Forest of Dean itself to see the Sopwith model on display in the FOD Centre. This visit was ably hosted and helped by Cherry Lewis and included a meeting with local history expert Ian Standing, as well as with a family of free coal miners. We began working on a plan for a Sopwith Trail in Britain. Based on an exiting discovery on e-Bay in May, Sue began to work with Thomas Bewick-expert Graham Carlisle, who has acquired an original hand-painted cross-section of the northern England lead mining strata from Cross Fell to Hownes Gill; a first article was submitted to *The Geoscientist* (due out March 2013). In June Sue decided to launch a new tool for historical research on Sopwith, please see:
https://www.facebook.com/ThomasSopwithAppreciationSociety.

Sue continues her research into the lives of women related to geoscience. While preparing INHIGEO posters for the 34th IGC, Sue 'discovered' illustrator Phoebe Wright, a 'new' woman in the history of science in Australia (see igneous petrology plates in Jack & Etheridge 1892, Turner 2012a). Subsequently she has been in touch with a relative in Sydney and she hopes to go and learn more.

Presentations

On behalf of INHIGEO and with the help of Ian Withnall at GSQ, Sue prepared three history posters on 19th to early 20th century collectors and collections, on the history of Australian contributions to the IUGS and on women in Australia, for the 34th International Geological Convention in Brisbane in early August (Turner 2012c-e). She gave a talk on Sir Arthur Smith Woodward and other Woodwards at the special INHIGEO session for David Branagan (Turner 2012b).

Books

Shaping the Nation: A Geology of Australia by Richard Blewitt et al. and edited by Sue, is published by Geoscience Australia and ANU Press. It was launched at the 34th IGC by the Hon. Penelope Wesley, the Governor of Queensland. Several chapters discuss the history of geoscience in Australia. The book can be accessed at ANU University Press.

Publications

Turner, S. 2012a. A new woman in the history of geoscience in Australia. Earth Sciences History Group Email Bulletin, No. 33, p. 2.

Turner, S. 2012b. The Woodward factor: Arthur Smith Woodward and geology in Australia. In**:** 34th IGC: Unearthing our Past and Future — Resourcing Tomorrow, abstracts volume, INHIGEO David Branagan Symposium Session, p. 336.

Turner, S. 2012c. They Knew Their Place. INHIGEO Poster for 34th IGC on Women in Geoscience in Australia, August 5-10, Brisbane.

Turner, S. 2012d. Beautiful One day; Perfect the Next! 19th–early 20th century geological collectors and collecting in Queensland. INHIGEO Poster for 34th IGC on Women in Geoscience in Australia, August 5-10, Brisbane.

Turner, S. 2012e. Australians for the IUGS: 50+ Years. INHIGEO Poster for 34th IGC, August 5-10, Brisbane.

Baucon, Andrea, Emese Bordy, Titus Brustur, Luis A. Buatois, Tyron Cunningham, Chirananda De, Christoffer Duffin,Fabrizio Felletti, Christian Gaillard, Bin Hu, Lei Hu, So¨ ren Jensen, Dirk Knaust, Martin

Lockley, Pat Lowe, Adrienne Mayor, Eduardo Mayoral, Radek Mikula´sˇ, Giovanni Muttoni, Carlos Neto de Carvalho, S. George Pemberton, John Pollard, Andrew K. Rindsberg, Ana Santos, Koji Seike, Hui-bo Song, Susan Turner, Alfred Uchman, Yuan-yuan Wang, Gong Yi-ming, Lu Zhang and Wen-tao Zhang 2012. History, Concepts, and Methods 1. A History of Ideas in Ichnology, pp. 3-43. In: Knaust, D. and Bromley R. G. (eds.) Trace Fossils as Indicators of Sedimentary Environments, Developments in Sedimentology, 64, Elsevier.
http://dx.doi.org/10.1016/B978-0-444-53813-0.00001-0 &
http://www.sciencedirect.com/science/article/pii/B9780444538130000010

Armenia

In 2012, the Institute of Geological Sciences of the NAS of RA established a working group on the history of geological science. The Group will coordinate activities in this field in Armenia and prepare for the planned INHIGEO 50th anniversary conference in 2017. The Group includes representatives of the Armenian Institutes of Geological Sciences and Archeology. Members of the Group have studied issues related to the mining of obsidian deposits and the transport of obsidian to neighboring countries, from the Neolithic to the Bronze Age. Studies were also conducted on the mining of copper deposit in Armenia during the Bronze Age. The Group is headed by A. Karakhanyan.

Arkadi Karakhanyan – has examined the geological works of Major Voskoboinikov from the Russian Imperial Army, who carried out a study of the geology in Armenia, Azerbaijan and Iran in the first half of the 19th century. A publication on this subject is now in preparation.

Arkadi Karakhanyan, Yerevan (Armenia)

Austria

Daniela Angetter – Bernhard Hubmann published Robert Schwinner's textbook *Physical Geology*.Volume II'(Robert Schwinners Lehrbuch der Physikalischen Geologie. Band II: Physik der Erdfeste), which was considered lost or destroyed. The Styrian geologist Robert Schwinner (1878-1953) belongs through his scientific work to one of the "masterminds of plate tectonics". He wanted to publish a three-volume textbook on Physical Geology. This was intended to be a large-scale interdisciplinary textbook which would build a bridge between geology and geophysics. Only the first volume was printed in 1936. The typescript of the second volume was lost during efforts to develop a print version soon after Schwinner's death. Concerning the third volume only a rough outline of the content is known. A chance finding of a "Beta version" of the second volume of the Physical Geology now allows presenting this as the fifth volume of *Geo-Scripta Historica* in a first edition. A detailed biographical sketch of Schwinner accompanies this textbook.

The following papers were published during the reporting year:

Angetter, D., Hubmann, B., & Seidl, J. (2012). Physicians and their contribution to the early history of earth sciences in Austria, *Geological Society, London, Special Publications*, 375, doi 10.1144/SP375.4. http://sp.lyellcollection.org/cgi/reprint/SP375.4v1.pdf?ijkey=Q0SCVTZVm9MWG7c&keytype=finite

Angetter, D. (2012). Geologie und Militär – Streiflichter durch die Geschichte. – In: Angetter, D., Hubmann, B., & Seidl, J. (eds.). *Geologie und Militär: Von den Anfängen bis zum MilGeo-Dienst*, 11. Wissenschaftshistorische Tagung der Österreichischen Arbeitsgruppe „Geschichte der Erdwissenschaften" (= Berichte der Geologischen Bundesanstalt 96), 6-8, Wien.

Cernajsek, T. (2012). Anmerkungen zu Julius Ludwig Wilsers Schriftenreihe „Die Kriegsschauplätze 1914 – 1918 geologisch dargestellt." – In: Angetter, D., Hubmann, B. & Seidl, J. (eds.): *Geologie und Militär: Von den Anfängen bis zum MilGeo-Dienst*, 11. Wissenschaftshistorische Tagung der Österreichischen Arbeitsgruppe „Geschichte der Erdwissenschaften" (= Berichte der Geologischen Bundesanstalt 96), 10-13, Wien.

Cernajsek, T., Čejchanova, A., Kukal, Z., Pošmourný, K., Túny, I., Wołkowicz, S., Krzywicz, P. &. Sikhegy, F. (2012):. *Geological mapping in Central Europe in the 18th and early 19th centuries*. I Bl.: Illustr.; Farbendruck [Poster], Praha

Cernajsek, T. (2012). Meine Reisen in Süddalmatien (1904 – 1907). Aus den Tagebüchern der Frau des Geologen Gejza Bukowski (1858 – 1937) von Stolzenburg, Katharina Bukowska von Stolzenburg (1866 – 1936). - *Jahrbuch des Wissenschaftlichen Zentrums der Polnischen Akademie der Wissenschaften in Wien*, Bd. 3, 2010–2012, 239–289, 10 fig., Wien.

Flügel, H.W. (2013). Carl Ludolph Griesbach – „eine seltene, eigenartige Persönlichkeit". *Berichte der Geologischen Bundesanstalt*, 97, 43-121, Wien.

Flügel, H.W. & Hofmann, T. (2013). Carl Lill von Lilienbachs geologische Untersuchungen der Nördlichen Kalkalpen 1820–1830. *Berichte der Geologischen Bundesanstalt*, 97, 5-41, Wien.

Hubmann, B. & Seidl, J. (2012). Carl Dieners Expedition in den Himalaya - ein internationales Forschungsprojekt aus dem Jahr 1892. *Mitteilungen der Österreichischen Geographischen Gesellschaft*, 154, 322–334, Wien.

Hubmann, B. & Seidl, J. (2012). Franz Eduard Suess - „gütiger Mensch und bahnbrechender Forscher". - Unsere Heimat. *Zeitschrift für Landeskunde von Niederösterreich*, 82/2, 79-103, 2 figs., St. Pölten.

Hubmann, B. & Seidl, J. (2012). Die Donau und ihr Gebiet: Carl Ferdinand Peters (1825-1881) und sein Beitrag zur geologischen Kenntnis der k.k. Monarchie und der „unteren Donauländer". - „Beschreibung, Vermessung und Visualisierung der Welt" *Europäische Wissenschaftsbeziehungen*, 4, 211-229, Erfurt.

Hubmann, B. & Seidl, J. (2012). Sueß Franz Eduard. *Österreichisches Biographisches Lexikon*, 63. Lief., 33-34, Wien (Österreichische Akademie der Wissenschaften).

Hubmann, B. (2012). Robert Schwinners Lehrbuch der Physikalischen Geologie. Band II: Physik der Erdfeste. *Scripta geo-historica*, 5, ix + 1-223, Graz.

Svojtka, M., Salvini-Plawen, L., & Mikschi, E. (2012). Johann Jakob Heckel (1790–1857), der Begründer der systematischen Ichthyologie in Österreich. Ein biographischer Überblick. *Schriften des Vereins zur Verbreitung Naturwissenschaftlicher Kenntnisse*, 148/150, 43-74.

Svojtka, M. & Hofmann, Th. (2012). Suttner Johann. *Österreichisches Biographisches Lexikon*, 63. Lief., 65-66, Wien (Österreichische Akademie der Wissenschaften).

Vetters, W., Pohl, W.L. (2012):. Das Gold der „Norischen Taurisker" Die Geologie des Vorkommens von Polybios/Strabon. *Carinthia* II, 122. Jg., 273-286, Klagenfurt.

Various biographical contributions of geologists, palaeontologists and mineralogists were published in the Austrian biographical dictionary by the Austrian Academy of Science, 63, Vienna 2012.

(See also Conference Reports, p. 32)

Marianne Klemun – in October 2012, participated in an International Conference dedicated to 250th anniversary of the foundation of the Mining Academy Banská Štiavnica, which took place in the Slovac Mining Museum Banská Štiavnica. The theme of the meeting was "Vivat academy, Banská Štiavnica, Education, Progress, Tradition", to which MK contributed a talk titled, "From the Mining Hammer to the Geologists Hammer".

She was invited to be part of the launch of the book "The Nationalization of Scientific Knowledge in the Habsburg Empire, 1848–1918", edited by Mitchell Ash and Jan Surman and published at Palgrave in 2012. The presentation took place at the Department of History, University of Vienna, on 22.1. 2013.

Marianne Klemun attended a meeting to celbrate Austrian History Day (26. Österreichischer Historikertag, 24.–28.9. 2012), held at the Danube-University at Krems, in Austria. As a member of the panel "Wissenskulturen, Wissenschafts- und Kulturgeschichte" ("Cultures of Knowledge") she gave a lecture titled, "Instrumentengeschichte und Wissenskulturen: der Geologenhammer" ("History of instruments and cultures of knowledge: the geologist's hammer").

In the summer of 2012, Marianne Klemun attended the "Symposium in Honour of David Branagan – Biographical Studies of Eminent Geologists", organised by David Oldroyd, at the 34th International Geological Congress (IGC) in Brisbane, Australia, where she gave a talk on the topic "Living Fossil – Fossilized Life? Reflections on biography in the history of science".

She spoke on the same topic at a meeting of the Transylvanian Natural Sciences Working Group (Frühjahrstagung der Sektion Naturwissenschaften des Arbeitskreises für Siebenbürgische Landeskunde e.V: Heidelberg, 25.3. 2012, Schloß Horneck in Gundelsheim, Germany). The title of her lecture was: "Materialisiertes, hinterlassenes Leben. Reflexionen zur Biographie in der Wissenschaftsgeschichte" ("Materialised life. Reflections on Biography in the History of Science") She gave another lecture titled, "Reflections on the Writing of Biography" to the working group of the History of Science in the Department of the University of Vienna (Arbeitsgruppe Wissenschaftsgeschichte).

In November 2012 Marianne Klemun together with Ulrike Spring (Sogndal, Norwegen) conceptualized and organized the Symposium "Scientific Expeditions: Local Practices and Cosmopolitan Discourses", as part of the 5th International Conference of the European Society for the History of Science: "Scientific cosmopolitanism and local cultures: religions, ideologies, societies" (Athens, 1-3 November, 2012). Amoung the Speakers were Johannes Mattes (Austria), Teresa Salomé Mota (Portugal), Bernhard Fritscher (Germany).

A meeting on the same topic, but with other speakers, was organized by Marianne Klemun in Vienna. It was financed by the Austrian Academy of Sciences and was held at the University of Vienna in November 2012.

Marianne Klemun was guest editor of a volume of the online journal: http://johost.eu/ "Moved Natural Objects. Spaces in Between" (=Host Journal of History of Science and Technology, Vol. 5, Spring, 2012). The papers she edited included one by Bernhard Fritscher "Making Objects move: On minerals and their dealers in the 19th century Germany".

Together with Thomas Hofmann, Marianne Klemun edited the results of student papers of a research seminar given at the university. The title of the book is Die k. k. Geologische Reichsanstalt in den ersten Jahrzehnten ihres Wirkens. Neue Zugänge und Forschungsfragen (The Geological Survey in the first years of his existence: New perspectives and research questions), *Berichte der Geologischen Bundesanstalt*, 95, Wien 2012.

In addition Marianne Klemun has published two articles:

Klemun, M. 2012. National consensus as culture and practice: The Geological Survey in Vienna and the Habsburg Empire (1849–1867). In: Ash, M. G. and Surman, J. (eds). *The Nationalization of Scientific Knowledge in the Habsburg Empire, 18481918*, New York: Palgrave Macmillan, pp. 83–101.

Klemun, M. 2012 (Guest Editor). Introduction to 'Moved' Natural Objects – 'Spaces in Between', (=*Host Journal of History of Science and Technology*, 5, pp. 1–7. Online-journal: http://johost.eu/

New list of references from Marianne

Hofmann, Th. [eds.] (2013): *Biographische Materialien: Carl Lill von Lilienbach (1798-1831) und Carl Ludolph Griesbach (1847-1907)*. – Ber. Geol. B.-A., 97, 121 p. ill., Wien.

Flügel, H. W. & Hofmann, Th. (2013): Carl Lill von Lilienbachs geologische Untersuchungen der Nördlichen Kalkalpen 1820–1830. – *Ber. Geol. B.-A.*, 97, pp.5-41, ill., Wien.

Hofmann, Th. & Klemun, M. [eds.] (2012): *Die k. k. Geologische Reichsanstalt in den ersten Jahrzehnten ihres Wirkens: Neue Zugänge und Forschungsfragen*. – Ber. Geol. B.-A., 95, 128 p., Wien.

Vetters, W. & Hofmann, Th. (2012): Eine Balkankarte von 1876 - Vorstudie zur Militärgeologie des 1. Weltkriegs? – Ber. Geol. B.-A., 96, p.51, Wien.

Kristen, Th. & Hofmann, Th. (2012): Die Tagebücher Franz von Hauers von 1860 bis 1873: Hintergründiges, Privates und Unbekanntes aus der Pionierphase der k. k. Geologischen Reichsanstalt. – *Ber. Geol. B.-A.*, 96, pp.28-30, Wien.

Bolivia

Carlos Serrano – The technical journal *Facmin,* edited by the Faculty of Mining Engineering at the University Tomás Frías, in Potosí, Bolivia, published my article, entitled "Mining -sustained pollution". This contribution includes a summary of the mining-metallurgical activity in the territory of the Republic of Bolivia (with Potosí as the main example), from the times predating the arrival of the Spanish; an environmental overview of the region from 1544 to 1825; a discussion of silver and tin mining and of environmental changes between 1825 and 1985; as well as of goldfields pollution (outside Potosí) and recent pollution from 1986 to the present. Also discussed are two examples of major disasters. One, which happened in colonial times, was the collapse of the damwall of a reservoir near the city, and another, after the Republic had been established, refers to the collapse of a waste dam at Porco, Potosí. In addition, the pollution of the Illimani Glacier, La Paz, is mentioned and, finally, three fine examples of environmental care are presented, with regard to the operation of a gold-silver mine at Oruro, the San Cristobal Mine, south of Potosí and the San Bartolomé mine, at the Mount of Potosí.

In November, during the 18th International Festival of Culture, I took part in the Colloqium with the theme, "The Valuation of the Cerro Rico of Potosí, as a Cultural and Tourist Heritage", held in the city of Potosí, and presented a talk entitled, "Cultural approach to the mining-metallurgical heritage of the city of Potosí".

The Council of Housing and Land Management of the Board of Andalusia, Spain, has published a document, "Inventory of Mining Mills on the Bank of Our Lord of Veracruz of the City of Potosí" (*Inventario de Ingenios Mineros de la Ribera de Nuestro Señor de la Veracruz de la Ciudad de Potosí*), including a major contribution by the architects Julián Salazar and María D. Martos. It is a technical proposal for a master plan for the mining mills on the Bank of Potosí. It must be noted that in the vicinity of the Cerro de Potosí (a mountain where silver was mined), three reservoirs, a large part of the city and the Bank, have all been recognized by UNESCO, in 1987, as part of the Common Heritage of Mankind. I have contributed a paper to the above publication titled, "An industrial place: the Bank (16^{th} to 20^{th} centuries)" (*Un lugar industrial: La Ribera (Siglos XVI-XX)*). It focuses on the metallurgical activity developed in the 'Place', which crosses the city from east to west for 15 km.

Between the years 1574 and 1577, a channel was built that followed the bed of an intermittent river, and on its bank mills and amalgamation-smelting plants were erected. These operated during the 'Silver Era', which lasted until the end of colonial times in 1825. With the foundation of the Republic, the owners changed and the amalgamation and smelting of silver continued until 1885, when it was replaced by the processing of tin ore that started 'The Tin Era'. In both cases the fall of the price on the Metals Stock Exchange led a switch to other type of ores. Tin has not been processed there since 1985, and activity on the Bank changed to the opreration of flotation plants for the treatment of sulfide minerals of zinc-silver-lead 'The Sulfides Era', which has continued to the present time. Therefore, the *Ribera* (Bank), with its 235-year history, has been and still is a place intense metallurgical activity.

Carlos Serrano, Potosi, (Bolivia)

Canada

We welcome two new Canadian members to INHIGEO this year, Ian Brookes and Clinton Tippett; more about them and their reports, along with annual reports of activities by other Canadian INHIGEO members follows:

Ian Brookes – In 1996 I retired from York University, Toronto, Canada, where I had taught physical geography, geomorphology and Quaternary environments since 1965. My MSc, PhD and subsequent research has been in the glaciation of Newfoundland, both specifically and more broadly as it affected other Earth surface processes (e.g., sea-level change, rock-slope failures, cryonival landforms and sediments). Since 1975 I also have worked with archaeologists in Iran, Egypt and Jordan, reconstructing landscape history in relation to human prehistory.

In retirement, physical disability has prevented intensive fieldwork, but has allowed studies in the history of Canadian investigations in geomorphology and surficial geology.

Currently I am proofing the ms for Earth Sciences History (in press, below), am about to submit a ms on a catastrophic deglacial alluvial fan in Gros Morne National Park, Newfoundland, and preparing background materials for sampling of highland soils in this Park, which show evidence of age pre-dating the last glaciation. If analysis supports this, it will be only the second reported example of surficial sediment and soils surviving the last glaciation (the first being from Sweden).

Publications relevant to INHIGEO

Brookes, I. 1982. Ice Marks in Newfoundland: A History of Ideas. *Géographie physique et Quaternaire*, 36: 139-163.

Brookes, I. 2002. G. M. Dawson and the Glaciation of Western Canada. *Geoscience Canada*, 29 (4), pp.169-178. Reprinted in R.G. MacQueen (ed.), 2005. Proud Heritage: People & Progress in Early Canadian Geoscience. Geological Association of Canada, Reprint Series No 8: 67-76.

Brookes, I. 2007. First Recognition of a Laurentide Ice Stream: Robert Bell on Hudson Strait. *Géogaphie physique et Quaternaire*, 61(2-3) : 211-215.

Brookes, I. 2008. Robert J. Chalmers: Pioneer Surficial Geologist. *Geoscience Canada*, 35: 127-136.

