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(published May 2010 covering events generally in 2009)

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April 2010

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President's Message
(April 2010)

Dear Members, old and new,

In the present Newsletter, carefully prepared by our Secretary General Barry Cooper, you will read about the activities conducted by INHIGEO during 2009, in general or through its members spread out in 45 countries.

As you are aware, by the end of 2008 our Commission was invited by IUGS to produce a historical volume to celebrate its 50th anniversary. The project is now on the road, under the competent coordination of Sue Turner, and the collaboration of many of you. Details can be found in the following pages, but I dare to assure that it is already a fruitful project, which will establish a new level in the relations between INHIGEO and IUGS.

On the side of the IUPHS, INHIGEO successfully organized two specific symposia within the 23rd International Congress of History of Science and Technology, held in Budapest (July 28–August 2), respectively: “Seeing and measuring: instruments in the history of geology”, organized by Marianne Kleimund and Ana Carneiro; and “Spacing Earth History’: Geological and Paleontological Sciences in Cultural Contexts from 17th to 20th Centuries”, organized by Bernard Fritscher and Miklos Kazmer. The first one had 12 papers, which shall integrate a special issue of *Centaurus*, a prestigious journal dedicated to the history of sciences, in an effort to intensify the dialogue between historians of geological sciences and of other scientific disciplines. The second symposium counted 11 fine submissions. Also, as the number of INHIGEO members present at the ICHST was significant—from Canada to Japan, from Brazil to Australia, and of course, from Hungary—an informal business meeting took place, to exchange information, and plan for the future. For instance, it was possible to hear about the plans for the INHIGEO Symposium in Japan (2011), already in a quite advanced stage, kindly present by Michiko Yajima. A highlight was the due homage received by our former President Hugh S. Torrens (UK) from the Hungarian Geological Service, honoring his outstanding contributions to the history of geological sciences. Well done, Hugh!! Last, as life is not just work, Greg Good and Silvia Figueirôa tried to put together colleagues from different Commissions during a typical dinner at the Gellert Hotel, an attempt they named “Earth, wind, water and fire”. It was a lot of fun!!

The 34th INHIGEO Symposium in Calgary, Canada, took place in August organized by our colleague George Pemberton, and congregated different members as those present in Budapest. INHIGEO has consistently grown since its foundation in 1967, so it is not a problem to split its members at meetings across the world!! Specific details on the Calgary symposium are inside.

And next July it's time for INHIGEO to convene its meeting in Spain, after a long absence. I hope to see many of you in Madrid and Almadén!

Silvia Figueirôa

Secretary-General's Report
(April 2010)

The past year has been another successful one for INHIGEO and also an enjoyable one for me personally as Secretary General. It has featured a delightful conference in Calgary, Canada as well as an additional gathering of members during the International Congress of the History of Science and Technology in Budapest, Hungary. Moreover INHIGEO has agreed to prepare a history of IUGS as part of its 50th anniversary commemoration in 2011. This has led to a major effort being initiated by our Australian member Sue Turner.

In August 2008, INHIGEO members gathered in Calgary, Canada at what was our first-ever meeting in Canada. It was disappointing that more members did not make the journey into the Canadian west with its history of petroleum discoveries and dinosaur finds not to mention the magnificent glacial scenery. In addition Canadian hospitality was very warm and the presentations of high standard. As an Australian venturing in to Canada after more than 30 years, I felt very much at home, yet found numerous new fields to explore. Convenor George Pemberton did well to bring together an interesting suite of presentations whilst Darren Tanke and David Spalding led a most enjoyable field trip. Please read Mike Johnson's account of the meeting and field trip later in this newsletter as Mike (as usual) has a wonderful way to convey the atmosphere of this occasion. During the conference, INHIGEO also held its Annual Business Meeting, the minutes of which are also provided in this newsletter as well as a workshop to examine the IUGS history proposal.

For our 2010 conference our Spanish colleagues are organising an excellent meeting, 5–11 July, in Madrid, Almadén and the Iberian Pyritic Belt with pre and post meeting field trips to Eastern Andalusia and Iberian Range respectively. At the time of writing there are 102 registered participants from 27 countries. The general theme of the meeting is the history involved in the study of mineral deposits, a subject that is not only

pertinent to Spain but also worldwide given its importance in economic history. Publication of proceedings will be facilitated by the Geological Survey of Spain.

From 2–10 August 2011, INHIGEO will convene at Aichi University in Toyohashi City, Aichi Prefecture, central Honshu (near Nagoya) in central Japan. The theme of symposium will be “Visual images and geological concepts including the history of geological images, volcanology, seismology and tectonics.” Our Japanese colleagues will very much welcome all INHIGEO members to our first-ever meeting in Japan. Preliminary details are provided later in this newsletter whilst the first circular will be issued to all members in the next few months.

From 2–10 August 2012, INHIGEO will gather with the 34th International Geological Congress in Brisbane, Australia. As an INHIGEO Secretary General on the ground in Australia I have recently initiated discussions amongst Australian INHIGEO members for the purpose of developing symposia topics. The current list that has been forwarded to 34IGC organisers is

- Biographical studies of eminent geologists: a symposium in honour of D.F. Branagan
- Major achievements in 20th century geology
- Geology in tropical regions: a history
- Geologists, resource exploration and development: an historical perspective
- General contributions in the history of geology

Australia’s indefatigable INHIGEO Past President and Honorary Senior member, David Branagan has proposed a pre-conference field trip that traverses from Sydney to Brisbane. Mid-conference and post-conference field trips have also been suggested in Queensland. The 34th IGC already has a website at <http://www.34igc.org> so if INHIGEO members are planning to attend, or thinking about attending, or planning to give a paper, or wish to suggest a session etc, at the Congress you are already invited to register your interest at this website.

The INHIGEO Board has also been considering our 2013 conference. As this year also corresponds to the International Congress of History of Science and Technology (ICHST), it will be proposed that the 2013 INHIGEO conference be held in conjunction with this meeting in Manchester, England. Preliminary discussion with the British INHIGEO delegation has taken place and the response has been favourable.

INHIGEO will also need