Brookes, I. 2010. The Geological Survey, Confederation, and Economic Ambition: Robert Bell in St. John's, 1869. *Aspects*, 45(3): 50-55. Published by the Newfoundland Historical Society in The Newfoundland Quarterly, 102 (4)). www.infonet.st-johns.nf.ca/prov iders/nfldhist

Brookes, I. 2011. The Professorship of Robert Bell at Queen's College, Kingston (1864-1868). *Geoscience Canada*, 38(3-4): 145-151.

Brookes, I., in press. A History of Investigations of the Surficial Geology and Geomorphology of Canada to World War 1. *Earth Sciences History*, in 3 parts, October 2013

Brookes, I., in preparation. Reminiscences of Arctic Travel: an archived, hand-written memoir by Arthur Philemon Coleman (1852-1939), Professor of Practical Science 1891-1901 and Geology 1901-1922, University of Toronto; transcribed, with Commentary and Notes.

Book mss seeking publishers

Brookes, I. "The Inner Oasis: Land, Life, and a Geologist at Work in an Egyptian Oasis".

Brookes, I. "Lawrence's Landscapes – 'Seven Pillars of Wisdom' as Geography".

Brookes, I. "Great Stone Chief: the Life and Work of Robert Bell, Geological Survey of Canada".

Brookes, I. 2000 (unpublished). Yves Oscar Fortier -- Une Vie en Service du Canada. Transcript of June 1998 Inter-view with Y.O. Fortier (b. 1914), Director, Geological Survey of Canada (1964-73), with author's audiotapes, diskettes, and subject's supplementary material. Deposited at Library & Archives Canada, and Earth Sciences Information Centre (ESIC), Natural Resources Canada, Ottawa.

Keynyn Brysse – From January to April 2012 I served as a Course Instructor at the University of Alberta, teaching STS 200: An Introduction to Studies in Science, Technology and Society. In September 2012 I began work on an Izaak Walton Killam Memorial Postdoctoral Fellowship in the Science, Technology and Society Program, Office of Interdisciplinary Studies, at the University of Alberta, under the supervision of Rick Szostak, a historian of economics and interdisciplinary studies. In this postdoc I will expand my master's work on the responses of vertebrate paleontologists to the Alvarez impact hypothesis (the idea that an asteroid impact caused the Cretaceous-Tertiary mass extinction).

I also completed a chapter draft on the history of studies of ozone depletion for a forthcoming book on 'Assessing Assessments: A Historical and Philosophical Study of Scientific Assessments for Environmental Policy in the Late 20th Century', co-authored with Naomi Oreskes, Michael Oppenheimer, Dale Jamieson, Jessica O'Reilly and Milena Wazeck.

In February, I gave a presention of my ozone work, which was the result of a previous postdoc at Princeton University, at the AAAS annual meeting in Vancouver, BC, Canada. A paper I wrote with Oreskes, O'Reilly and Oppenheimer was published in *Global Environmental Change* in late 2012; it presented our hypothesis that scientists, perhaps especially those working on climate change, sometimes "err on the side of least drama" in reporting their results – rather than overstating their claims and fear-mongering, as some climate skeptics have accused them of doing.

Publications and Presentations

Brysse, K., Oreskes, N., O'Reilly, J., and Oppenheimer, M. 2012. "Climate change prediction: erring on the side of least drama?" *Global Environmental Change,* 23(1): 327–337.

Brysse, K 2012. "Learning to assess ozone depletion, 1976–2010." Presented at the Annual Meeting of the American Association for the Advancement of Science (AAAS), Vancouver, British Columbia. 18 February 2012.

Ernst Hamm – From January through June of 2012 I was on sabbatical and Visiting Scholar at Massey College, a postgraduate college associated with the University of Toronto. After my sabbatical ended I returned to my home institution, York University and its Science and Technology Studies Program and Natural Science Division. I published a number of articles, including: "Visualizing Concepts in Context in Goethe's Geology," *Visual Images and Geological Concepts*, ed. Hirokazu Kato, Michiya Inomata and Yasumoto Suzuki, 15-19 (Tokyo: Special issue of JAHIGEO, 2012; Proceedings of INHIGEO 2011); "Mining History: People, Knowledge, Power," *Earth Sciences History*, 31 (2012):321-326 (an invited contribution to a symposium entitled "On Mining History"); "Mennonites, Natural Knowledge and the Dutch Golden Age," *The Conrad Grebel Review*, 30 (Winter 2012):4-23, and "Improving Mennonites in an Age of Revolution," *The Conrad Grebel Review*, 30 (2012):24-51. I also taught a PhD seminar, "Introduction to Science and Technology Studies," and continued in my job as reviews editor of *Isis* (an international review devoted to the history of science and its cultural influences).

Gerard Middleton – My paper on Adams, written in 2008, was finally published in 2012. A book review on Dale appeared last year too. Most of my scholarly activities, however, have been devoted to old stone houses

in Ontario. Meanwhile, I am experimenting with Flickr (http://www.flickr.com/) as a way to publish interesting stuff (mainly but not exclusively photographs) about old stone houses. Search for GerryV2.

Publications

Middleton, G.V. 2012, Tour of Dundas Stone Houses. Published March 03, 2012 in *Arts and Architecture*. http://raisethehammer.org/article/1555/tour_of_dundas_stone_houses

Middleton G.V. 2012. In Memory of All Saints. Published March 12, 2012 in *Arts and Architecture***.** http://raisethehammer.org/article/1561/in_memory_of_all_saints

Middleton, G.V. 2012. A selection of buildings made of stone that are included in this year's 'Doors Open Hamilton' tour. Published May 01, 2012 in *Arts and Architecture*. http://raisethehammer.org/article/1588/notes_on_stone_buildings_doors_open_hamilton_2012

Middleton, G.V., 1912. Review of: The Outcomes of the Life of a Geologist: An Autobiography, by T. Nelson Dale. *Earth Sciences History*, 31 (1):153-155.

Arts and Architecture is part of the Raise the Hammer website, http://raisethehammer.org/articles/section/arts_and_architecture

Randall Miller – The Atlantic Region of eastern Canada had a number of geoheritage activites in 2012. In May, the Geological Association of Canada/Mineralogical Association of Canada annual meeting was held in St. John's, Newfoundland, and in Labrador. The GAC/MAC meetings have had a special session dealing with geoheritage for many years, and the 2012 session in St. John's was well attended. Numerous presentations were made over several days, followed by a field trip '*Geotourism and the coastal geological heritage of the Bonavista Peninsula: Current challenges and future opportunities'* led by Amanda McCallum and Sean O'Brien (Newfoundland and Labrador Department of Natural Resources) to the Bonavista Peninsula. The Bonavista community is considering development of a Global Geopark and the field excursion toured the scientific, heritage, tourism and community components of the aspiring geopark. Abstracts for the 2012 St. John's conference can be found at www.gac.ca/wp/.

The Atlantic Geoscience Society also published papers dealing with regional geoheritage, including papers delivered at its annual colloquim. *Atlantic Geology*, the journal of the Society (http://journals.hil.unb.ca/index.php/ag) published a paper in 2012 by Miller, Buhay and Hébert about the collections of Dr. Abraham Gesner. His 'Geological Survey of New Brunswick' (1838 to 1842) may be the second oldest 'Survey' collection in the British Empire, just after the founding the British Geological Survey. The Nova Scotia Department of Natural Resources has continued its interest in geoheritage. Dr. John Calder, a Senior Geologist in the Department, was instrumental in the gaining of UNESCO World Heritage status for the Joggins Fossil Cliffs, and now has turned his attention to a broad review of geoheritage in the province. Calder and department are in the process of compiling a list of geoheritage sites and criteria for designation. A link to an abstract on the topic can be found at: www.gov.ns.ca/natr/meb/data/pubs/10re02/10re02_14.pdf.

In 2012 Calder also published 'The Joggins Fossil Cliffs: Coal Age Galápagos', an attractive and well illustrated view through this remarkable window into the Carboniferous.

The New Brunswick Museum highlighted the 150th anniversary of the foundation of the Natural History Society of New Brunswick (1862–2012) with a small exhibition of geological specimens from the Society, a leading scientific organization in eastern Canada during the 19th century. A presentation was also made to the Northeast Natural History Conference 2012 in Syracuse, New York about 19th to early 20th century geology lectures at the Society. The museum's Curator of Geology and Palaeontology was awarded the 2012 L.W. Bailey Award from the Association of Professional Engineers and Geoscientists of New Brunswick, in part for efforts to develop geoheritage projects. The award is named in honour of Loring Woart Bailey, one of the first professors of geology at the University of New Brunswick and a pioneer in the study of the province's geology.

The first North American member of the Global Geoparks Network, Stonehammer Geopark, was selected to host the 6th International UNESCO Global Geoparks Conference in September 2014. *Geology Today* published a story about the geopark in volume 28 as part of the series 'Classic Localities Explained' (9).

Publications concerning Geological Heritage

Bremner, G., Fullerton, Merrifield, W. J., Miller, R.F. and Pearce, J. 2012. Stonehammer Geopark - public engagement and 'a billion years of stories'. Abstracts, *34th International Geological Congress 2012,* Brisbane, Australia, August 5-10, 2012, p. 3695.

Buhay, D.N., Miller, R.F. and McAlpine, D.F. 2012. 19th to early 20th century geology lectures at the Natural History Society of New Brunswick. *Northeast Natural History Conference 2012*, April 15-19, 2012, Syracuse, New York.

Calder, J. 2012. The Joggins Fossil Cliffs. Coal Age Galápagos. *Province of Nova Scotia Department of Natural Resources*, 96 pp.

Kennedy, K., Miller R.F., and Gibling, M.R. 2012. Palaeoenvironments of Early Devonian fish and other aquatic fauna of the Campbellton Formation, New Brunswick, Canada. Palaeogeography, Palaeoclimatology, Palaeoecology 361–362: 61–72.

McCallum, A. and O'Brien, S. 2012. Geotourism and the coastal geological heritage of the Bonavista Peninsula: Current challenges and future opportunities. Field Trip Guidebook – B7, Joint Annual Meeting of the Geological Association of Canada and the Mineralogical Association of Canada. May 27-29, 2012, 69 pp.

Miller, R.F. 2012. Stonehammer Geopark – Building on 'A Billion Years of Stories'. Program and Abstracts, Joint Annual Meeting of the Geological Association of Canada and the Mineralogical Association of Canada. May 27-29, St. John's.

Miller R.F and Falcon-Lang, H.J. 2012. Classic Localities Explained 9: Stonehammer Geopark, New Brunswick, Canada. Geology Today, 28 (3): 110-118.

Miller, R.F., Buhay, D.N. and Hébert, M. 2012. Specimen Collections from Abraham Gesner's Geological Survey of New Brunswick (1838 to 1842). Atlantic Geology 48: 86-96.

Miller, R.F. and Buhay, D.N. 2012. Geosciences in Canada and the Natural History Society of New Brunswick (1862–1932). Abstracts, 34th International Geological Congress 2012, Brisbane, Australia, August 5-10, 2012, p. 1504.

Miller, R.F. and Buhay, D.N. 2012. George Frederic Matthew. In: The Canadian Encyclopedia/L'Encyclopédie canadienne. Retrieved from www.canadianencyclopedia.com

Links to related media stories:
Canadian Geographic Travel, March 2012
http://travelclub.canadiangeographic.ca/blogs/gateway/archive/2012/02/21/stonehammer-geopark.aspx
CBC Radio, May 2012
http://www.cbc.ca/shift/2012/05/16/stonehammer-geopark-to-host-the-world/
The Telegram, St. John's, May 2012
http://www.thetelegram.com/News/Local/2012-05-28/article-2989933/Geoparks-offer-tourist-activites%2C-economic-development/1

David E. Spalding – I have continued to serve on the board of History of Earth Sciences Society and on the editorial board of the journal *Earth Sciences History*.
Publications which appeared during 2012 included:

Chapters in books

1. "Dinosaurs: The Earliest Discoveries," my revised version of Bill Sarjeant's original introductory chapter to *The Complete Dinosaur* (Brett-Surman *et al*. (eds.), Second Edition, Indiana University Press, pp. 3-23.

2. "Before The Lost World: Prehistoric life in science and fiction to 1912", Chapter 4 of the commentaries to *The Lost World* by Sir Arthur Conan Doyle. Collector's Centenary Edition" (edited by John Lavas, published Auckland, N.Z, pp. 154-168.). The volume's dedicatees include the late Bill Sarjeant, and I also contributed a brief biography "William Antony Swithin Sarjeant (1935-2002)" which appears on pp. xii-xiv. (See Book Reviews for further information, p. 72).

Contributions to Journals

Review: Brinkman, Paul D. The Second Jurassic Dinosaur Rush: Museums and Paleontology at the Turn of the Twentieth Century. *Earth Sciences History* 31(2): 341-343.

Work in Preparation

Further reviews are in preparation for *Earth Sciences History*. I am also writing an autobiographical contribution to a history of the University of Sheffield Geology Department (UK) which is being compiled as part of a celebration of the centenary of the department in 1913. (See Other Forthcoming Meetings for further information).

Darren H. Tanke – Writing/editing, and work on other Earth Science history projects consist of the following:

1. I have almost completed compiling a detailed history of vertebrate paleontological activities in the Drumheller, Alberta, Canada badlands area. This manuscript covers the period from 1884 to the present and deals with the Late Cretaceous (Campanian-Maastrichtian) badlands outcrops from about the Content Bridge downstream to Dorothy, Alberta district (about 100 miles or 162 km). It reviews who/what institution was there, when, what they collected, the fossils current status, and related histories. Such a project has never been pulled together before. The nearly finished manuscript is presently at 242 pages. Data from it was used in #7 below.

2. Work on a paper on the history of Cretaceous marine reptile discoveries in the province continues. The last 15 years have witnessed an explosion of new finds.

3. I continued researching and writing biographies on lesser known men and women in Albertan vertebrate paleontology, making great progress in completing works on Albert F. Johnson and Bob Reid; both worked in various capacities as cooks and field assistants to Barnum Brown of the American Museum of Natural History around WWI. Johnson went on to work with Roy Chapman Andrews in the Gobi Desert in 1923.

4. I worked with a publisher (Coteau Books: Regina, SK) to get Hope Johnson (1916-2010) in the "Herstory – The Canadian Woman's Calendar" calendar/day planner coil-bound book for 2013. This book features famous and/or inspiring Canadian-born or Canada-residing women who are still living or have passed on. Johnson was a highly respected and a self-taught artist and amateur paleontologist in Alberta.

5. I reviewed two historical manuscripts, one on the Chicago Field Museum Expedition to collect dinosaurs in Alberta in 1922 by Paul Brinkman for *Earth Sciences History*, and a manuscript on the relocation of a lost *Pentaceratops* (horned dinosaur) quarry in New Mexico; excavated in 1921 but not rediscovered until recently, by contemporary workers. This manuscript was penned by Robert M. Sullivan and Spencer G. Lucas and is to appear in a future bulletin of the New Mexico Museum of Natural History.

6. My manuscript 'David E. Evans (Royal Ontario Museum, Toronto), based on my relocation of a lost 1918 *Gryposaurus incurvimanus* (type) quarry, in Dinosaur Provincial Park, was accepted for publication in the upcoming Indiana University Press (Bloomington, IN) book entitled *Hadrosaurs*. The specimen has been used in a number of important publications, and finding its spatial and especially stratigraphic context within the Dinosaur Park Formation was critical to our better understanding of hadrosaur evolution and biostratigraphy.

7. Another of my papers co-authored with Eberth *et al*., *Dinosaur biostratigraphy of the Edmonton Group (Upper Cretaceous), Alberta, Canada: Evidence for climate influence*, will appear in an forthcoming issue of the *Canadian Journal of Earth Sciences*. Some of the data for this article was collected by the late Loris S. Russell (1904-1998) for dinosaur biostratigraphic work, and relats to the rediscovery of old dinosaur sites (in the mid-to late 1980s) in the Drumheller district, a project, in the final stage of which I participated. In recognition of his earlier work, Russell was made a posthumous author of the paper.

More focussed vertebrate paleontology history manuscripts (i.e. biographies) had to take a bit of a rest this year as I was involved with more pure science or technical writing projects. I do hope to publish a couple more of my "Remember Me" series of biographies within the next year.

Building preservation

Attempts to have the Drumheller home of Harold Lowe made a protected site under the "Municipal Heritage Partnership Program" did not come to fruition. As a field assistant, Lowe helped Charles "Charlie" M. Sternberg of the Geological Survey of Canada collect Late Cretaceous fossil vertebrates in Manitoba, Saskatchewan, and especially Alberta, during about 7 summers between 1925 and 1937. The Late Cretaceous horned dinosaur *Monoclonius lowei* was named after him. I visited Lowe's elderly son Don in Kelowna, BC during the Easter holidays.

Relocation or identification of found but unidentified "mystery quarries" and their permanent on-site documentation:

1. A "mystery quarry" in Dinosaur Provincial Park, found in 1992 and identified by myself, in 2011, as the source of the "head-hunted" type skull of the hadrosaur *Corythosaurus excavates*, was reopened by the University of Alberta in the summer of 2012, to allow the skull, collected in 1920, to become reacquainted with its body. The subject of listing such specimens, of either body parts or single skeletons, now scattered across different museums, and the means of repatriating them to one museum, will be discussed in a paper now in preparation.

2. Work on relocating old dinosaur quarries in the Drumheller Valley continued with a volunteer helper. He relocated a hadrosaur bonebed site worked by George F. Sternberg, in 1915. I hope to work more directly with him this summer. I was able to relocate a 1970 *Edmontosaurus* quarry site near Drumheller from the comfort of my office chair, by matching up a distinctive drainage pattern in the grassy flat next to the quarry (as seen in a picture) to the same drainage channel visible on Google Earth! It proves that computer programs have some applications for the preservation for Earth Science history.

3. The quarry-staking project, in and around Dinosaur Provincial Park (DPP), is to be resurrected this summer. The staking program started in 1935-6 with a metal data-bearing head affixed to a length of pipe being inserted into a hole drilled into the old quarries floor, which was then filled in with concrete. There has been much progress in the excavation and identification of old sites over the past 10 years in DPP, and across southern Alberta, by expeditions mounted by the Royal Tyrrell Museum (TMP), the University of Alberta and jointly by Royal Ontario Museum and Cleveland Museum of Natural History, causing the staking project to lag behind. We hope to catch up this year, with more work, if needed, to be done next year. There is currently a severe money crunch in the Alberta Government so it is hoped that the costs of this projects can be shared across several institutions and one individual. An alternative idea is to totally change the style of quarry stake to reduce their cost.

4. I gave a series of four mini-workshops (Tanke, 2013) on how to identify found but unidentified dinosaur quarries at the 6th Annual Preparation and Collections Symposium, hosted by the TMP in April. These were done as part of the behind-the-scenes component of the research section of our museum.

5. Another history-related project for the above-mentioned conference was a poster presentation on the successful working relationship between heavy industry (mining, construction, oil and gas, etc.) and vertebrate palaeontologists' in Alberta, which goes back to about 1920 (Tanke *et al*., 2013). Work on this project involved searching TMP archives and collections records, and online digitalized newspapers (Google News Archives), which by the way is a very useful tool for historians if you have not tried it.

6. At time of writing I am planning a trip to New Mexico, USA, in May, in the hope of locating some Late Cretaceous unidentified dinosaur quarries there, and to help in finding a lost quarry (collected c. WWII), which yielded the problematic new ceratopsian dinosaur *Titanoceratops*. The relocation work is necessary to give the type specimen formational and stratigraphic context and help resolve recent debates about its supposed evolutionary significance. I may also give some Albertan vertebrate paleontology history talks while there.

7. Efforts will be made this summer to relocate a lost 1915 site upstream from Drumheller that yielded a rare Late Cretaceous fish specimen. This work is in support of a planned larger anatomical description by senior authors.

Photography-related projects

1. The Royal Tyrrell Museum has digitized images and slides, numbering in their thousands and dating back to 1963. These are now in the process of sorted, identified (as to place, activity, identifications of specimen(s) and people in image) and categorized, in part by myself, a task that will extend over a period of several month. Such work is not only necessary, but also gives me a good look at images which will be useful for future historical projects. One of these is a large project involving the history of collecting techniques and fossil conservation (i.e. preparation means, tools and glue types used) for Late Cretaceous vertebrate fossils from our province. Another historical photography project on the horizon is the matching field photographs of the originals with cast specimens (the first having priority), which are now on display in our museums.

2. I have gathered archival pictures and generated data for a project on the history of vertebrate paleontology in the Drumheller Valley corridor, for a display in a temporary picture gallery in the Royal Tyrrell Museum, in May 2013.

3. I am planning a trip to Ottawa, in mid-April, mostly to examine archival field photographs of early dinosaur collecting activities in Alberta, by the Geological Survey of Canada. These photographs are critical for my long-term project for the relocation of lost fossil sites and for the identification of found, but unidentified dinosaur quarries. Many of these images provide only a minimum of data, which I hope to

extract by making use of the historical data I have gathered so far. Field notes and other paper documents of a historical nature will be examined and information gained will be incorporated into various vertebrate paleontology historical projects currently underway. I will give one Albertan vertebrate paleontology history talk while there.

Other

1. The erection of a commemorative four-sided rock cairn with two (or more?) bronze commemorative plaques, honouring early fossil collectors in the province, is still being planned, though when and where this will occur is still uncertain. I have discussed this project over the past several years with an amateur historian and paleontology supporter, and its planning has at last commenced.

2. Another project, which actually made history, was the complete preparation and simultaneous internet blogging of a carnivorous dinosaur skeleton of *Gorgosaurus* (TMP 2009.012.0014), the first time this has been done. The results of this project were recently published (Hone and Tanke, 2013; Tanke and Hone, 2013). The blog was updated regularly and allowed viewers a virtual "look over my shoulders" as the work proceeded. The entire blog can be found at:
http://archosaurmusings.wordpress.com/2011/02/22/darren-tanke%e2%80%99s-gorgosaurus-preparation-final-roundup/#more-4967

3. I gave a public and staff presentation on March 14th at the Royal Tyrrell Museum (Anonymous, 2013), in Drumheller, on the December 1916 mid-Atlantic sinking of the SS *Mount Temple* and her Albertan dinosaur cargo by the heavily-armed German surface raider SMS *Moewe*.

4. There are some plans by members of the Dinosaur Research Institute in Calgary, and possibly the University of Alberta, to refloat the 1:1 scale replica of the American Museum of Natural History scow, which sunk in the Red Deer River this summer.

Most of my earth science history papers can be found online as pdf's at:
http://tyrrellmuseum.academia.edu/DarrenTanke

References

Anonymous 2013. Technician retraces journey of sunken dinosaurs. *The Drumheller Mail*, March 13, 2013:13.

Eberth, D.E., Evans, D.C., Brinkman, D.B., Therrien, F., Tanke, D.H., and Russell, L.S. 2013, in press. Dinosaur biostratigraphy of the Edmonton Group (Upper Cretaceous), Alberta, Canada: Evidence for climate influence. Canadian Journal of Earth Sciences.

Hone, D.W.E. and Tanke, D.H. 2013, in press. Scientific communication of fossil preparation in the digital realm. In: *6th Annual Fossil Preparation and Collections Symposium*. Royal Tyrrell Museum, Drumheller, AB. April 20-22, 2013.

Tanke, D.H. 2013, in press. Recognizing and solving the identity of dinosaur "mystery quarries" in Alberta (mini workshop). In: *6th Annual Fossil Preparation and Collections Symposium*. Drumheller, Alberta. April 20-22, 2013.

Tanke, D.H., Bansescu, J., Spivak, D., and Jass, C. 2013, in press. Professional palaeontology and industry in Alberta, Canada: A successful working relationship. In: *6th Annual Fossil Preparation and Collections Symposium*. Drumheller, Alberta. April 20-22, 2013.

Tanke, D.H. and Hone, D.W.E. 2013. Using the internet and social media to bring dinosaur preparation to a wider audience. *Geological Curator*, 9(8):433-440.

Clinton Tippett – I am a petroleum exploration geologist working for Shell Canada Energy. My focus on historical matters over the year has been primarily through the Calgary-based Petroleum History Society (PHS), of which I am both President and Editor of our newsletter, Archives. In addition to publishing this newsletter (back issues of which are accessible through our website at www.petroleumhistory.ca), the PHS sponsors 6-7 luncheons with speakers each year. We have an annual awards program honouring the history of the Canadian Petroleum Industry and have in the past organized topical field trips and walking tours. A major initiative over the last couple of years has been a revival of our Petroleum Industry Oral History Project in the form of the Oil Sands Oral History Project. Approximately $216,000 was raised from a combination of industry and government sources, with 70 interviews, some with video, recorded and transcribed to date. Permanent archiving is being provided by the Glenbow Archives and Museum in Calgary. Some of this material has already been used for public information sessions by researchers and a general release of the interview transcripts is planned for the near future. The P.H.S. also hopes to work

towards a petroleum industry symposium in 2014 that will feature papers related to both the oil sands and to the 100th anniversary of the discovery of the Turner Valley Oil and Gas Field near Calgary.

Production of the Archives newsletter involves the use of articles summarizing presentations that have been given, news items from the media, photographs (current and historical) and excerpts from the publications of related organizations including the Leduc-Devon Historical Society, the Society for Industrial Archaeology, the PetroPhilatelic Society, the Petroleum History Institute, the Canadian Rig Museum and various industry journals.

It should be noted that the history of geological concepts is closely intertwined with that of the industry and that the one is naturally told as a basis of the other. For example, the development of new models in palaeontology, sedimentology and tectonics has led to new hydrocarbon play concepts, which in turn have contributed to the evolution of the industry, including the invention of the innovative technologies required to pursue those plays.

I am also the History and Archives Chair of the Canadian Society of Petroleum Geologists. I am a member of the History of Petroleum Geology Division of the American Association of Petroleum Geologists and of the History of Geology Division of the Geological Society of America.

Darren Tanke, Drumheller, Alberta (Canada)

CHILE

Publications

Charrier, R.,Croft, D.,Flynn, J., Pinto, L. and Wyss, A. 2012. Mamíferos fósiles cenozoicos en Chile: Implicancias paleontológicas y tectónicas. Continuación de investigaciones iniciadas por Darwin en América del Sur" (Cenozoic fossil mammals in Chile: Paleontologic and tectonic implications. Advances in research subjects initiated by Darwin in South America In: Veloso, A. and Spotorno, A. E. (eds.) *Darwin y la Evolución. Avances en la Universidad de Chile* (Darwin and Evolution. Progress at the University of Chile), Santiago: Editorial Universitaria, pp. 281-315.

Sagredo, R, and Hervé, F. (2011) Introducción: Un geólogo en terreno. Darwin en América del Sur. (Introduction: A geologist in the field. Darwin in South America). In: Sagredo R. (ed., transl.) Charles Darwin*, Observaciones geológicas en América del Sur*. Santiago: Biblioteca Darwiniana, Editorial Universitaria, 457 pp. (This is another translation into Spanish of Charels Darwin's book *Geological observations in South America*, by Chilean scientists.

Hervé, F. (2012). Amadeo Pissis y Hans Brüggen, Los Dres figuras de la geología de Chile en el Siglo.XIX y XX. *Revista Chilena de Historia y Geografía*, 171, pp. 207-222.

Reynaldo Charrier gave a talk at the Chilean Geological Survey in Santiago, in December 2012, titled, "*Darwin y la Geología y Paleontología de Sudamérica y la Noción del Tiempo Geológico*" (Darwin and the geology and paleontology of South America and the notion of geological time.

Reynaldo Charrier and Francisco Hervé, Santiago (Chile)

(See also Conference Reports, p. 33)

China

The year 2012 has marked the 90th anniversary of the founding of The Geological Society of China (GSC), in 1922. The establishment of the GSC also marks the transition of the geological sciences in China into a mature stage of development. This is demonstrated by the founding of specialist geological research organizations, geological institutes and administrative departments; the constructing of geological educational platforms and the forming of academic communities for the exchange, deliberation and publisizing of geological research works.

The Commission on the History of Geology (affiliated with GSC) celebrated the geological achievements in China during the 90-year history of the GSC by organising the following activities and events:

Academic conferences

A symposium on the scholarship and thoughts of the late Professor Academician Wang Hongzhen

This symposium was held in September 2012 and was organised by The Commission on the History of Geology in China (CHGC), in association with The Geological Development Research Center (affiliated to

the China University of Geosciences Beijing (CUGB). In his address, the vice-president of CUGB, Professor Wan Li, spoke of Professor Wang as "a famous geologist and geological educator, whose research, meticulous scholarship, sublime faith and academic thinking, warranted deeper consideration". He further commented that, "as a geologist, Professor Wang had made great contributions to the development of the geological science in China and that his academic thinking had reached the heights of philosophy".These were true reflections on Professor Wang's noble patriotic thoughts on Science, which had the aim of saving, invigorating and strengthing the Nation.

A meeting of geologists in China

The 24th annual meeting of the Commission on the History of Geology in China

This meeting took place at the China University of Geology, in Beijing, in October 2012. The meeting's program included the following themes: the history and development of the Geological Society of China; summaries of research in the geological sciences in China; the history of international geological research; geological education; the future orientation of research work; an expansion of international cooperation on the study of the history of geology in China, and the promotion of exchanges of research work on history of geology of international and Chinese researchers.

The president of the CHGC, Academician Professor Zhai Yusheng, gave a talk on the study of the history of geology in China during 100 years of geological activity in China, and during the 90 years since the founding of the GSC. He praised the distinguished contributions made by senior Chinese geologists in the study of the history of geology in China and acknowledged the efforts and the results achieved by other researchers and devotees. He also pointed out further research directions in the field of the history of geology.

Assisting CUGB to popularize the learning of the history of geology

In 2010, the China University of Geosciences Beijing celebrated its 60th anniversary. CUGB epitomises higher education in the geological sciences in China, and represents a typical example of the development of higher geological education in the country since the foundation of the Peoples' Republic, in 1949.

The Commission on the History of Geological Sciences in China contributed to the celebration of the 60th anniversary of the CUGB by preparing historical documents for the Cultural Network of the University. To promote the study of the history of geology in China, we organized a pictorial exhibition of senior geologists on the university campus. In order continue a good tradition, and in the spirit of the time, we edited "Embracing Tibet – a collection of poems on the colorful life of the CUGB geological team in Tibet". All of these activities not only popularized the study of the history of geology in China, but were also endorsed by most of the teachers, students and alumni of the University.

CHGC has promoted the study of the history of geological sciences since its establishment 30 years ago. In that time the Commission carried out work the results of which had an influence in this field, both at home and abroad. For this reason, INHIGEO proposed that its 2015 conference be held in China. The CHG

believes that the convening of the Conference will promote direct academic exchange between Chinese and foreign geologists, and will expand the influence of Chinese geological culture in the world. Therefore, we have deliberated over the major topics and the scale of this Conference, the accommodation and the field trip routes and the start of our pre-conference preparations.

Chen Baoguo, Beijing (China)

Costa Rica

There are two Costa Rican members in INHIGEO (G.E. Alvarado and G.J. Soto).

Guillermo Alvarado – co-edited a book on Karl Sapper and his pioneering works in Central America, and also published a historical account on the geological dating of Costa Rican rocks, in a paper about the geochronological synthesis of magmatism and metallogeny in Costa Rica, based on those data.

Gerardo Soto – served as the INHIGEO Vice-President for Latin America from 2004 and finished his second term during the 34th IGC in Brisbane, Australia, in August 2012. His duties have included frequent communication with regional members of INHIGEO, the recruiting of new members in the region (e.g. Mexico and Chile), and cooperation with the Board in its business, which has been very active throughout 2012. Soto was unable to attend the INHIGEO meeting in Brisbane.

Soto attended the "*Simposio Geonaturalia Geografía e Historia Natural hacia una Historia Comparada, Quinto Encuentro Internacional*" (Symposium Geonaturalia Geography and Natural History to Comparative History, Fifth International Meeting), held in Mexico D.F., Mexico, on August 23-24, where he delivered a lecture on the history of meteoritics in Spanish Latin America during the 19th century. Soto also gave another lecture in the Institute of Geography of the National Autonomous University of Mexico (UNAM), on August 22, entitled "Volcanoes in literature and visual arts".

Publications

Alvarado, G. E. and Denyer, P. (eds.) 2012. *Karl T. Sapper (1866-1945). Geólogo pionero en América Central*, Editorial Universidad de Costa Rica.

Alvarado, G. E. and Gans, P. B, 2012. Síntesis geocronológica del magmatismo, metamorfismo y metalogenia de Costa Rica, América Central. *Revista Geológica de América Central*, 46, pp. 7-122.

Soto, G. J. 2012. Nicolas Steno and the strata of the deluge. Book review of Leandro Sequeiros & Francisco Pelayo (eds.), *Nicolás Steno, los estratos y el Diluvio universal. Un encuentro entre ciencia y religión en el siglo XVII*. Universidad Pontificia Comillas, Madrid, 2011, digital edition in pdf, 170 pp. (in Spanish)]', *Newsletter of the International Commission on the History of Geology (INHIGEO)*, 44, pp. 71-72.

Soto, G. J. 2012. Country annual report from Costa Rica (2011) to the International Commission on the History of Geological Sciences (INHIGEO). *Revista Geológica de América Central*, 46, pp. 199-202.

Soto, G. J. 2012. Siglos de tradición minera metálica en América Central. *Crisol, Revista de Ciencia y Tecnología de la Universidad de Costa Rica*, 26, pp. 58-60

Soto, G. J. 2012. Desarrollo de la meteorítica en América Latina española durante el siglo XIX. *Simposio Geonaturalia Geografía e Historia Natural hacia una Historia Comparada, Quinto Encuentro Internacional*, 22-24 de mayo, Montevideo, Uruguay, Resúmenes: 8.

Gerardo J. Soto, San José (Costa Rica)

France

The French Committee on the History of Geology has met three times in 2012. Contributions were as follows :

Boillot, G. – Les marges passives européennes: synergie des recherches à terre et en mer de 1970 à 2000.

Rocci, G. – L'œuvre des géologues français en Afrique occidentale française.

Gohau, G. – Des sciences palétiologiques aux archives de la Terre.

Pickford, M. – Le marketing paléoanthropologique.

Touret, J. – Le microscope à l'assaut des montagnes.

Gaudant, J. – Petite histoire de la Société géologique de France à travers ses présidents.

Raymond, D. – Michel Durand-Delga (1923-2012): l'homme.

Gohau, G. – Michel Durand-Delga et l'histoire de la géologie.

Albouy, Y. – Soixante ans de géophysique à l'ORSTOM-IRD, en Afrique et à Madagascar.

Bouysse, P. – La cartographie géologique de la Terre – Essai d'histoire de la Commission de la Carte géologique du Monde (CCGM).

Germany

Meetings, lectures and events

In 2012, the German working group on the "History of Earth Sciences" held ist annual meeting from April 11-15 at the Ruedersdorf Museum Area ("Museumspark Ruedersdorf"), a technical museum for lime works (also known as a famous site of the history of the northern glaciation). The meeting has been organized by INHIGEO-member Peter Kühn and the "Berlin-Brandenburgische Geologie-Historiker 'Leopold von Buch' e. V., together with the "Deutsche Gesellschaft für Geowissenschaften e. V." Papers were given on the geology of Brandenburg (Werner Stackebrandt), geology and mining of the Ruedersdorf area (Klaus Else) and on temperature measurements within a historic drill-hole at Ruederdorf (Peter Kühn). Excursions to the Ruedersdorf mining area, to sites of historical interest in Berlin, and to Angermuende – the home of Leopold von Buch – completed the program of the well organized meeting.

Also in 2012, several German INHIGEO members contributed to various national and international meetings and events. Cornelia Luedecke, in addition to giving several lectures at Munich and Hamburg, participated in the "Conference of the International Polar Heritage Committee" at Hobart (Tasmania, Australia), where she presented papers on "Amundsen' s dash to the South Pole – A detour with consequences" (Institute for Marine and Antarctic Studies, Hobart), and, together with Christina Braun, on "Fildes Peninsula – a Place of Threatened Historic Sites". In addition, together with C. P. Summerhayes, Luedecke presented a paper on "The Influence of the Third German Antarctic Expedition" at the XXXII SCAR and Open Science Conference at Portland (Oregon, USA). INHIGEO member Klaus Thalheim was the speaker at the 21st Agricola-colloquy of the Agricola-Research-Center at Chemnitz (held at Schneeberg in April 2012), and at an exhibition on early silver mining presented at the"Schlossbergmuseum" in Chemnitz in November 2012. Thalheim lectured onThalheim lectured on the famous find of "pure silver of 1477 at Schneeberg, i.e. of its specimens now in the collection of the museum of mineralogy and geology in Dresden"." Finally, Bernhard Fritscher participated in the 5th International Conference of the European Society of History of Science,"Scientific cosmopolitanism and local cultures: religions, ideologies, societies", at Athens, where he presented a paper entitled: "Missing internationalisation: The Schlagintweit mission to India and High-Asia (1854-1857)".

Publications

Koelbl-Ebert, M. 2012. Sketching rocks and landscape: Drawing as a female accomplishment in the service of geology". Earth Sciences History, 31, 2, pp. 270–286.

Walter, H., Kowalczyk, G.and Lützner H. 2012Das "Permische System" in Deutschland: Geschichte der stratigraphischen Begriffe. In: Deutsche Stratigraphische Kommission. Stratigraphie von Deutschland X. Rotliegend. Teil I: Innervaristische Becken. Schriftenreihe der Deutschen Gesellschaft für Geowissenschaften, 61, pp. 19-57.

Douffet, H., Hübschmann, M., Lehmann, U., Richter, J., Starke C., Suhr, P. and Walter H. 2012. Sächsischer Geologischer Dienst – seit 75 Jahren in Freiberg. Sächsische Heimatblätter 58, 4, pp. 364-376.

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Thalheim, K. 2012. La table de Breteuil: parcours minéralogique en Saxe. In: Kugel, A. (ed.), Le luxe, le goût, la science.... Neuber, orfèvre minéralogiste, à la cour de Saxe: pp. 300-333. Saint-Rémy-en-l'Eau.

Published in English as:

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Lüdecke, C. and Summerhayes, C. 2012. The Third Reich in Antarctica: The German Antarctic Expedition 1938-39". Eccles: Erskine Press and Bluntisham: Bluntisham Books, 259 pp.

Lüdecke, C. and Brunner K. (eds.) 2012. Von A(ltenburg) bis Z(eppelin). Deutsche Forschung auf Spitzbergen bis 1914. 100 Jahre Expedition des Herzogs Ernst II. von Sachsen-Altenburg". Schriftenreihe des Instituts für Geodäsie der Universität der Bundeswehr München, Neubiberg, 88, 120 pp. https://www.unibw.de/IfG/Org/schriftenreihe/heft-88/at_download/down1

Luedecke, C. 2012. Zeppelin-Expedition to Spitzbergen (1910). In: Lüdecke, C. and Brunner K. (eds.). Von A(ltenburg) bis Z(eppelin). Deutsche Forschung auf Spitzbergen bis 1914. 100 Jahre Expedition

des Herzogs Ernst II. von Sachsen-Altenburg". Schriftenreihe des Instituts für Geodäsie der Universität der Bundeswehr München, Neubiberg, pp. 99-107.

Lüdecke, C. 2012. Wilhelm Filchners Expedition to Spitzbergen in 1910. In: Lüdecke, C. and Brunner K. (eds.). Von A(ltenburg) bis Z(eppelin). Deutsche Forschung auf Spitzbergen bis 1914. 100 Jahre Expedition des Herzogs Ernst II. von Sachsen-Altenburg". Schriftenreihe des Instituts für Geodäsie der Universität der Bundeswehr München, Neubiberg, pp. 69-76)

Lüdecke, C. 2012. Investigation of the unknown: The flight programme of the German "Schwabenland" expedition 1938/39.The Polar Journal, 2, pp. 312–333.

Lüdecke, C., Tipton-Everett, L. and Lay L. (eds.) 2012. National and Trans- National Agendas in Antarctic Research from the 1950s and Beyond. Proceedings of the 3rd Workshop of the SCAR Action Group on the History of Antarctic Research. BPRC Technical Report No. 2011-12, Byrd Polar Research Center, The Ohio State University, Columbus, Ohio, 160 pages. http://hdl.handle.net/1811/53605 (with her contribution on

Lüdecke, C. 2012. The International Polar Year (1957-1958) as Reflected in German Media. In: Lüdecke, C., Tipton-Everett, L. and Lay L. (eds.) 2012. National and Trans- National Agendas in Antarctic Research from the 1950s and Beyond. Proceedings of the 3rd Workshop of the SCAR Action Group on the History of Antarctic Research. BPRC Technical Report No. 2011-12, Byrd Polar Research Center, The Ohio State University, Columbus, Ohio, pp. 55-71.

Fritscher, B. 2012. Making objects move: On minerals and their dealers in 19th century Germany. In: HoST - Journal of History of Science and Technology, 5. (published online) (http://johost.eu/vol5_spring_2012/bernhard_fritscher.htm) (last visited 14/12/2012).

Fritscher, B. 2012, translation from English: Csiszar, A. 2010. Seriality and the search for order: scientific print and its problems during the late Nineteenth Century. History of Science, 48, pp. 399-434; to German: Serialität und die Suche nach Ordnung: Der wissenschaftliche Druck und seine Probleme während des späten 19. Jahrhunderts. Zeitschrift für Medienwissenschaft, 7, 2, pp. 18-46.

Further Activities

University courses in the history of earth sciences were given by German INHIGEO members, Cornelia Luedecke, at the University of Hamburg and by Bernhard Fritscher, at the University of Munich, on the topics of, "Geognosy: the invention of a science", and "Earth history and national identity".

Finally, a new issue (no 22) of the Nachrichtenblatt zur Geschichte der Geowissenschaften, now titled Geohistorische Blaetter, has been edited by Ulrich Wutzke (Berlin). It can be read at info@geohistorische-blaetter.de).

The help of the German members of INHIGEO in the compilation of this report is much appreciated.

Bernhard Fritscher, Munich, and Martina Koelbl-Ebert, Eichstätt (Germany)

Hungary

The Section on the History of Geology of the Hungarian Geological Society held two prominent events in 2011.

1. A full-day session commemorating the 40th anniversary of the Section. Álmos Tóth, the President of the Section, summed up those 40 years. Endre Dudich, Honorary President of the Section, reviewed the activity of Hungary in INHIGEO. Both papers were published in the 2012 issue of the Newsletter.

2.Cooperation was established within the framework of the International Year of Chemistry between our Section and the Historical Section of the Association of Hungarian Chemists. A joint conference was held on the "History of the Interaction of Earth Sciences and Chemical Sciences in Hungary".

2.1.György (George) Gömöri, Hungarian-born historian of Chemistry working in London, gave a presentation entitled, "Hungarian Science through British Eyes. Traces of Hungarian Naturalists in British Libraries".

2.2. Endre Dudich and István Fórizs presented and commented on a paper written by Hungarian polymath Mátyás Bél (1864-1749) on the ore-bearing waters of Besztercebánya/Neusohl (now Banska Bystrica, Slovakia), published in 1737 in the *Transactions of the Royal Society of London* in Latin. (Abstract in the 2012 INHIGEO Newsletter).

2.3.Péter Rózsa presented documents on the visit of Sir James Hall to theSelmecbánya /Schemnitz mining district in Northern Hungary (now Banská Stiavnica, Slovakia).

2.4.István Viczián reviewed the history of application of chemical thermodynamics in petrology.

2.5. In the Royal Geological Institute of Hungary, founded in 1869, a laboratory was established in the 1870s for the chemical analysis of minerals and rocks. Its history was recounted by András Bartha, Chief Chemist of the Institute and Maria Földvári.

2.6. One of the highlights of instrumental analytics in Hungary is the Derivatograph, a differential thermoanalytical instrument, developed in the 1950s at the Budapest Technical University, and widely used in geological research. This success story was told by Teréz Póka and István Próder, and published in *Magyar Kémikusok Lapja*, the journal of the Association of Hungarian Chemists.

2.7.The description of clay types in historical Hungary was begun in the second half of the 19th century. In that time a rich collection of clay samples was created by Sándor Kalecsinszky, chemist and mineralogist (1857-1911). A talk on this topic was presented by József Hála.

2.8.Álmos Tóth discussed the role of eminent chemists in the Hungarian bauxite/aluminium industry.

Two lectures dealing with geophysics were also delivered in 2011.

Éva Zsadányi: On the Mohorovicic discontinuity and the history of the classification of earthquakes.
Álmos Tóth: On the history of the application of geophysical measurements in bauxite exploration.

Endre Dudich and József Hála commemorated Gábor Csíky (1915–2001), on the tenth anniversary of his death. He was the founding father and enthusiastic leader of the Section and a member of INHIGEO since 1976.

In May 2012, elections for the Board of the Section were held. Álmos Tóth was re-elected as President and Péter Papp as Secretary. A new member will deal with the history of geophysics.

Two birthdays were commemorated: that of the founding president Leontin Fejér (geologist, 1925-1975) and of Irma Allodiatoris (anthropologist, biographer,1912-1988), President of the Section during the period 1976-1988.

It was decided to compile and print a collection of the "History of Hungarian Geology" (to be coordinated by Álmos Tóth).

Károly Brezsnyánszky, former Director of the Geological Institute of Hungary, reported on Hungary's contribution to the 50-year old IUGS.

István Viczián presented newly discovered documents about the connection with the Jena Mineralogical Society of Transylvanian "peregrinating" students, visiting German libraries, universities and mines in Dresden, Jena, Göttingen, Eisleben etc. (Elek Bethlen, Sámuel Gyarmati, Sámuel Fogarasi) in the late 18th century.

In 2012, the Section commemorated, jointly with the Hungarian Society of Karst and Cave Research, Endre Dudich Senior, Member of the Hungarian Academy of Sciences, Professor of Zoology at the Budapest University (1895-1971), and renowned pioneer of biospeleology in Hungary.

Further commemorations honoured Prof. Károly Telegdi Roth (1886-1955) geologist-palaeontologist, Aurél Liffa (1872-1956), Mária Kliburszky-Vogl (1912-1996), geochemist and Member of the Hungarian Academy of Sciences.

Two invited lecturers, Pál Rainer and Olivér Rybar, geographers, presented the recently discovered correspondence of Lajos Lóczy (1849-1920) and Jenő Cholnoky (1870-1950).

A commemorative session was held in honour of Tamás Szontágh geologist-hydrologist (1851-1936), former director of the Geological Institute of Hungary, within the framework of an organized visit to the Novohrad – Nógrád Geopark, overlapping the state boundary between Hungary and Slovakia (karst). Szontágh was a pioneer of the preservation and legal protection of geological objects. In the Geological and Geophysical Institute of Hungary an exhibition was organized on this topic.

Teresa Póka, Budapest (Hungary)

Italy

The activities of the Italian members included publications, participation at international symposia and national meetings, involvement in research projects, organization of exhibitions, as well as teaching in the field of the history of the Earth sciences.

Andrea Candela (University of Insubria, Varese) continued his two-year project on "Historical routes and places of the Earth Sciences in Lombardy: from historical-scientific study to cultural tourism", which will end in May 2013. He also completed the edition of the book *Il viaggio naturalistico in Italia. Un'antologia di scritti settecenteschi* (*The naturalistic travel in Italy. An anthology of Eighteenth-century writings* (Mimesis - Centro Insubrico Cattaneo e Preti, forthcoming in 2013). The research has allowed him to collect several primary sources about some different naturalistic journeys made in the Italian mountains from the 16th to the 19th century. Moreover, Andrea Candela has written two entries on the Italian geologists *Ugo Panichi (1872-1966)* and *Ettore Onorato (1899-1971)*, which will be published in the *Dizionario Biografico degli Italiani* [*Biographical Dictionary of Italians*]. He has also started research on the history of uranium.

Luca Ciancio (University of Verona) continued his research on the 18th century history of geology in the Venetian region and on the relationship between natural sciences and antiquarian studies.

Pietro Corsi (University of Oxford) continued his research on 19th century Italian geology, with particular attention to the history of geological institutions, geological archives and correspondence, as well as national projects with the Italian Geological Survey and the geological map of Italy.

Francesco Gerali – continued to work as post-doctoral scholar at the National Autonomous University of Mexico, under the supervision of Luz Fernanda Azuela Bernal. He is developing a research project on the birth and the growth of the Mexican oil industry in 19th century.

During 2012 the investigation has concentrated on the geographical detection of bituminous spontaneous seepages, recorded in Mexico from the 17th to 19th centuries, and on the studies of Mexican and foreign scientists on the origin and the deposits of these substances. Part of the research has focused on the early attempts to start oil production on an industrial scale and the difficulties met by the drillers. From these analyses it emerged that an inadequate knowledge of the mechanism of oil formation, and the lack of general geological studies on the Mexican subsurface, have been among the principal reasons for the substantial failure of many oil companies.

Gerali, in March 2012, worked at the Everett DeGolyer Collections, thanks to a travel fellowship awarded by the Clement Research Centre of the Southern Methodist University, Dallas, Texas. During the fall he was Visiting Fellow (Andrew Mellon Travel Grant Program) at the History of Science Collections and at the Western Collections of the Oklahoma University, Norman, Oklahoma. The first comprehensive studies of oil geology in Mexico where completed by US geologists from Texas and Oklahoma. These fellowships have given to Gerali the opportunity to find important unpublished documentation that is now opening interesting perspectives for research. The first outcomes of the project have been presented in several departmental colloquia and conferences. The most relevant of these talks were given at the HSH meeting at Queretaro, Mexico, in February; the PHI symposium at Houston, Texas, the Midwest Junto meeting at Rolla, MO, in March and the Geosciences Centre of Juriquilla, Mexico, in April.

In July Gerali presented the paper titled, "Shooting wells. Geology and development of oil mining technology" at the 39th ICOHTEC meeting at Barcelona. The presentation focused on the first example of oil mining artifacts, the exploding torpedoes, which were designed following the analysis of the geological evidence that emerged from the study of the structure of the Pennsylvanian oil deposits.

In August Gerali attended the INHIGEO meeting held in conjunction with the 34th IGC at Brisbane, where he presented a paper titled, "Science and life of a geologist through his papers. The personal archive of Giovanni Capellini". During the general assembly of the Committee he presented his book *L'opera e l'archivio spezzino di Giovanni Capellini, un geologo del XIX secolo*, published by the Geological Museum of the University of Bologna, directed by Gian Battista Vai. The book, developed from the manuscript of Gerali's Ph.D. thesis (defended in 2009 under the supervision of Ezio Vaccari), proposes a new scientific biography of the Italian geologist Giovanni Capellini (1833 – 1922) and describes the reorganization of his personal archive and the edition of its new inventory. The work includes a comprehensive recompilation of Capellini's bibliography. With this publication Gerali concluded a cycle of study started in 2005; now he has decided to continue his research in the history of geological science, focusing on the history of oil geology.

Gerali concluded the year working with Paolo Riguzzi, Colegio Mexiquense of Toluca, MX, on a monograph project, on the development of the Mexican oil industry, up to the 1870s.

Francesco Luzzini (University of East Piedmont, Vercelli) continued his main research on the development of medical and natural sciences in Italy and Europe between the XVII and XVIII centuries, with a special

interest in the "naturalistic experimentalism" performed by Antonio Vallisneri (1661-1730). Since September 2009 he has been working as Scientific Director of the electronic inventory of Antonio Vallisneri's correspondence (www.vallisneri.it) for the National Edition of Antonio Vallisneri's Works. He has just completed a monograph on Vallisneri's works in the field of Earth Sciences, which will be published in 2013 (Olschki, Florence). In March, in collaboration with the Centro Studi Lazzaro Spallanzani of Scandiano, he gave a talk entitled *Intorno al Tresinaro. Le osservazioni naturalistiche di Antonio Vallisneri*. He was awarded a Fellowship at the Linda Hall Library in Kansas City (MO - USA), where he resided from May to late July. His research evaluated and compared the different approaches of Catholic and Protestant authors in their attempts to develop theories of the Earth during the XVII and XVIII centuries. He paid special attention to the Italian Catholic context and to its relationships with Protestant scholars, analysing the different philosophical and religious values that characterized the scientific debate on the age of the Earth and on the origin of fossils. In July he gave a lecture related to his research project at the Linda Hall Library (*Faith and facts, experience and expedience. A comparison of Protestant and Italian Catholic perspectives in 17th and 18th-Century theories of the Earth.* http://vimeo.com/46769954). He is currently writing an article, in which he will present the results of his studies. In June, he was appointed column editor for «Acque Sotterranee», Italian Journal of Groundwater. In October he was appointed Adjunct Lecturer in the History of Science at the University of Milan, where he also serves as Teaching Fellow since 2008. He is also author of the exhibition *Ostinate esperienze. Antonio Vallisneri e le Scienze della Terra: il viaggio montano del 1704,* which was previously shown in Tuscany (Gallicano, 2010-2011) and Emilia Romagna (Musei Civici di Reggio Emilia, 2011-2012), and, since December 2012, is hosted in Milan.

Stefano Marabini (Faenza) presented some studies on the history of seismic activities in the Romagna region (central Italy).

Claudia Principe (Istituto di Geoscienze e Georisorse – CNR, Pisa) continued her research into the history of volcanology and geo-archaeology. In March she presented a talk in Naples on "Volcanic risks associated with the opening of eruptive vents at Vesuvius: A new eruptive scenario for the city of Torre del Greco, based on new archaeomagnetic and cartographic data".

Ezio Vaccari (University of Insubria, Varese) continued his research on the history of geological images of mountains in the 18th-19th centuries. In April he was invited to the workshop "*Tellurexplor.* Luigi Ferdinando Marsili (1658-1730) and the Contemporary Fascination for the Telluric Reign: Transdisciplinary Perspectives from History to Science", held at the Seminar Hotel Springer Schloss in Vienna (Austria). He gave a keynote lecture on the topic "The Future of the History of Geology: from the 'anatomy' of sources to a new interdisciplinary approach to the legacy of 18th century geosciences". In July he was invited by the Istituto di Studi Superiori dell'Insubria Gerolamo Cardano, to give a paper (in Italian) on "The travelling science in the Prealps" at the meeting "Viaggiatori, letterati, artisti, scienziati nello spazio insubre" held in Somma Lombardo (Varese). In August Vaccari attended the 34th IGC in Brisbane (Australia) where he presented a poster (with Kathleen Histon) on "Arthur Humphreys Foord (1844-1933): the story of an eminent palaeontologist without a biography", at the INHIGEO session "Biographical studies on eminent geologists". In October, as part of the conference on the polymath Carlo Cattaneo (1801-1869), held at the University of Insubria, he presented a paper on "Science, technology and nature in Cattaneo", with significant references to the geological and mineralogical works of this scholar. In June Vaccari was also one of the founders, later nominated director, of a new interdisciplinary "Research Center for the History of the Mountains, Material Culture and Earth Sciences" at the University of Insubria in Varese. He also continued to teach history of geological sciences within some of his courses, in particular "History and resources of the mountains" at the University of Insubria.

Gian Battista Vai (University of Bologna) continued his research activity on the history of geology and paleontology, as director of the Museo Geologico Giovanni Capellini in Bologna, organizing exhibitions and popular conferences, also on the history of geology.

Publications

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Ezio Vaccari, Varese (Italy)

Japan

After the remarkable year of 2011, we published the proceedings of the INHIGEO symposium 2011, in Toyohashi, copies of which were sent to all the participants: Hirokazu Kato, Michiya Inomata and Yasumoto Suzuki (eds) 2012. *Visual Images and Geological Concepts: Proceedings of INHIGEO 2011 Japan* (Tokyo: Japanese Association for the History of Geology (Geological Sciences), 223 pp. The publication includes twenty-four papers, together with two CD-ROMs which contain all figures of the papers and the "History of Geological Maps in Japan" published by the Geological Survey of Japan, AIST.

The JAHIGEO (Japanese Association for the History of Geology (Geological Sciences) held, as usual, three meetings in 2012. The first was held at the Hokutopia, Tokyo, in June; the second at Osaka Prefecture University in September, and the third, serving as the annual meeting, at the Hokutopia in December. The presentations at the first meeting were, "History of ophiolite studies in Japan" by Akira Ishiwatari and "The discovery of the Emperor Seamounts and the hypothesis of sea-floor spreading – R. S. Diez: An extract from a Fulbright Fellow's stay in Japan" by Takao Nakajin. The second meeting formed part of the annual meeting of the Geological Society of Japan (GSJ) and two lectures were given: "Radiolarian revolution and the geohistory of the Japanese Islands" by Akira Yao, and "Changes of earth science education in Osaka" by Akiyoshi Shibakawa. At the third meeting, Hisashi Suzuki gave a talk on the Japanese translation of J. G. Ogg *et al*., "The Concise Geologic Time Scale" (Kyoto, 2012), and Eiji Izawa on, "A short history of the historical study group of mining and metallurgy, Japan".

GSJ's ordinary session on the history of geology, held on 16 September, provided two oral and two poster presentations. The two talks were given by Michiko Yajima, "A few remarks on Alfred Wegener (1880–1930) and Edmund Naumann (1854–1927)", and by Hiroshi Miyajima, and Masayuki Kawasaki, "Revival of Shinmatsu Ichikawa (1868–1941). Ichikawa, a mineralogist, studied quartz in the Japanese country side and attended IGC meetings in the first half of the twentieth century, but has been forgotten until now. He was rediscovered by a local people's movement. Two posters displayed were Kim Kwang-Nam's "An appreciation letter to B. S. Lyman, dated August 1877" and Takumi Tuzino, Yukio Yanagisawa and Shuichi tokuhashi's "Tertiary hammer: history and prospect". The term "Tertiary hammer" has been used since the 1960s for researching soft sediments.

Five meetings of the history of geosciences (*Chigaku-shi Kenkyu-kai*) were conducted by younger members of the association on 7 January, 17 March, 23 June, 30 September, and 8 December. The January meeting was held at the National Museum of Nature and Science, Tokyo. Masahiro Osako gave a lecture titled, "The development of early seismographs in Japan" and conducted a guided tour of an exhibition of old seismometers The March, June, and September meetings were held at the Waseda Service Garden, Tokyo. Satoru Sugaya gave a lecture on the topic, "Ussher versus Halley", in March, followed by Arifumi Yoshioka on, "Science learning as a science communication: Conducting the fieldwork of educational and science practices", in June and by the talk of Tetsuro Hanada on, "Coal, canals and modern geology in the British Industrial Revolution", in September. In December, after seeing the exhibition of "Paleontology at the University of Tokyo" under the guidance of Takenori Sasaki, two following presentations were given at the University Museum, the University of Tokyo, in commemoration of the centenary of Wegener's Continental Drift Theory byToshihiro Yamada, "Report of the Anniversary Symposium held at the Brisbane 34th IGC in

2012" and by Michiko Yajima, "Comments on the Japanese Islands in Wegener's *Origin of Continents and Oceans*".

At the 59th annual meeting of the History of Science Society of Japan (HSSJ), held at Mie University, Otsu, Mie Prefecture, in May, the following six papers on the history of planetary and earth sciences were read: Takeshi Sugimoto, "Prop. XXXIII, Prob. XIV in Book III of *Principia*: The riddle of the lunar theory,"; Kazuyuki Ito, "Galileo's description of the moon in *Sidereus Nuncius*"; Tomoko Fukukawa, "The geography books to which K. Kume referred for editing "Bei-O Kairan Jikki: Part V, Italy and Austria"; Michiko Yajima, "A few remarks on Alfred Wegener (1880–1930) and Edmund Naumann (1854–1927)"; Kazuo Gesi, "Some problems on the remarks about 'Akasi-genzin (early man of Akashi)" and Toshihiro Yamada, "Takuji Ogawa (1870–1941)'s geoscientific thought".

Also in May, at the Makuhari Messe, Chiba, the Japan Geoscience Union (JpGU) conducted sessions on the topics, "Geoscience studies: historical, philosophical and STS studies", where ten papers were read and five posters presented. An opening paper by Mutsuko Inui discussed an historical STS issue in, "Changes in the building stone industry after the Second World War in Japan". Five papers on the history of geoscience were presented by, Masahiro Osako, "Disk-recording seismographs developed by J. A. Ewing"; Michiko Yajima, "A few remarks on Alfred Wegener (1880–1930) and Edmund Naumann (1854–1927)"; Jiro Tomari, "Why was the view that faulting causes earthquakes rejected in Japan"; Toshihiro Yamada, Shinjiro Mizutzni and Shigeyuki Aoki, "Collecting materials for the study of contemporary history of earth science in Japan" and Fumihiko Tochinai, "Archiving historical materials of earth science: A case of the research on Seitaro Tsuboi materials". The last four papers discussed various aspects of contemporary Japanese geoscience, i.e. anthropological, educational, philosophical, and interdisciplinary themes. They were given by, Sho Morishita, "Observing geodesists?: Cultural anthropology on geoscience"; Atsushi Miyashita, "Senior high school course "Basic Science" for learning meta-science"; Shigeyuki Aoki and Shigeo Yoshida, "From philosophy of science to science of science - A case study on earth science" and Kiyoshi Kuramoto and Shigeyuki Aoki, "From earth science to earth and planetary science as multidisciplinary fields". One of the posters was displayed by Shiho Nomura, Fumiki Onoma, Yoichi Watanabe and others, with the title, "Decrement of night-sky brightness after the Tohoku Earthquake". Four more posters constituted a series of studies, the result of collaboration between scientists and philosophers, which attracted the viewers' eyes. They were presented by, Kazuhisa Todayama, Mineo Kumazawa, Shigeo Yoshida and Seiichiro Watanabe, "How to launch the Science of Science"; Mineo Kumazawa, Kazuhisa Todayama and Shigeo Yoshida, "A natural view of the World in the philosophy of science, provided by an interpretation of the Earth's evolutionary history"; Hisashi Nakao, Mineo Kumazawa and Shigeo Yoshida, "Where did science come from, and how? A cognitive approach" and Shigeo Yoshida, Hisashi Nakao, Mineo Kumazawa and Kazuhisa Todatyama, "Model, where earth science and the philosophy of science meet".

In 2012, the JAHIGEO issued its *Bulletin*, Numbers 38 and 39 (in Japanese), and the *JAHIGEO Newsletter*, Number 14 (in English). The *JAHIGEO Newsletter* contains an article, by Michiko Yajima and Toshihiro Yamada, "An Interview with Professor Kanenori Suwa: An Energetic Japanese INHIGEO Senior Member," and a second one by Toshihiro Yamada, "Supplement to An Introduction for the History of Geological Sciences in Japan".

Hirai Hiro (Research Fellow, Center for the History of Philosophy and Science, Radboud University), received the JSPS (the Japan Society for the Promotion of Science) Prize for his work: "Historical Studies on Life and Matter: Theories of the Renaissance and Early Modern Europe".

Recent publication

Yamada, T. 2013. Geophysics Institutionalized in Japan's Tertiary Education System: Toshi Shida and Kyoto University's Institute of Geophysics, 1909-1936. *Journal of Science Education in Japan*, 37, 1, pp. 15-29 (in Japanese with English abstract).

Hirokazu Kato and Michiko Yajima, Tokyo, and Toshihiro Yamada, Chiba (Japan)

Lithuania

The highlights in the history of geology in Lithuania in 2012 are reflected in a number of scientific publications and in public events. Algimantas Grigelis compiled and edited a substantial monograph titled, *Professor Mykolas Kaveckis*, (Vilnius University Publisher, 608 pp., in Lithuanian). The subject of the book

is the life and work of Mykolas Stasys Kaveckis (1889–1968), an exceptional figure in Lithuanian geology, who was an engineer, geochemist, geologist, mineralogist and hydrogeologist, an expert on mineral resources and karst processes, a judge of meteorites and a museologist. He received his high school education at Kharkov (1912) and Kiiv (1916), and was awarded the degree *doctoris rerum naturalium* by the University of Prague in 1932. As an educationalist, he promoted Higher Courses (1921), and held professorships at Kaunas University (1922–1940) and Vilnius University (1940–1960), where he headed the mineralogy and geology departments. Professor Mykolas Kaveckis, in addition to his activities in science and education, was also involved in issues affecting the general public and in public relations, to the extent that his opinions influenced public debate. His university background and his wide knowledge of geology and geochemistry earned him the esteem of prestigious experts and authorities in geology, natural resources and hydrogeology. M. Kaveckis' valuable contributions to the geology of his country have earned him wide recognition. He stood out as a contributor to the history of science in Lithuania. His early education and his scientific and pedagogical activities in both Kaunas and Vilnius, which extended over forty-six years, are highlighted in this scholarly book, and are based on his scientific heritage in the form of publications, archival material and manuscripts. This important book has been highly acclaimed by both the public and the scientific community.

An important annual event in Vilnius is the conference SCIENTIA ET HISTORIA, which was held in March 2012. About 30 papers were presented on different topics on the history of philosophy, education and physical and natural sciences.

A classic paper by the Swedish scientist Gerard De Geer, on pioneering work in Quaternary geology in Scandinavia, was published in 2012 in *Baltica International Journal on Earth Sciences of the circum-Baltic States,* 25, no. 1.

An article about the twenty-year history of the Baltic Regional Stratigraphic Commission (1970–1990), was also published 2012, in *Scientific Papers University of Latvia*, 783, *Earth and Environmental Sciences.*

Scientific papers on Academician Juozas Dalinkevicius' work in the St. Petersburg Mining Institute and in the Lithuanian Academy of Sciences were published in the Journal of the Geological Society of Lithuania *Horizons of Geology*, in Vilnius. An obituary of Academician Eugenie Milanovsky (1923–2012) was also published in this Lithuanian journal.

The annual meeting of the Lithuanian Ignotas Domeika Society, led by Professor Grigelis, was cancelled this year due a lack of activity by members. However, Dr. Gailė Žalūdienė, the secretary of this Society, continued work on the history of geology in Lithuania.

Professor A. Grigelis took part in EU project meetings and in marine geology conferences, in Athens and Santorini (Greece), Gdansk (Poland), Klaipeda (Lithuania), Helsinki (Finland), Stockholm (Sweden) and Cork (Ireland).

Publications

Grigelis, A. (ed.) 2012. *Profesorius Mykolas Kaveckis,Vilniaus universitetas; sudarytojas ir mokslinis redaktorius*. Vilnius: Vilniaus universiteto leidykla, 608 pp. [In Lithuanian].

Grigelis, A. (scientific editor) 2012. *Baltica : An International Journal on* Geosciences. Nature Research Centre. Institute of Geology and Geography. Vilnius, 25, 1, pp.1–90; 25, 2, pp. 91–188. [ISI Web on Science, IF 0.607].

Grigelis A. 2012. Twenty years of the Baltic Regional Stratigraphic Commission (1970–1990). *Scientific papers University of Latvia, Vol. 783, Earth and Environmental Sciences,* 13–23.

Grigelis A. 2012. Akademikas Juozas Dalinkevičius Peterburgo kalnakasybos institute. – *Geologijos akiračiai*, 1, pp. 15–21. [In Lithuanian].

Grigelis A. 2012. Akademikas Juozas Dalinkevičius Lietuvos mokslų akademijoje. *Geologijos* akiračiai, 2*,* pp. 7–14. [In Lithuanian].

Grigelis A. 2012. Netekome nuoširdaus bičiulio Eugenijaus Milanovskio. *Geologijos* akiračiai, 3*,* pp. 57–59. [In Lithuanian].

Grigelis A. 2012. Profesorius Mykolas Kaveckis Lietuvos universitete Kaune: pirmasis dešimtmetis (1922-1932). *Geologijos akiračiai*, 4, pp. 7–19. [In Lithuanian].

Grigelis A. 2012. Из истории межведомственного стратиграфического комитета. Двадцать лет Прибалтийской региональной стратиграфической комиссии (1970–1990). – Постановления Межведомственного стратиграфического комитета и его постоянных коммисий, выпуск 41, Санкт-Петербург, pp. 36-41. [In Russian]

Algimantas Grigelis, Vilnius (Lithuania)

MEXICO

After last year's admission of six colleagues as new members of INHIGEO our local group has been working together in order to organize academic activities during the year, which have now commenced.

As we reported last year, we have periodic meetings, in which Italian INHIGEO member Francesco Gerali, currently working in Mexico, has been participating. We have already agreed on a History of Geology course for Geological Engineering students, which will be taught jointly by Gerali, Morelos, Morán, Espinosa and Azuela. We are also engaged in a joint publication, coordinated by Uribe-Salas, to be completed in 2014.

In the meantime, Óscar Torres has almost finished his thesis on the North American geologist William M. Gabb, under the supervision of Azuela, and with Gerardo Soto's long-distance support. Torres is currently being nominated as an Associate Member of INHIGEO, based on his interest in the History of Geological Sciences and on two published articles.

Gerali has continued his research on "The Oil Industry in Mexico during the Nineteenth Century", and has already sent articles on his findings to different scientific journals. He has participated in a number of scientific conferences in Mexico, which has reinforced our efforts to create an interest in the History of Geological Sciences among members of our academic community.

During 2012 the following papers relating to the History of the Geological Sciences were read at scientific conferences:

Azuela, Luz Fernanda y Óscar Torres Montúfar, "Los estudios geológicos de los viajeros en el siglo XIX. El caso de William Gabb", II Simposio *Naturaleza y territorio en la ciencia mexicana. Siglos XVIII al XIX*, Instituto de Geografía, 28 de marzo de 2012.

Azuela, Luz Fernanda, "La geología mexicana del siglo XIX desde la perspectiva de sus actores", Presentación del libro *La geología mexicana en el siglo XIX. Una revisión histórica de la obra de Antonio del Castillo, Santiago Ramírez y Mariano Bárcena*, Facultad de Historia, Universidad Michoacana de San Nicolás de Hidalgo, 30 de agosto de 2012.

Azuela, Luz Fernanda y Rodrigo Vega, "La colección Lafragua de la Biblioteca Nacional y el reconocimiento geográfico durante la Intervención Francesa y el Segundo Imperio", Segunda Reunión Internacional "Territorio, recursos naturales y ambiente: hacia una historia comparada. Estudio a través de Argentina, México, Costa Rica, Paraguay, Uruguay y Venezuela", México, 24 de agosto de 2012.

Azuela, Luz Fernanda, "Prospecting Imperial Mexico (1864-1867)", Annual Conference of the International Commission on the History of Geological Sciences (INHIGEO), Brisbane, 5-10 August 2012.

Morelos, Lucero, "Continuity and preconization of a new project and interest. The case of the Mexican Scientific Commission", III Congreso de Historiadores de las Ciencias y las Humanidades, Querétaro, February 15-17, 2012.

Morelos, Lucero, "Scientific and Legal Notes on Meteorites", Coloquio de Doctorandos 2012, Instituto de Investigaciones Históricas (UNAM), May 21-23, 2012.

Morelos, Lucero and Omar MONCADA "The geological map. The presence of a new discipline in 19th century in Mexico", IV Simpósio Ibero-Americano de História da Cartografía, National Library of Portugal, Lisboa, September 11-14, 2012.

Morelos Lucero, "Notes on the geological survey in 19th century Mexico", XX Congreso Nacional de Geografía, Tlaxcala, October 9-12, 2012.

Uribe-Salas José Alfredo , "Scientific studies and copper mining projects in the Balsas Basin, Mexico, sixteenth to nineteenth centuries", III Congreso de Historiadores de las Ciencias y las Humanidades, February 16-17, 2012.

Uribe-Salas José Alfredo , "Education, science and economy. Problems of industrialization in Mexico", Twentieth Century Symposium. Warlordism and institutionalization. A veneer of modernity, Facultad de Estudios Superiores Acatlán, UNAM, June 16, 2012.

Uribe-Salas José Alfredo , "Science, city and economy", 1st Meeting of the Research Network of Regional Development, Institute for Economics and Business Research, UMSNH, July 11 and 12. 2012.

Uribe-Salas José Alfredo , "The scientific journal *Nature* and its contribution to mineralogy and Mexican geology"; VIII International Historians of the Press Meeting, Centro de Ciencias SOciales y Humanidades, Universidad Autónoma de Aguascalientes , Aguascalientes, October 29-31, 2012.

Uribe-Salas José Alfredo , "The scientific journal *Nature* and its contribution to mineralogy and Mexican geology"; VIII Encuentro Internacional de Historiadores de la Prensa, Centro de Ciencias Sociales y Humanidades, Universidad Autónoma de Aguascalientes, , October 29-31, 2012.

Uribe-Salas José Alfredo , "Andres del Rio and Immanuel Kant in Mexico or the social value of science", V National Congress of History and Philosophy of Mathematics, Faculty of Physics and Mathematics, "Mat. Luis Manuel Rivera Gutiérrez ", UMSNH, Morelia, Michoacán, November 7, 2012.

Uribe-Salas José Alfredo , "From Mineralogy to Geology in Mexico, eighteenth and nineteenth centuries", Research Colloquium History of science and engineering in Mexico, XVII-XIX centuries, Faculty of History, UMSNH, Morelia, Michoacán. November 22 and 23, 2012.

Uribe-Salas José Alfredo , "Engineers in Mexico and the limits of development, nineteenth century", Research Colloquium History of science and engineering in Mexico, XVII-XIX centuries, Faculty of History, UMSNH, Morelia, Michoacán. November 22 and 23 2012.

Recent publications

Azuela, Luz and Rodrigo Vega, 2012. *Naturaleza y territorio en la ciencia mexicana del siglo XIX [Nature and Territory in Mexican Science of the Nineteen Century]*, Instituto de Geografía-Dirección General de Asuntos del Personal Académico.

Azuela, Luz Fernanda, 2012. " El territorio mexicano en los estudios algunos viajeros del siglo XIX " [Mexican Territory in Foreign Travellers Studies in the Nineteen Century], in Luz Fernanda Azuela and Rodrigo Vega (coords.), *Naturaleza y territorio en la ciencia mexicana del siglo XIX*, Instituto de Geografía-Dirección General de Asuntos del Personal Académico, Mexico.

Lugo-Hubp, José, 2012. *Diccionario geomorfológico* [*Geomorphology Dictionary*], Instituto de Geografía, UNAM, México.

Morelos, Lucero, 2012. *Mexican Geology in the nineteenth century. A historical review of the works of Antonio del Castillo, Santiago Ramírez and Mariano Bárcena,* Secretaría de Cultura de Michoacán-Plaza y Valdés, Mexico.

Morelos, Lucero and Omar Moncada, 2012. "The geological survey during the 10th International Geology Congress in Mexico, 1906", in Luz Fernanda Azuela and Rodrigo Vega (coords.), *Naturaleza y territorio en la ciencia mexicana del siglo XIX*, Instituto de Geografía-Dirección General de Asuntos del Personal Académico, Mexico.

Uribe-Salas, José Alfredo, "Andres del Rio and Immanuel Kant in Mexico", Saber Más, *Journal of Scientific Communication*, Universidad Michoacana de San Nicolás de Hidalgo, 1(6):19-22, November-December 2012.

Maria Teresa Cortes and José Alfredo Uribe-Salas, "The commitment to 'Guano' in Puerto Rico. Scientific explorations, business performance and international market", Revista Brasileira do Caribe. Revista do Centro de Estudos do Caribe no Brasil, CECAB, Goiânia, 2012.

As a final note, we would like to add that members of our group teach three different courses at the National Autonomous University (UNAM) and at Saint Nicholas University in Michoacan (UMSNH), dealing with topics related to the History of Geological Sciences and designed to to raise the interest of young students in this subject.

Luz F. Azuela, Mexico (Mexico)

New Zealand

Since the last report, a number of publications of importance to the history of geology in New Zealand have appeared.

A major project, making available much of the voluminous correspondence to and from Sir James Hector (1834-1907), including letters of Sir Julius Haast (1822-1887) and Sir Joseph Hooker (1817-1911), is nearing completion. Without question Hector was the leading scientist in 19th century New Zealand and a group, including Rowan Burns, Esme Mildenhall, Judith and Simon Nathan, and Sascha Nolden, has successfully transcribed many hundreds of letters that are held in a variety of archives. The transcriptions, with introductory texts, have been published by Geoscience of New Zealand as a series of volumes within GSNZ Miscellaneous Publication 133, parts A – F, which is available as PDF files that can be downloaded from the GSNZ website http://tinyurl.com/a28vs8s (see review in this Newsletter).

The above is part of preparatory work for a major biography of Hector by Simon Nathan. Work by Mike Johnston also continues on a biography of Thomas Ridge Hacket (1837-1884) and his brother James (1839-1914) who were both active in mining in New Zealand and Australia.

A lot of material pertaining to Ferdinand von Hochstetter (1829-1884), the Father of New Zealand Geology is held in Europe, particularly by his descendents in Basel. Much of this material has been documented by Sascha Nolden, assisted by his brother Sandy, and this has resulted in the publication by Mente Manu Publishing of two handsome volumes titled the *Hochstetter Collection Basel*. The first volume, *Part 1 – New Zealand Paintings & Drawings*, was published in late 2011, with *Part 2 – New Zealand Photographs* published in 2012.

Also to appear during the year was *Hochstetter's Nelson Diary: 6 September – 2 October 1859 and Dun Mountain Report* by Mike Johnston, Sascha Nolden and Leonore Hoke. This fully annotated translation of the diary, which the geologist kept during the latter part of the two months he spent in Nelson Province, was published by the Geoscience Society of New Zealand as *GSNZ Miscellaneous Publication 132*. The original diary is held by INHIGEO member Albert Schedl of Vienna. Yet another publication dealing with Hochstetter's work in New Zealand was a paper by Alan Beu, Sascha Nolden and Thomas Darragh titled the "Revision of New Zealand Cenozoic fossil mollusca described by Zittel (1865), based on Hochstetter's collections from the Novara expedition", which appeared as the *Association of Australian Paleontologists Memoir 43*. The most recent Hochstetter related publication is *Ferdinand Hochstetter and the Contribution of German-speaking Scientists to New Zealand Natural History in the Nineteenth Century*, edited by James Braund and published by Peter Lang as Volume 10 in the *Germanica Pacifica* Series. The volume contains 16 essays contributed by 17 authors and is reviewed in this Newsletter.

Late in 2011, the *Volcanoes of Auckland – The Essential Guide* by Bruce W. Hayward, Graeme Murdoch and Gordon Maitland, with aerial photographs by Alastair Jamieson was published by Auckland University Press. New Zealand's largest city is built on the basaltic Auckland Volcanic Field which last erupted 600 years ago. This book describes the over 50 eruption sites within a 20 km radius of downtown Auckland and includes a large amount of historical information on the volcanoes, including early geological descriptions by Charles Heaphy (1820-1881) and Hochstetter.

The Geoscience Society of New Zealand's Historical Studies Group under the convernorship of Simon Nathan (s.nathan@xtra.co.nz) and editor Heather Nicholson (docroc3@gmail.com) published two issues (42 and 43) of its journal during the year. As in previous issues there are a wide range of articles. Past issues are now being digitised and along with the society's newsletter, including that of its predecessor of the Geological Society of New Zealand, can be found online. Both publications contain important articles on historical geology as well as being valuable sources of information on the development of geology in New Zealand. Members of the Historical Studies Group informally met during the Geosciences Society annual conference held in Hamilton, in November 2011.

On the 28-29 November a symposium was held in Dunedin to commemorate the life of John Buchanan (1819-1898), one of New Zealand's greatest naturalists who had been employed by Hector in the Geological Survey and Colonial Museum. Papers on Buchanan's geological achievements were given by Simon Nathan and Graham Bishop.

Mike Johnston, Nelson (New Zealand)

Norway

Geir Hestmark has sent in summaries of the following two articles:

Hestmark, G. 2008. "A primitive country of rocks and people" – R.I. Murchison's Silurian campaign in Norway, 1844. *Norwegian Journal of Geology*, 88, pp. 117-141.

In the summer of 1844, the British geologist Roderick Impey Murchison visited Norway to participate in a meeting of Scandinavian natural scientists, and to explore the sedimentary rocks in the vicinity of the Norwegian capital Christiania (now Oslo). He had reason to believe they belonged to his own Silurian System, and after a few days of field work, Murchison could confirm this, producing the first biostratigraphic section of the Norwegian Palaeozoic strata. In the Ringerrike area he found what he took to be a continuous sequence from lifeless (azoic) rocks through his Lower and Upper Silurian shales and limestones into the Old Red Devonian sandstone. The sequence was used to support his claim that there were no fossil-bearing strata below his own Silurian, and that the Cambrian thus was not an independent biostratigraphical unit. The section also in his view demonstrated the unity of the Silurian, the proper

position of the Devonian, and the general soundness of the biostratigraphic method. For the study and interpretation of Norwegian geology, Murchison's brief campaign firmly put the biostratigraphic method also on the agenda for Norwegian geologists.

Hestmark, G. 2011. The meaning of 'metamorphic' – Charles & Mary Lyell in Norway, 1837. *Norwegian Journal of Geology*, 91, pp. 247-275.

In July 1837, the Scottish geologist Charles Lyell and his wife Mary visited Norway, making extensive field trips in the vicinity of the capital Christiania (now Oslo), often accompanied by Baltazar M. Keilhau, professor of geology at the University of Christiania. They particularly focused on contact zones between (Palaeozoic) sedimentary rocks and large (Permian) intrusive bodies of granite and syenite, as well as dykes and sills. In 1833, Lyell had coined the term 'metamorphic' to denote sedimentary rocks changed by heat. Keilhau in contrast promoted a theory of metamorphosis in the cold state of sedimentary rocks into massive rock types such as granite, syenite and porphyry. In the field Lyell and Keilhau agreed on the observations but not on their interpretation. To Lyell the observations validated his own conceptions of metamorphic and plutonic rocks, and the results from Norway were notably incorporated in his textbook *Elements of Geology* (1838). During his visit he also collected fossils enabling him to publish a rough biostratigraphic correlation between Norwegian strata and the Silurian system, recently established in Britain; and also made observations of erratic boulders, which he considered transported by ice floes. The present paper follows the Norwegian tour day by day, assessing the results, as well as the current state of preservation of Lyell's Norwegian localities.

Geir Hestmark, Department of Biology, University of Oslo, Pb. 1066, 0316 Blindern, Oslo, Norway. (e-mail: geir.hestmark@bio.uio.no)

Poland

In 2016 the Warsaw University will celebrate the 200th anniversary of its foundation. Therefore, a team lead by Michal Szulczewski initiated research work on the history of geological sciences in this university. Present heads of departments in the Faculty of Geosciences are elaborating their evolution and are preparing biographies of the most meritorious Polish and Russian professors. Moreover, Wieslaw Barczyk and Ewa Hoffmann for the Association of Graduate Students of the post-war Department of Geology, revived in 1952, have edited, "Memorial Volume of the Graduates of the Department of Geology 1952-2015". This volume also contains short biographies of academic teachers, information on the branches of geosciences taught and a list of graduate students. It is hoped that the archival materials, collected from the present departmental museum, will form the basis for the preparation of a monograph of the department.

A very important event was the realization of the research project of Piotr Daszkiewicz (Museum of Natural History in Paris) and Radoslaw Tarkowski (Pedagogic University in Cracow) on the Polish-French scientific cooperation in 18th and 19th century, which resulted in the publication of the book "Influence of French natural ideas on the development of geosciences in Poland and Lithuania from the end of 18th century to 1830" (Cracow 2012). It contains much data on Polish students attending French universities and later teaching in Poland , as well as on French academic teachers at the colleges of Grodno and Vilna (Lithuania), and on Polish geoscientists furthering their education in Paris (e.g. S. Staszic, J. Jaskiewicz and J. Markowski). These contacts led to regional investigations and to the exchange of geological specimens, and resulted in an interest by French geologists in the mineral ore deposits of Poland (rock salt, lead, zinc, copper). Attendance at lectures at the Sorbonne or the College de France was very popular among members of the Polish aristocracy.

The Technical University of Mining and Metallurgy in Cracow has published the reprint of Stanislaw Staszic's monograph "O ziemiorodztwie Karpatow I innych Gor i rownin Polski" (On geognosy of the Carpathians and other mountains and lowlands of Poland), first published in 1815 (with a geological map and cross-section and illustrations of fossils). However, the reprint has been published without commentary.

The Stanislaw Staszic Museum in Pila has published successive volumes of the periodical "Zeszyty Staszicowskie" (2012), containing several papers on the history of geology. Worth mentioning are:

M.K. Skrzypek : The receptions of the conception of Buffon and Staszic in the natural sciences in Poland, at the turn of the 18th and 19th centuries.

Z. Wojcik: Stanislaw Dunin Borkowski – a chapter on the Warsaw Society of Friends of Sciences.

A.J. Wojcik: Georg Gottlieb Pusch and his activity in the Kingdom of Poland based on his letters published in mineralogical periodicals (1817-1830).

The Museum of Agriculture in Ciechanowiec has published Z. Wojcik's monograph "Priest Jan Krzysztof Kluk – literary man and scientist" (Ciechanowiec 2012). This outstanding parish-priest published a Natural History, in three parts, in the period 1778 – 1782. The last of these volumes (1781-82) deals with geological and mining-metallurgical problems.

The Institute of Paleobiology of the Polish Academy of Sciences has published Witold Kozlowski's reminiscences on his father Roman Kozlowski. The latter was an outstanding paleozoologist, who was educated in France. He worked for a time in Bolivia and later in Poland, where he formed an eminent research center.

The Institute of the History of Science of the Polish Academy of Sciences has initiated a project of a biographic thesaurus of discoverers and inventors (natural sciences and techniques). R. Tarkowski, A.J. Wojcik and Z. Wojcik are cooperating with this project.

Polish historians of geosciences always play a part in the cultural life of our country and in international organizations.

S.W. Alexandrowicz, president of the Section of the History of Sciences of the Polish Academy of Arts and Sciences, is presenting very interesting broadcasts on Cracow Radio, dealing with biographies of Polish naturalists.

R. Tarkowski and P. Daszkiewicz have published papers on Polish-French relations in natural sciences: "Jean-Philippe Graffenauer (1775-1838) – Alsatian naturalist and Napoleon's physician in Poland (Przeglad Geologiczny – Geologic Revue)) and "Geologic activity of Jozef Markowski (1758-1829) (Przeglad Gorniczy – Mining Revue)

A.J. Wojcik has published more than ten papers on mining, dealing with geological mapping and the activity of Polish geologists in Russia, and with the evolution of European geological cartography at the beginning of the 20th century. They were published in the periodical "Analecta".

P. Krzywiec, M. Narkiewicz and J. Dlemer have published In "Przeglad Geologiczny" (Geological Review) a paper "Geology of the Holy Cross Mts. in the eyes of Roderick Murchison – visit in June of 1843 and its echoes " (in Polish, English summary).

In the collective publication "History of radiation studies in Poland" (Warsaw 2012), devoted to the achievements of Maria Sklodowska-Curie, Z. Wojcik has published a paper, "Initial period of geological application of radioactivity in Poland" (in Polish, English summary).

Zbigniew Wojcik, Warsaw, and Wojciech Narebski, Kracow (Poland)

Portugal

Oral Communications

Mota, T. S., "A Arqueologia nos Serviços Geológicos de Portugal durante o século XX", Society of Geography of Lisbon, Lisbon, Portugal, 5 December 2012.

Mota, T. S., "It had to be us: the Geological Expedition to Goa Made by the Portuguese Board for Colonial Research in 1960", International Conference Scientific Expeditions: Local Practices and Cosmopolitan Discourses (18-20th Century), organized by the Kommission für Geschichte der Naturwissenschaften, Mathematik und Medizin, Österreichische Akademie der Wissenschaften in the University of Vienna, Vienna, Austria, 19 November 2012.

Mota, T. S. "It had to be us: the Geological Expedition to Goa Made by the Portuguese Board for Colonial Research in 1960", 5th International Conference of the European Society for the History of Science, Athens, Greece, 1-3 November 2012.

Mota, T. S. and Carneiro, A., "A time for engineers and a time for geologists: scientific lives and different pathways in the history of Portuguese geology", 34th International Geological Congress, Brisbane, Australia, 5-10 August 2012.

Mota, T. S., "The worth of geology: a public crusade", 8th Meeting of Science and Technology in the European Periphery (STEP), Corfu, Greece, 21-24 Jun 2012.

Mota, T. S., "Bosquejo histórico do desenvolvimento da Geologia em Portugal e em alguns dos países da actual CPLP", I Congresso Internacional de Geociências da CPLP, University of Coimbra, Coimbra, Portugal, 15 May 2012.

Mota, T. S., '"Engineers don't need so much geology': geology teaching in the Polytechnic School of Lisbon' Colloque International La formation des ingénieurs à la péninsule iberique: promoteurs, institutions,

manuels (XVIe-XXe siècles) in the context of the Master Erasmus Mundus TPTI – Techniques, patrimoine, territoires de l'Industrie : gestion, valorisation et didactique, University of Évora, Évora, Portugal, 1 and 2 March 2012.

Chapters in Books

Mota, T. S., "Mendes Correia, um 'posto avançado' na defesa da Geologia em Portugal" in Martins, A. (ed.) Mendes Corrêa (1888-1960): entre a Docência, a Ciência e a Política, (Lisboa, Secção de História do Património e da Ciência da Universidade Lusófona de Humanidades e Tecnologia, 2012), pp. 129-143.

Conference Proceedings

Mota, T. S. It had to be us: the Geological Expedition to Goa Made by the Portuguese Board for Colonial Research in 1960. In: Katsiampoura, G. (ed.) Book of Abstracts of the 5th International Conference of the European Society for the History of Science: Scientific Cosmopolitanism and Local Cultures: Religions, Ideologies, Societies (Institute of Historical Research/National Hellenic Research Foundation, 2012), p. 143.

Mota, T. S. and Carneiro, A., "A time for engineers and a time for geologists: scientific lives and different pathways in the history of Portuguese geology" in Proceedings of the 34th International Geological Congress, Brisbane, Australian Geosciences Council, p. 2594.

Mota, T. S., "Bosquejo histórico do desenvolvimento da Geologia em Portugal e em alguns dos países da actual CPLP" in Henriques, M. H., Andrade, A. I., Lopes, F. C. Pena dos Reis, R., Quinta-Ferreira,

M. & Barata, M. T. (coords.) (2012). I Congresso Internacional Geociências na CPLP, (Coimbra, Centro de Geociências e Centro de Geofísica da Universidade de Coimbra), p. 47.

Others Activities

Scientific coordenation of the workshop "Arqueólogos vs geólogos: o contributo das Geociências nos alvores da investigação pré-histórica em Portugal. Consequências na época e para além dela", Society of Geography of Lisbon (archeological section), Lisbon, Portugal, 5 December 2012.

Invited lecturer on History of Natural Sciences (Master Course on Geological Heritage and Geoconservation).

Councilor of the History of Earth Sciences Society (HESS) for the period 2011-2012.

Scientific review of history of science contents of the textbook José Salsa, Orlando Guimarães e Rui Cunha, CIENTIC, Terra no Espaço, Terra em Transformação, Natural Sciences, 7th grade, Porto Editora, 1 March 2012 to 1 April 2012.

Teresa Salomé Alves da Mota, Caparica, Portugal

Russia

The main event for Russian historians of the geosciences was the first presentation of the V.V. Tikhomirov Award for the History of Geology, which was established by the International Union of Geological Sciences (IUGS). URL: http://iugs.org/uploads/IUGS%20Bulletin%2076.pdf Both the importance of Tikhomirov's research on the history of geology, and his merits as a geoscientist of international standing, were recognised by this act. We congratulate the first recipient of the Award, Emeritus Professor Hugh S. Torrens (England).

The great loss of the year was the death of academician Nickolay P. Yushkin. He joined INHIGEO in 1994, a decision which met his great interest in the history of geology. His enthusiastic efforts in organising regular meetings at Syktyvkar (Komi Republic), was truly amazing. Just last summer we discussed with Yushkin the publication of his collected works on the history of geology. Unfortunately these will now appear posthumously. An obituary of Yushkin, compiled by his friends and disciples from the Institute of Geology in Syktyvkar, appears in this issue of the Newsletter.

International meetings

Five Russian historians of the geosciences attended the 34th International Geological Congress and participated in the 37th INHIGEO Symposium. They gave the following presentations:

Bessudnova – Grigory (Gotthelf) Fischer von Waldheim (1771–1853): author of the first scientific works on Russian geology and paleontology.

Ivanova – Vasiliy Mikhailovich Severgin: a notable Russian mineralogist.

Kolbantsev – The first meeting of geologists in Russia: field excursions and feedback from participants (to the 115th anniversary of the 7th IGC).

Malakhova – The failed mission of Dmitry Mushketov: to the 75th anniversary of the 17th IGC (Moscow, 1937).

Trifonov – Scientific discoveries and periodization of the history of geology.

And a Poster:

Kolbantsev – Geological maps of Russia in the XIX century.

Country meetings

Bessudnova took part in the 5th International conference of the Russian Association of researchers on the history of women, in Moscow, with a paper on an honorary member of the USSR Aacdemy of Sciences, Maria V. Pawlov.

There were two interesting conferences in Saint-Petersburg in 2012. Kolnatsev talked about Russian, Finnish, and Swedish petrographer H.G. Backlund (1878-1958), at the meeting that also marked the 150th anniversary of the birth of academician F.Y. Loewinsson-Lessing, and the 100th anniversary of Professor G.M. Saranchina. Kolbantsev gave a second paper titled, "The Northern Territory in collections of academician T. N. Tschernyshev", at a conference with the theme, "Legendary expeditions in the Northern Territory: on the 190th anniversary of N.Y. Danilevsky, and on the 235th anniversary of the end of the First Bering's expedition".

An international symposium on new technology in science was included in the program of the Forum held in Ekaterinburg, to celebrate 80 years of science in the Urals. Malakhova gave a presentation on the new project of the Vernadsky State Geological Museum, "The Museum Library: catalogues, databases, and 'look and feel' technology".

The yearly Meetin of the Institute for Science and Technology (RAS), in Moscow, was held on the 80th anniversary of the Institute. Khomizuri presented a paper about the first corresponding member of the Russian Academy of Sciences, Paul I. Rychkov (1712-1777).

Minina visited Tatarstan to present a paper on L. Prokhorova (Ushkova) at the Ushkov's lectures.

Other activities

Kolbantsev was elected a new INHIGEO member from Russia.

For her work in staging great exhibitions and for her lecturing activities in the Museum of Natural History (Moscow State University), Ivanova was recognised as 'Honored Worker of Science and Technology'.

A database, "History of Geology & Mining", has come online at the end of last year – URL: http://scirus.benran.ru/higeo/ This is the new project of the Department for the History of Geology at the Vernadsky State Geological Museum. About 500 geoscientists are now listed, together with portraits, articles, bibliographies, and documents. While the text is in Russian, we hope soon to install a search engine in English. The work will be continued under the research plan of the Russian Academy of Sciences. The database is placed at the renowned Web-site of the Museum. You are kindly invited to view the English Web-page of the Department, where all our projects are listed: URL: http://www.sgm.ru/254/

Our long work on foreign members of the Russian Academy of Sciences has been completed. The digital book has been placed on the Web-page of the Department of Earth Sciences (Russian Academy of Science).

We thank all our foreign colleagues for their cooperation, and the following INHIGEO members personally: Tillfried *Cernajsek*, Francesco *Gerali*, Simon *Knell*, Sally *Newcomb*, David *Oldroyd*, Philippe *Taquet*, Gian-Battista *Vai*, Hugh *Torrens*, James *Secord*, Johannes *Seidl*, Ali Mehmet Celâl *Şengör*.

Malakhova, I, G., Bessudnova, Z.A., Khomizuri, G.P. and Minina E.L. (Malakhova, I, G. ed.) 2012. *Foreign members of the Russian Academy of Sciences. XVIII-XXI: Geology and mining*. Vernadsky State Geological Museum, DES RAN. Moscow: Geophysical Center, RAN, 504 p. – ISBN 978-5-904509-08-8, DOI 10.2205/2012DES_foreign (in Russian). URL: http://elpub.wdcb.ru/ebooks/formemb.pdf

Select bibliography of Russian INHIGEO members for the Year 2012:

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Bessudnova, Z. A. 2012. Maria Wasiliewna Pawłowa (1854-1938) – professor zoologii Universytetu Moskiewskiego. *Kwart. Hist. Nauki i Techniki.* R. 57, 2, pp. 10-18. (in Polish).

Kolbantsev, L. R., 2012. H.G. Backlund (1878-1958) – the Russian, Finnish and Swedish Petrographer. In: *Modern problems of magmatism and metamorphism: Proc. of the All Russian conference to the 150th anniversary of acad. F.Yu. Loevinsson-Lessing and the 100th anniversary of profr G.M. Saranchina*. St.-Ptb., pp. 278-280 (in Russian).

Kolbantsev, L.R. 2012. Stone badges. *The Petersburg Collectioner,* 4 (72), pp. 56-59 (in Russian).

Kolbantsev, L.R., et al. 2012. Valentina Nikolaevna Moskaleva (1925-2012): Obituary. *Regional Geology and Metallogeny*, 52, pp. 116-117 (in Russian).

Malakhova, I. 2012. Foreword. In: Lomonosov M.V. (ed.) *On the Strata of the Earth: A Translation of «О слоях земных» ("O sloyakh zemnykh")* / Transl. by S. Rowland and S. Korolev. *Geol. Soc. Am. Special Paper*, 485, pp. V-VI.

Malakhova, I.G 2012.**.** V.I. Vernadsky as a participant of the International Geological Congresses: 1888-1937. In: *Science and enlightenment: to the 150 anniversary of acad. V.I. Vernadsky.* Ekaterinburg: OOO UIPZ, Vernadsky State Geological Museum, RAS, pp. 19-34. (in Russian).

Minina, E.L. 2012. Life pages of L.P. Prokhorova (Ushakova). *Proc. of the 7th All-Russian conference "Ushakov's Lectures"*, Tatarstan. Mendeleevsk: Omega, pp. 32-35.

Oshurkova, M.V. and Lapo, A.V. 2012. Natalya Grigoryevna Pashkevich: (1933-2012). Obituary. In: *Bulletin of the Regional Interdepartmental Stratigraphic Commission for the Central and Southern East European Platform.* M.: RANS, 5, pp.188-190 (in Russian).

Irena G. Malakhova, Moscow (Russia)

Spain

Many diverse activities can be reported by the Spanish INHIGEO group.

In January the Museum of Science of Tenerife (Canary Islands) dedicated a series of conferences to Alfred Wegener, to celebrate 100 years (1912-2012) of the *Theory of the Continental Drift*. Another meeting to mark this anniversary was held at the National Museum of Natural Sciences, in Madrid (MNCN).

The XIII International Congress on Geological and Mining Heritage was held in Manresa (Barcelona) from 20 to 23 September 2012. For further information contact: rocpetrus@gmail.com

In October (at the Opening of the Scholar Year 2012-13 Act), the INHIGEO member, Carminia Virgili i Rodón, received the Honours Medal of the Complutense University of Madrid.

In November, INHIGEO member, Jorge Ordaz Gargallo, received of the Critics Prize of Asturias for fiction, for his novel: *El fuego y las cenizas* (The fire and the ashes). Born in 1946, he obtained his Ph.D. degree from the University of Barcelona and was appointed Professor of Petrology and Geochemistry at the University of Oviedo. He retired in September 2011. He is also a member of the Institute Father Feijoo's for the Studies of the 18th Century, attached to the University of Oviedo. Jorge Ordaz has published two books of short stories, and six novels. One of these has a geological/palaeontological theme, *El cazador de dinosaurios* (The dinosaur hunters), Oviedo, KRK Press, 2005.

INHIGEO member, Emilio Pedrinaci, has worked hard in defence of the teaching of geology in schools, a subject excluded from Secondary Education in Spain, by the 'Law of Educational Quality Improvement Project' (LOMCE) (*EL PAÍS*, November 11).

In December a series of conferences was held at the Mining School of Madrid on the theme, "The Archaeological site of San Isidro – the stones that founded Spanish Prehistory". It celebrated the 150th anniversary of the discovery of the Paleolithic in Spain, by the mining engineer and geologist Casiano de Prado (1797-1866).

Publications

Books

Martín Escorza, C. 2012. La Expedición Científica española a Ifni en 1934 (The Spanish scientific expedition to Ifni, in 1934). Editorial Académica Española, 72 p. ISBN: 979-3-8473-6796-3.

Pedrinaci, E. (Coord.), Caamaño, A., Cañal, P. and De Pro, A. 2012. 11 Ideas clave: *El desarrollo de la competencia científica* (The development of scientific competition) Barcelona, Ed. Grao, 294 p. ISBN: 9788499804729.

Pelayo López, F., Gozalo Gutiérrez, R. 2012. *Juan Vilanova y Piera (1821-1893): La donación Masiá Vilanova en el Museo de Prehistoria de Valencia* (The Masiá Vilanova donation to the Prehistory Museum of Valancia). València, Ed. Diputación de Valencia, Museu de Prehistòria de Valencia. ISBN 978-84-7795-627-3.

Sequeiros, L. 2012. *Repensar la Naturaleza. Filosofía de la realidad natural* (Rethinking nature: Philosophy of natural reality). 2ª edición corregida, 350 p. http://www.bubok.es/libros/211687/REPENSAR-LA-NATURALEZA-Filosofia-de-la-realidad-natural-2-edicion-corregida

Sequeiros, L. 2012. *Darwin y El reduccionismo biológico* (Darwin and biological redutionism). Bubok Ediciones, 750 p. http://www.bubok.es/libros/215783/DARWIN-Y-EL-REDUCCIONISMO-BIOLOGICO

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Sequeiros, L. 2012. Darwin y el reduccionismo. En: Darós, W. (ed.). *El problema de la ubicación de la persona humana en nuestro tiempo* (The problem of the status of the human person in our time). Universidad del Centro Educativo Latinoamericano (UCEL), Rosario, Argentina, pp. 197-228.

Chapters in books.

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Puche Riart, O. 2012. Encuadre histórico general. Cultura, ciencia y tecnología de las aguas subterráneas (General historical framework. Culture, science and technology of groundwater). En: Custodio, E. y López Geta, J.A., (eds.). *Cien años de Hidrogeología en España* (A hundred years of hydrogeology in Spain). Ed IGME. Madrid, p. 22-47.

Journal articles

Ayarzagüena Sanz, M. and Puche Riart, O. 2012. La llamada "Edad del Cobre" en el siglo XIX. Aportaciones de Casiano de Prado y Juan Vilanova. (The call "Copper Age" in the 19th century contributions of Casiano de Prado and Juan Vilanova). *Boletín Geológico y Minero*, 103, (2), pp. 67-83.

Crespo, A., Rábano, I., Alcalá, L., Carcavilla, L. and Calonge, A. 2012. Divulgación de la Geología: pasado, presente y futuro (Spreading geology: Past, present and future). *Geotemas*, 13, pp. 599-602.

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Pedrinaci Rodríguez, E. 2012. Trabajo de campo y aprendizaje de las ciencias (Fieldwork and science learning). *Alambique: Didácta de las ciencias experimentales*, 71, pp. 81-90.

Pedrinaci Rodríguez, E. 2012. Enseñar que es la ciencia (Science education). *Alambique: Didácta de las ciencias experimentales*, 72, 9-11.

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Puche Riart, O., Hervás Exojo, A., Mazadiego Martínez, L. and Jordá Bordehore, L. 2012. La minería histórica de la Comunidad de Madrid (History of mining in the community of Madrid). *Madrid Histórico*, 40, pp. 32-47.

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Sequeiros, L. and González Fabre, M. 2012. Filosofía de la Geología y Religión: La Vindicación de La Geología de Casiano de Prado (1835) (Philosophy of geology and religion: Vindication of the geology of Casino de Prado). *Pensamiento, Especial,* 67, 254, pp. 983-1005.

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Sequeiros, L. 2011. Recensión extensa de GUTIÉRREZ MARCO, J. C. et alii. Geologia y paleontologia de Almadén en el siglo XIX. La contribución de Casiano de Prado, Edouard de Verneuil y Joachim Barrande al descubrimiento científico del Paleozoico centroibérico (Geology and palaeontology of Almadén in the 19th century. The contributions of Casiano de Prado, Edouard de Verneuil and Joachim Barrande to the scientific findings in the Centro-Iberian Palaeozoic). *Naturaleza Aragonesa,* 27, pp. 88-90.

Sequeiros, L. 2012. Recensión de Geología y Paleontología de Almadén en el siglo XIX (Review of the geology and palaeontology of Almadén in the 19th century). *LLull,* 35, 75, pp. 243-244.

Sequeiros, L. 2012. Recensión de Nicolás Steno, los estratos y el Diluvio Universal. Universidad de Comillas (Review of Nicolaus Steno, the stratas and the flood). *INHIGEO Newsletter*, 44, pp. 71-72.

Sequeiros, L. 2012. Recensión de Exploradores de J. M. Bermúdez de Castro)Review of the explorers of J. M. Bermúdez de Castro). *Paleoisurus,* 20.

Sequeiros, L. 2012. Recensión de A. Lacasa. Testimonios del Pasado (Review of Lacasa A.: Testimonies of the past). *Naturaleza Aragonesa,* 28, pp. 72-73.

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Sequeiros, L. 2012. *Christophorus Clavius*. Reunión Ciencia, Religión y Matemáticas. http://www.tendencias21.net/Christophorus-Clavius-reunio-ciencia-religion-y-matematicas_a9734.html

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Sequeiros, L. 2012. *El fraude del Eoanthropus cumple un siglo con todas sus incógnitas* (A century of the Eoanthropus fraud in all its disguises). http://www.tendencias21.net/El-fraude-del-Eoanthropus-cumple-un-siglo-con-todas-sus-incognitas_a12981.html

Sequeiros, L. 2012. *Teilhard de Chardin ante la prueba del sufrimiento humano* (Theilhard de Chardin facing human sufferings). http://www.tendencias21.net/Teilhard-de-Chardin-ante-la-prueba-del-sufrimiento-humano_a13454.html

Sequeiros, L. 2012. *Jornadas sobre Río +20* (Conference about Rio + 20). Facultad de Derecho de La Universidad de Sevilla. http://www.slideshare.net/sequeiros/rio-20-criticas-y-alternativas

Lucas, I. 2012. Carmina Virgili i Rodón. En BLOG: *La Ciencia en Rosa: mujeres en la ciencia* (Science in pink: women in science. www.mujeresycienciacmc.blogspot.com/2012/.../carmina-virgili-i-rodon.ht...

Conference presentations

García Cruz, C.M. 2012. Alfred Lothar Wegener (1880-1930), una vida para la ciencia (A life dedicated to science). En ciclo de conferencias: “100 años de la Teoría de la Deriva Continental" (A course of lectures on the theme: “100 years of the “Theory of Continental drift”). Organizado por el Museo de la Ciencia de Tenerife (January, 26).

Martin Escorza, C. 2012. "Homenaje a Alfred L. Wegener: 100 años de la Teoría de la Deriva Continental (Homage to Alfred Wegener). Salón de Actos del MNCN. Organizado por la Real Sociedad Española de Historia Natural y la Sociedad de Amigos del MNCN (October, 23).

Other

The INHIGEO member, Rábano Gutiérrez, I., is the editor of *De Re Metallica*, a review journal published by the Sociedad Española para la Defensa de Patrimonio Geológico y Minero/Spanish Society for the Protection of Geological and Mining Heritage, and Mazadiego Martínez, L., another INHIGEO member, is the Director of this scientific publication.

Octavio R. Puche, Madrid (Spain)

United Kingdom

Alan Bowden – reports: "I have taken voluntary early retirement as part of the staff reduction programm at National Museums and Galleries Merseyside, Liverpool (but remain contactable there as a 'volunteer') – we had to make cuts of 25%. In theory this should make it easier to follow more personal research projects rather than be tied to management meetings and all the other burdens of being a salaried member of staff.

My INHIGEO activities for the year have been very limited as we wrestled with the government cuts and their effects. Having said that, I have done a couple of things: The book on the *History of Foraminiferal Micropalaeontology* edited by myself, Andy Henderson and John Gregory is going to the Geological Society Publishing House this month to ensure a 2013 publication date. This is a TMS (The Micropalaeontological Society) special publication and is a multi-authored work with contributors from around the globe.

I have also written the obituary for John George Charles Martin Fuller (1926-2012), a founder member of HOGG, petroleum geologist and noted historian of geology. It is to be found online at the Geological Society website and a shortened 500 word version will shortly appear in Geoscientist.

I am currently working up one of the field trips, with David Oldroyd, for the INHIGEO Conference in Manchester. This trip will be to the Lake District as part of the Geology in Art and Literature symposium. We will be examining the work of John Ruskin, Beatrix Potter and William Wordsworth, who all had interests in Geology and appreciation of the landscape.

Gordon Craig – notes the bicentenary of the death of John Clerk of Eldin (born 10th May 1812), merchant, coal owner, landscape painter, etcher and painter of most of the geological drawings for the third volume of James Hutton's *Theory of the Earth.* The anniversary was marked by a luncheon given by Sir Robert Clerk of Penicuik House, followed by an exhibition of Clerk of Eldin's paintings and etchings in the City Art Gallery, Edinburgh, in December 2012, chosen and arranged by Geoffrey Bertram. Currently (March-April) this exhibition is on show at the Fleming Collection, London, with an associated book by Geoffrey Bertram, *The etchings of John Clerk of Eldin*.

Trevor Ford – has papers on a chromite ore crusher in the Shetland Isles, and the lead mines around Ashover and Crich in Derbyshire, in press in *Mining History*, and a further paper on vein cavities in the same Derbyshire localities submitted to *Cave & Karst Science*.

He has published the following:

Ford, T. D. 2012. The geological setting of the lead mines of the Hucklow, Eyam, Stoney Middleton and Longstone Edge area, Derbyshire. *Mining History* 18, pp. 1-22.

Torrens, H. S. and Ford, T. D. 2012. An early-19th century geological map of the Peak District by John Farey. *Mercian Geologist* 18 (1) pp. 69-73.

Simon Knell is very happy to have published his latest book *The great fossil enigma*, on the wildly varying interpretations of the animal which owned the teeth known as conodonts:

Knell, S.J. 2012 *The great fossil enigma: The search for the Conodont Animal*. Indiana University Press, Bloomington.

Cherry Lewis - was this year awarded the Geological Society of London's Sue Tyler Friedman Medal for the history of geology for her pivotal role in developing the history of geology as a discipline within the

Geological Society. Former Chair of HOGG and current HOGG committee member, Cherry received her award at this year's President's Day at Burlington House on June 13, 2012. (See section on Awards, p. ?)

Cherry reports that the U.K.'s History of Geology Group (HOGG) had another successful and active year, with perhaps the highlight being the launch of HOGG's own website (www.historyofgeologygroup.co.uk), and the opening of HOGG's Twitter (@HOGGroup) and Facebook accounts.

2012 saw a larger than normal number of meetings which included an *Open Meeting* in March. This provided an opportunity for members to showcase their own research. Around 50 people attended a very full day of presentations. As with previous Open Meetings, the day was convened and organised by Tony Brook who had assembled a varied and entertaining programme of 14 talks.

In April HOGG was involved with the *In the Footsteps of Sir Archibald Geikie* meeting, which displayed the remarkable collection of Geikie materials held at Haslemere Museum, Surrey. On arrival, attendees were asked to sign in using either a quill or nib pen and ink which was fun, if daunting. Most of Geikie's thousands of letters had been written with his nib pen; for the inexperienced, it was difficult enough to write just our names with an even and unblotted line!

A fine display of items from the Sir Archibald Geikie Archive was on show in the Education Room. This included several of his well known text books, previously unseen copy letter books, and many wonderful examples of his numerous sketches made at home and abroad. A large painting of Glen Sannox on Arran was exhibited alongside his framed retirement gift from the Geological Survey which shows the signatures of most of his contemporaries. Also on view were several items used during his time in the field including his geological hammer in its case, his compass clinometer, and several field notebooks containing many fine field sketches. Two early examples of his field mapping were shown - the 1859 one inch to the mile geological map of the Edinburgh district with accompanying memoir, which he mapped and co-wrote with H. H. Howell, and the Kinross Sheet (1867) mapped with his brother James.

John Betterton and Julia Tanner of the Museum gave an excellent insight into how much painstaking hard work has been undertaken by the Museum, from the collection's initial discovery in the Museum's loft, where it had lain undiscovered for decades, through to its ongoing collation and future conservation. They emphasised how much work was still to be done. To fund future conservation work on the Archive, which has huge potential for historians of geology; towards this end the Museum had recently received a grant from Statoil (U.K).

Further talks included an insight into Geikie's character and his relationship with his staff; his involvement in the Highlands Controversy; Geikie as an artist, and an account of his controversial walk from Kinlochewe to Loch Broom undertaken in the 19th century by the young Archibald Geikie and subsequently re-enacted in 2001 by six geologists in an attempt to see the geology through Geikie's eyes.

The *Appreciating Physical Landscapes: Geotourism 1670-1970* conference was held at the Geological Society in October. A convivial gathering enjoyed a full day of 14 talks including keynote presentations by Professor David Norman and Professor John Gordon. In addition, a number of poster presentations were displayed in the Lower Library where refreshment breaks and the early evening wine reception were held.

The day after the conference at Burlington House, 16 modern-day geotourists gathered at St Pancras Station, from where a Javelin Express train whisked them away at high speed to a field excursion at Margate.

The year concluded with a meeting entitled *Piltdown - 100 Years On*, held at Burlington house an 18 December 2012 to mark the centenary of the reading of the *Piltdown Man* paper at the GSL on 18th December 1912 when Piltdown man was hailed as a very early species of human – possibly even the missing link between man and ape that Charles Darwin had predicted. It was, of course, an audacious hoax that convinced many of the greatest scientific names of the time – but it was very far from harmless. It had pernicious effects not only on scientific research for decades, but also on the reputations of those most intimately involved. Part of what made this fascinating story so compelling is that, one hundred years on, we still don't know the forger's identity. As well as talks on new research surrounding the Piltdown controversy, participants were able to enjoy tours of the Natural History Museum's *Piltdown Centenary Exhibition,* and viewed specimens, manuscripts and papers held in the NHM Library.

The HOGG committee continues to plan meetings for the future, including a couple of one-day meetings early in 2013, and possibly a conference with the Linnaean Society next October. There will also be the 2013 ICHSTM Congress – the 24th International Congress of History of Science, Technology and Medicine – in Manchester in July, and HOGG has organized two symposia for INHIGEO, one on *Geologists in the Field* and the other on *Geology in Art and Literature*. These will be accompanied by three related field trips. This event is the largest history of science event ever held in the UK, and will include more than 100

symposia on every aspect of the history of science, technology and medicine, as well as numerous field trips, social events, plenaries and receptions.

The Group's excellent publication record continues, with volumes from the *Applied Geology*, *Geology and Medicine* and *Appreciating Physical Landscapes* meetings all in progress.

There is no change amongst the HOGG committee officers this year, though the role of the Secretary has been split so that there is now a Membership Secretary, with Cherry Lewis taking on this new role and Leucha Veneer remaining as Secretary. John Henry remains as chairman and Beris Cox as treasurer. New elections to the committee as ordinary members are Alan Bowden and Dave Williams, both active stalwarts in the history of geology.

The HOGG Newsletter is now accessible on line, on the new HOGG website, the most recent issue being No 47, http://historyofgeologygroup.co.uk/wp-content/uploads/2013/02/Newsletter47.pdf

Martin Rudwick – is to be congratulated on his latest news, which is, as he reports: "At its annual meeting in San Diego in November, the History of Science Society awarded me the Levinson Prize for my *Worlds Before Adam: The Reconstruction of Geohistory in the Age of Reform* (University of Chicago Press, 2008). This prize is given biennially for a recently published book on the history of the natural history sciences [i.e. those that are not 'exact']."

Mike Taylor – is completing, with **Hugh Torrens**, a paper (to be sent to *Archives of Natural History*) on the identification of the authors of two hitherto anonymous articles on Mary Anning the younger (1799-1847), fossil collector of Lyme Regis; they have come to some surprising and interesting conclusions about their origin and reliability.

Mike has also returned to his first love, the Jurassic marine reptiles of the English west country, in part to complement papers on their palaeontology by his colleagues and/or himself, and especially to trace now lost type and figured ichthyosaurs and plesiosaurs (or plaster casts of those destroyed by enemy action, as at Bristol in the 1940s). He would be very interested to hear of any casts of such specimens from the Bristol Institution for the Advancement of Science, Literature and Art, or its successor the Bristol Museum.

Mike has continued work on a new edition of Hugh Miller's *The Old Red Sandstone* with **Ralph O'Connor**, and on the history of Miller's collections with Lyall Anderson. Unfortunately the MSS lost in (presumably) Australia remain firmly unrecovered.

As regards Hugh Miller (1802-1856): after the dreadful uncertainty of threatened and now averted (as previously reported) closure a few years back, the Hugh Miller Birthplace Cottage and Museum, in Cromarty, has evidently settled down to a productive life. The Cottage and Museum in Cromarty (National Trust for Scotland) have for some time now had a permanent Manager, Dr Alix Powers-Jones, and a very active Friends group. The former Property Manager, Martin Gostwick, edits the group's Newsletter, which I recommend for its news of recent finds, research on Miller, and other doings: http://www.hughmiller.org/the_friends_g.asp (links at bottom of page).

Two new books have been masterminded by Henry McKenzie Johnston (both available through the Friends). The first book is a reprint of Miller's daughter Harriet Davidson's novel *Man of Genius*, a tale of alcoholism among ministers of the church in the 19th Century (available to order from the Friends, ISBN 978-1905787647). Harriet Miller Davidson was a significant early Australian female writer in her own right.

The second book is Lesley Beake's new novel *Jamie's Adventures in Time* (For the Right Reasons, £4.99, ISBN 978.1.905787.61.6), which is a biographical novel about Hugh Miller, aimed at young people and written with their perspective in mind. This is an innovatory project intended to promote understanding of Hugh Miller, and a most interesting approach. Every secondary school in the Highland Region has been sent a copy: what a good idea!

Both books are printed and published by an Inverness charity, For the Right Reasons, which helps drink and drug addicts to rehabilitate, and its share of the proceeds from both books goes towards programmes for their recovery. The Reverend Richard Burkitt, who runs the charity, notes that Davidson's novel is still a very topical book given its subject of alcohol addiction.

Pulications

Stevenson, S., Alston, D. and Taylor, M. A. 2012. Hugh Miller on fisherfolk. *Hugh's News. Newsletter of the Friends of Hugh Miller*, 15, 11-12.

Taylor, M. A. [Review, *The Lymiad; a poem in the form of letters from Lyme to a friend at Bath written during the autumn of 1818*, edited by J. Fowles and J. Constable]. *Proceedings of the Dorset Natural History and Archaeological Society* 133, 178-179.

Taylor, M. A. and Anderson, L. I. 2012a. The Millers' missing papers. The Adelaide connection - an appeal for information. *Hugh's News. Newsletter of the Friends of Hugh Miller* 15, 3 only.

Taylor, M. A. and Anderson, L. I. 2012b. Hugh Miller (1802-1856): ephemera and information sought. *Coprolite* 68, 10, and *Newsletter of the Society for the History of Natural History*, 104, 13.

Taylor, M. A. and Anderson, L. I. 2012c. (Hugh Miller (1802-1856): a lost catalogue of his fossil collection. *Coprolite* 68, 10-11, and *Newsletter of the Society for the History of Natural History*, 104, 13-14.

Taylor, M. A. and Anderson, L. I. 2012d. Hugh Miller (1802-1856): lost papers. *Coprolite* 68, 11-12, and *Newsletter of the Society for the History of Natural History*, 104, 14 only.

Taylor, M. A., Benton, M. J., Noè, L. F. and Fraser, N. C. 2011. Obituary. Arthur Cruickshank — 1932–2011. A native of Gondwanaland, who studied the former continent's fossil tetrapods. *Palaeontologia africana* 46, 93-98, http://repository.nms.ac.uk/874/

Taylor, M. A., Benton, M. J., Noè, L. F. and Fraser, N. C. 2012. Obituary. Arthur Cruickshank 1932 – 2011. A native Gondwanan, who studied the former continent's fossil tetrapods. *Palaeontology Newsletter* 79, 64-70, http://www.palass.org/modules.php?name=palaeo&sec=newsletter

Hugh Torrens – is now President of the Society for the History of Natural History for 2012-2015 and much hopes to have more earth sciences history members involvement there.

Publications

Torrens, H. S. 1995. Mary Anning (1799–1847) of Lyme; 'the greatest fossilist the world ever knew'. *The British Journal for the History of Science*, 28, pp 257-284. Published online: 05 January 2009. http://journals.cambridge.org/abstract_S0007087400033161

Torrens, H. S. 2012. Politics and Paleontology: Richard Owen and the Invention of Dinosaurs, Chapter 2, pp. 24-43 in *The Complete Dinosaur*, (editors M.K. Brett-Surman, T. R. Holtz, Jr. and J.O. Farlow), second Edition, Indiana University Press, Bloomington.

Torrens, H. S. and Ford, T. D. 2012. An early-19th century geological map of the Peak District by John Farey. *Mercian Geologist* **18** (1), 69-73.

Mike Taylor, Edinburgh (United Kingdom)

USA

Vic Baker (University of Arizona) – continued as Book Review Editor and member of the Editorial Advisory Board for the journal *Earth Sciences History*. He is currently Co- Chair, Program Committee, and Member of the Organizing Committee for the INHIGEO 2014 Symposium 39 on "Doing the History of the Earth Sciences: What, Why and How?" to be held at Pacific Grove California in July 2014. Vic is also organizing a session on "History and Epistemology of Geomorphology" for The Eight International Association of Geomorphologists (IAG) Conference on Geomorphology, Paris, France, August 27-31, 2013.

His edited book *Paleohydrology: Benchmark Papers in Hydrology* (with commentary on the history of that field) will be published in 2013 by the International Association of Hydrologists Press, Wallingford, U.K. As of this writing Vic's edited book *Rethinking the Fabric of Geology* is essentially complete and being processed by The Geological Society of America for publication in late 2013. This book will be one of a series that will commemorate the 125 anniversary of The Geological Society of America. The book pursues both philosophical and historical themes in a similar vein to those introduced by the original 1963 Fabric of Geology book that was edited by Claude C. Albritton, Jr. and published to commemorate the 75th anniversary of The Geological Society of America.

Kennard B. Bork – thanks Barry Cooper for the invitation to be the featured "Interviewee" for *INHIGEO Newsletter* No. 44 (2012), and Ken Taylor for valuable service as interviewer. The experience was enjoyable on all counts. *Newsletter* No. 44 also carried KBB's review of the Ashgate Variorum book on *Rhoda Rappaport: Studies on Eighteenth-Century Geology*, edited by Ken Taylor and Martin Rudwick. The review of the Rappaport collection of papers also appeared in *Earth Sciences History* (2012, vol. 32, no. 1).

While attending the 34th International Geological Congress (Australia), Ken profited greatly from participation in the INHIGEO Field Excursion from Sydney to Brisbane, superbly led by David Branagan. In Brisbane, Ken gave a talk on Alexandre Brongniart (1770-1847), focusing on Brongniart's ability to move from rigorous observations to large-scale conclusions. A greatly expanded version of that talk became a paper submitted in October and scheduled to appear in *Earth Sciences History* in 2013. Involvement with the

INHIGEO Executive Board and the American working group preparing for the INHIGEO-2014 meeting in California also occupied Bork's time in 2012.

Bob Dott – enjoyed reading and hearing of interesting history of geology even if vicariously. A friend recently gave him a fascinating book, Alec Trendall's *Putting South Georgia on the Map* (2011), about the surveying of the island in the 1950s. South Georgia is where Ian Dalziel, Professor at UT, Austin, and Bob had one of their most interesting research projects in 1973. It is a fantastic place – an important key for the plate tectonics of the Scotia Sea between South America and Antarctica, an outstanding natural history of whales, seals and marine birds, and a rich history of whaling.

Bob and Ian are reviewing young Charles Darwin's pioneering geological research in southern South America when he was on the *Beagle*. They are trying to compare Darwin's researches and modern interpretations of "his" localities in Chile and Argentina to assess Darwin's broader insights in a historical context.

Greg Good – finished his term as president of the History of the Earth Sciences Society and has begun a term as HESS treasurer. He asks all INHIGEO members to visit www.historyearthscience.org and join HESS to support the journal *Earth Sciences History*. Both print and online editions are available. He is part of the team organizing the 2014 INHIGEO meeting in California.

When not working for HESS, Greg is researching and writing about Earth as a heavenly body. He spoke on "Space Weather" at a conference in Manchester UK in 2012, sponsored by Project TEUS (The Earth Under Surveillance) and also at the Three Societies Meeting (History of Science Society, Canadian Society for the History and Philosophy of Science, and British Society for the History of Science). He is writing a book on the history of impacts of solar events on the Earth and, when that is done, will start on a book on John Herschel's unique perspective on the Earth.

Sally Newcomb – co-chaired a very well received session (with Bill Brice) titled Historical Perspectives: 250 Years of Geology in the Northeast at the Northeast GSA Section meeting in Hartford, Connecticut, March 18-20th, 2012.

In July Sally and Bob flew to Australia to take part in the superb field trip between Sydney and Brisbane led by David Branagan for INHIGEO, between July 30 and August 4th. At IGC Sally gave a paper titled "The Amazing Mr. Kirwan (1733-1812)", in the session Biographical Studies of Eminent Geologists organized by David Oldroyd. The "long form" of that biography of Richard Kirwan was published in Vol. 31, No.2 of *Earth Sciences History*, pp. 287–214.

Sally attended the 2012 GSA meeting in Charlotte, North Carolina Nov. 4-7th, to help make plans for the 2013 GSA meeting. At the Geocorps reception she was surprised and delighted to be presented a beautiful art work done by an artist in residence at Denali National Park in recognition of her and her husband's support of Geocorps interns at Denali each year.

For the 125th anniversary meeting of the Geological Society of America in Denver, October 27-30th, 2013, Sally and Bill Brice have had a session approved, titled "The Parade of Geological Society of America Presidents". These biographies can reveal a snapshot of the geology of their time, or can be used to show changes over time, or the effect of new technologies on the science. We welcome contributors to the session.

Along with a good many folks from the USA, Ken Taylor has enlisted Sally to help with the 2014 meeting at the Asilomar Conference Grounds, California, from July 6-10th, with associated field trips. She will assist with the Program Committee. Ken is doing an excellent job of planning, and the meeting should be most interesting.

Steve Rowland – published the first English translation of Mikhail Lomonosov's 1763 treatise *On the Strata of the Earth* (Geol. Soc. Amer. Spec. Paper 485), co-translated with his former graduate student, Slava Korolev, and with an introduction by Russian INHIGEO colleague, Irena Malakhova.

He attended the INHIGEO meeting in Brisbane, contributing a paper titled "The life and geological contributions of eighteen-century Russian polymath Mikhail Lomonosov," which will be published in 2013 in *Earth Sciences History*. At the Geological Society of America's annual meeting he presented a paper titled "First English translation of Mikhail Lomonosov's 1763 treatise *On the Strata of the Earth*."

Kenneth Taylor – greatly enjoyed his first-ever trip to Australia, participating in the pre-Congress field trip from Sydney to Brisbane, and attending the meeting. His paper for the biography symposium ('A Peculiarly Personal Encyclopedia: What Desmarest's *Géographie-Physique* tells us about his life and work') will be

among those published in the first 2013 number of *Earth Sciences History*. During the meeting he took time for a sunny half-day whale-watching cruise off the Gold Coast.

Ken also finds 2012 memorable for the dawning recognition that, with his election to the INHIGEO presidency, some flaws existed in certain representations that had been made about how easy the job would be. He has found coordination of planning for INHIGEO's 2014 meeting in California to be a major preoccupation.

Davis A. Young – published the last article in his five-part series, "Origin of the American Quantitative Igneous Rock Classification: Part 5," *Earth Sciences History* 31, 2012, pp. 1-49.

Greg Good, College Park (USA)

Uzbekistan

The main historical event of 2012 was the celebration of the 100th anniversary of the birth of Khabib Abdullayev, a world-renowned geologist and corresponding member of the Academy of Sciences of the USSR. His name has been given to the oldest Institute of Geology and Geophysics, the Academy of Sciences of Uzbekistan. A major collective work written by employees of the Institute "Metallogeny of gold and copper in Uzbekistan" (T: "NIIMR", 2012, 302 p.), has been dedicated to him.

L.N.Lordkipanidze – attended the anniversary meeting of the Institute of Oriental Studies of the Faculty of History (June 22), and the Republican Conference, conducted by the Institute of Geology and Geophysics, with the theme: "Modern problems in linking geodynamics, magmatism and mineralization", where she acted as Rapporteur of scientific heritage for the Kh. M. Abdullaev and the Chatkal-Kurama region (in collaboration). Seveventy-four presentations were made by authors from 20 institutions in Uzbekistan (IGiG, State Committee for Geology and Mineral Resources, Scientific-Research Institute of Mineral Resources, Institute of Hydrogeology and Engineering Geology, Institute of Geology and Exploration of oil and gas fields, National University of Uzbekistan, Tashkent State Technical University, Uzbekgeofizika, Almalyk and Navoi Mining and Metallurgical Complexes, Tashkent Branch of Gubkin State Oil and Gas University); in Russia (Moscow, IGEM, IPE, Gubkin State Oil and Gas University, Novosibirsk, CO RAS, Vladivostok, Blagoveshchensk, Far East Branch, University of Rostov-on-Don); Kazakhstan (Almaty); Tajikistan (Dushanbe) and Kyrgyzstan (Bishkek), etc.

Many of the papers noted the contributions of Kh. M .Abdullaev, including those on "Magmatism and mineralization in Central Asia", on "The genetic relationship of mineralization with granitoid intrusions", and on scheelite-bearing skarns, assimilation and dykes (Ahundzhanov *et al.*; Mamarozikov; Musayev *et al.*; Urunbaev; Djamalov; Lordkipanidze; Abdullaev; Usmanov; Turesebekov; Ishbaev and Tsoy *et al*.). They noted the major role played by Abdullaev in geological research (Yu.G.Safonov, IGEM) and in petroleum geology (F.G.Dolgopolov, IGIRNIGM).

Another important event was the Republican Scientific Conference dedicated to the memory of T.N.Dalimov (1936-2011), which was organised by the National University of Uzbekistan in October. One speaker presented a detailed account of the life and work of Dalimov, who was a prominent scientist in the field of petrology and geodynamics, an academician of the Republic of Uzbekistan, rector of NUU and author of over 200 scientific publications, including 15 monographs and three textbooks. He also published a Russian-Uzbek geological dictionary and was the editor of many maps and journals. He won the Uzbekistan State Prize, awarded in the form of medals and diplomas, by government geological institutions in Uzbekistan and the Uzbek Academy of Sciences."The main problems of magmatic geology of the Western Tien-Shan" (Abstracts "The main problems of magmatic geology of Western Tien Shan." - T.: "NIIMR", 2012 , 130).

The proceedings of the conference in the form more than 40 scientific articles and abstracts, cover general and regional geology, petrology, tectonics, magmatism and geodynamics. Many articles reflect the contribution made by Dalimov and the value of some his work (Ishbaev;Ahundjanov *et al.*; Rafikov; Ganiev; Tsoy *et al.*; Yusupov *et al.*; Mamarozikov and Musayev *et al.*). Special mention should be made of an article by academician Kh.A.Akbarov, "The Role of Scientists of the National University of Uzbekistan in the development of geological sciences", and another by K.Urunbaev, which gives a personal account of Dalimov, "He always remained proud".

In August the Scientific Research Institute of Mineral Resources held a conference on the topic, "Diversification of raw the materials industry of the Republic of Uzbekistan: the search criteria and

evaluation of non-traditional types of minerals." Abstracts have been published under the editorship of I.B.Turamuratov (T.: "NIIMR", 2012. 190 p.). Eighty-three presentations were made. Many of these provided important historical information, the roles played by leading scientists such as those by Kh. M. Abdullaev, V. I.Khain, N. P.Vasilkovsky, V. P.Fedorchuk, I. Kh. Khamrabaev, A. V. and V. A. Korolev and others. They noted the 10th anniversary of the "Bishkek Global Mountain Summit", dedicated to the "Year of Mountains", and referred to important meetings and their significance, such as the 2nd International Conference on the "Geodynamics of gas basins" (2005), the 14th International Conference on "Oil and Gas of Uzbekistan 2010", the International Conference on "Theoretical and practical aspects of the petroleum geology of Central Asia and ways of solving problems of the modern industry" (2010), the participation of Uzbekistan scientists in conferences in Russia and the 100th anniversary of A.G.Betehtin. Many of the papers presented dealt with the history of discovery and the study of platinum group metals, gold, uranium and copper (from 1960s), of tin (from 1944) and of manganese (from 1937). A historical summary of the study of cores from 1968 was presented in a paper by K h. U.Uzakov. A summary of historical data on the study of faults was presented in a paper by V. N. Ustyanov (Russia).

The Republican Applied Science Conference was held in November on the theme, "Present problems in oil and gas geology and geophysics, and possible solutions." The published proceedings include 72 articles. Although there was no special independent report on the history of petroleum geology, many authors cited historical information from both international sources and from Uzbekistan. An example of the inclusion of historical material is the paper by Kh. U. Uzakov and V. V. Mihaylov,"The importance of geological maps in the search for hydrocarbons". It paid tribute to the positive outlook of A. G. Babaev, in the 1960s, on the possibility of hydrocarbon accumulations in pre-Mesozoic strata. A milestone in this work is the geological map, edited by V. G. Garkovets, of the western part of the Uzbek SSR, on a scale 1: 1 000 000, with the Mesozoic and Cenozoic sediments removed. It was shown at the IGC in Delhi, in 1964. Also important was the influence of geological articles in "Geology of the USSR, Uzbek USSR" (vol. 23), edited by Kh. T. Tulyaganov, in 1972, and the Geological Map of Uzbekistan on a scale of 1: 500 000, edited by T. Sh. Shayakubov. The success story of this mapping effort is reflected in 16 publications.

A historical review on the petroleum-bearing capacities of Paleozoic rocks, listing research carried out since 1930, was presented A. Kh. Nugmanov. In an important historical paper A. D. Gonchar *et al.* referred to a part of the mountains of Karachatyr in Ferghana as a reference section for the Late Paleozoic of Central Asia, and to the enlightened work of the lithological school of V. I. Popov in regard to the management and methodology of facies-paleogeographic mapping. The development of new techniques, documented in a series of books, and a significant contribution to the development of mineral resources of Uzbekistan led to the award of the State Prize to Popov, in 1984. Techniques in petroleum geology, developed by Popov and his co-workers, became widely used in other countries (e.g. Russia, Ukraine, Tajikistan and Kyrgyzstan). B. B. Sitdikov reported on developments by IGIRNIGM, in 1998, "Program of research and exploration of oil and gas deposits in the Cretaceous deposits of Western Uzbekistan" and on the ways by which they were realized.

Widely used historical data from the 1960s and 1970s on the use of hydrodynamics in the search for hydrocarbon deposits was presented in a paper by T. I. Mumindjanov *et al.* Historical information on separate districts was the subject of a paper by R. A. Tursunmetov, while A. K. Nurhodzhaev spoke on chronological schemes in the South Tajik depression and its continuation, the Surkhandarya megasynclinale. The conference also heard papers on the history of Paleozoic oil exploration now published in an article by L.D.Shpora, A.D.Gonchar, S.T.Khusanov, 2012.

The year marked the anniversaries of several researchers from Uzbekistan. It was the 80th anniversary of the eminent mineralogist and geochemist E. A. Dunin-Barkovskaya (*Geology and Mineral Resources*, 1) and of the lithologist V. I. Troitsky. INHIGEO member, L. N. Lordkipanidze, a historian of geology, documented their work in the publication, Memoirs "Laura" (TP, 136 p.) and in a biobibliography of their manuscripts and published work (T., 30 p.) (*Geology and Mineral Resources*, 3). In the same issue of this journal she published an article, "The most important events and publications on the history of geology for 2010-2011", and a second, in volume 5 of this journal on the "History of Geology in Uzbekistan".

December marked the 80th anniversary of the birth of B. B. Sitdikov a renowned expert on neotectonics, one of the authors of the map "New tectonics of southern USSR" (1971) and of a neotectonics maps of the USSR (1979). He also developed criteria, based on plate tectonics, for use in petroleum exploration in Uzbekistan.

A leading expert in the field of biostratigraphy, A. I. Kim, celebrated his 80th birthday in September. He is the Chairman of the Scientific Council of the Kitab State Geological Reserve, corresponding member of the International Subcommission on Devonian Stratigraphy, chairman of the Commission on Stratigraphy

and Paleontology of the National Committee of Geologists of Uzbekistan, the Chairman of the section Silurian and Devonian GMT Uzbekistan and Deputy Chairman of the Society of Uzbekistan paleontologists. He was awarded the title of "Honorary Investigator of Uzbekistan".

The Institute of Geology and Geophysics, Academy of Sciences of Uzbekistan celebrated its 75th anniversary, as did A. M. Musaev, a member of the Institute.

The geophysics, Professor K. N. Abdullabekov, turned 70 in December. He is the author of over 350 scientific publications, including 18 books, one of which, "Electromagnetic phenomena in the Earth's crust", (1989), was published in China (1990), and in the Netherlands (1991). For many years he was the head of the Institute of Seismology of Uzbek Academy of Sciences (*Geology and Mineral Resources*, 6).

Professor T. U. Artikov, Head of the Laboratory of the Regional seismicity and seismic zoning of the Institute of Seismology celebrated his 70th birthday (October 17). He is an eminent scientist and a doctor of physical and mathematical sciences (Geology and Mineral Resources, № 1).Also marked was the birthday of Yu. I. Irgashev (70 years), the Chief Scientist of IGIRNIGM, a doctor of geological-mineralogical sciences and Scientific Secretary of the Joint Council on Specialized dissertation defences (Uzbek Oil and Gas Journal, № 4).

At the age of 86 years Kh. Kh. Mirkamalov passed away. He was a paleontologist stratigrapher, doctor of geological and mineralogical sciences, Honored Prospector, IGIRNIGM and participant in the Second World War (Geology and Mineral Resources, № 2).

On June 3, at the age of 86 years, K. A. Nabiev passed away. He was a hydrogeologist, doctor of geological-mineralogical sciences, and for more than 50 years worked on the geology of the Republic of Uzbekistan. He has developed a scientific basis for the mapping of Quaternary deposits, which made it possible to solve a number of hydrogeological and geological engineering problems with regard to water supply and land reclamation. During his work he produced more than 100 scientific publications, including four monographs. For more than 40 years K. A. Nabiev was a lecturer in universities in the Republic of Uzbekistan, which produced a large number of specialists, geologists (Geology and Mineral Resources, № 4).

The Academician, Professor A. V. Kirshin died on March 30, at the age of 74. He was an authority in the field of petroleum geology, the head of the laboratory of geophysics of IGIRNIGM and the author of about 300 papers.

On March 24, F.I.Islamov, died at the age of 64. He was a well-known scientist in the field of mineralization and metallogeny, doctor of the geological-mineralogical sciences, who developed criteria for the prediction and exploration of gold-silver deposits in eastern Uzbekistan. Islamov was member of the National Committee of Geologists of Uzbekistan, and for about 10 years was associated with the GGP "Tashkentgeologiya" (Geology and Mineral Resources, № 2).

Lora Lordkipanidze, Tashkent (Uzbekistan)

VENEZUELA

The year 2012 was marked by the commemoration of the 200th anniversary of the most destructive earthquake in Venezuela, in March 1812. In addition to the human toll and the destruction of towns and villages, it also had repercussions on the conduct of the War of Independence from Spain. In this context several events, exhibitions, and conferences took place, as well as the production of documentaries and the publication of numerous newspaper articles.

In March, the *VI Venezuelan Meeting on Historical Seismology* (VI Jornadas Venezolanas de Sismología Histórica) was held, at which a total of 38 papers on diverse topics were presentations. The following deal with topics related to the History of Geological Sciences (Abstracts in Spanish will be published in the bulletin *Geos*, UCV, 43, in press):

ALTEZ ORTEGA R. Comparative history of the Caracas earthquakes: Dynamics and intensity variability.

ARANGUREN R., L., RAMIREZ, J., CHOY, C. PALME and GUADA C. The earthquakes of 1674 and 1894, and the seismic hazards to the south of Lake of Maracaibo.

AUDEMARD F. A., LEAL GUZMÁN A. and C. PALME. Historical testimonies of local tsunamogenic earthquakes in Eastern Venezuela.

GRIMÁN C. The July 29, 1967 Caracas earthquake: technical comments and anecdotes.

LEAL GUZMÁN A., ESCALONA VILLALONGA C. AND MARTÍNEZ SILVA S. What the earthquake took away and what the papers left: Documentary contributions to the Lobatera earthquake of February 26, 1849.

LEAL GUZMÁN A., RODRÍGUEZ J. A. and AUDEMARD F. A. Earthquake-proof. Reflections on seismic resistant constructions in 1900. Case of the earthquake San Narciso.

MARIÑO PARDO N. The October 21, 1766 and the September 20, 1968 earthquakes: Implications for Guayana.

MORALES COLLAZOS M. Á. Synopsis of the Cúa earthquake, April 12, 1878.

NORIA A. Earthquakes and thinkers in Venezuela during the XIX century.

PALME C., ARANGUREN, R., LEAL, A., CHOY, J. and GUADA C. Comments on the La Grita earthquake of 1610. Research status.

PALME C. and LEAL GUZMÁN A. Erdbeben in Caracas. The 1900 earthquake in the notes of Hermann Ahrensburg.

PALME C., CHOY, J., GUADA, C. and KLARICA S. The 1812 earthquake: History of seismic interpretation and analysis of macroseismic effects through statistical methods.

PARRA GRAZZINA I., ALTEZ, R. and URDANETA A. Ruins of Gibraltar and the disappearance of San Pedro: disastrous situations in the Maracaibo Lake.

PERALDO HUERTAS G. Historical Seismology, the edge of geophysics and history.

RODRÍGUEZ L. M., SINGER A., RODRÍGUEZ J., AUDEMARD F. and LEAL A. The border earthquake of Cucuta, May 18, 1875. Responsible tectonic accident?, Geological evidence of possible accident-source.

ROJAS HOPPE C. Valdivia 1960: The great earthquake.

ROMERO G. R., VÁSQUEZ, M., PALMA, L., ALVARADO, H., RENDÓN, C., GRANADO, A., LEAL GUZMÁN, J. and RODRÍGUEZ A. History of seismic instrumentation in Venezuela and the evolution of the seismic catalog.

SILVA MARTÍNEZ S., F. A. AUDEMARD M. and LEAL GUZMÁN A. The conflict between historical data and documentary records in the case of the earthquake of 1736. Methodological considerations for study.

On March 22 at the Venezuela Central University (UCV), the Commission for Hazard Mitigation (COMIR) organized the *Forum 1812-2012: Two hundred years of seismic vulnerability*, with three presentations in the field of the history of the geosciences:

ALTEZ R., URBANI F., NORIA A. ANDSCHMITZ M. The 1812 effect in the press, and science of the XIX century.

NORIA A. The thought processes of earthquakes and disasters in Venezuelan society during the nineteenth century.

LAFAILLE J. The 1812 Mérida earthquake: between guns and prays.

In November, two Venezuelans participated in the 1st International Congress on American Topics (I Congreso Internacional sobre Temas Americanistas) at the University of Seville, in Spain, and presented the following talks:

Altez R. “Disasters leading to urban transformations: comparative approaches between Venezuelan Central Coastal landslides of 1951 and the flood of Valencia, Spain, in 1959”.

Noria A. “Impact of Agricultural disasters on the supply and the economy of Venezuela: 1881-1912”.

In October Noria also presented a talk, “Among the ruins and rubble of earthquake: social responses of March 8, 1800 in New Spain and the earthquake of March 26, 1812 in Venezuela” at the Department of History of America, University of Seville, Spain.

INHIGEO member Rogelio Altez received the “Francisco González Guinán History National Price" awarded by the *National Academy of History* (Academia Nacional de la Historia) for his research on “Disasters in the History of Venezuela”.

R. Altez, F. Urbani, also an INHIGEO member, A. Noria and M. Schmitz have submitted to a publisher a book titled, *The 1812 effect in the press and science of XIX century*, which is now under a peer-review.

Publications in journals

A. Noria, Thinking about earthquakes in the XIX Century Venezuelan society, *Boletín de la Academia Nacional de la Historia*, 376: pp. 151-172.

R. Altez, "1812: Earthquake perpetual memory. Anniversaries, memorials and public agreements around the March 26 earthquake in Venezuela", *Boletín de la Academia Nacional de la Historia*, 378: pp. 77-108.

R. Altez, "Between war and earthquakes: Impacts and effects of the earthquake on March 26, 1812 in Barquisimeto", *Boletín del Archivo Arquidiocesano de Mérida*, 37.

INHIGEO member, Academician Aníbal Martinez, has been very active as editor of the *Bulletin of the National Academy of Engineering and Habitat* (Boletín de la Academia Nacional de la Ingeniería y el Hábitat) and the weekly electronic newsletter *NotIng* (http://www.acading.org.ve/info/comunicacion/noting.php), of the same Academy, which besides a wide range of topics also contains news of the Geological Sciences.

INHIGEO member, José Antonio RODRÍGUEZ, with co-workers A. LEAL GUZMÁN and A. SINGER, published the chapter, "Venezuelan seismological catalogues: State of the art", in *Foundation for the Study of Argentine and Iberoamerican Thought*. Geonaturalia, Buenos Aires, Argentina.

New books

ALTEZ R. AND DE LISIO A. (eds.). *Venezuelan perspectives on risk. Reflections and experiences.* Volume 2. (Perspectivas venezolanas sobre riesgo. Reflexiones y experiencias. Volumen 2). Ed. Sociedad Venezolana de Historia de las Geociencias, Centro de Estudios Integrales del Ambiente, Universidad Central de Venezuela. Caracas, 322 p.

Altez R. and Rodríguez J. A. *XX century Venezuelan seismological catalog. Documented and illustrated*. (Catálogo sismológico venezolano del siglo XX. Documentado e ilustrado). Ed. Funvisis, Caracas, 2 volumes, 823 p.

Franco Urbani, Caracas (Venezuela)

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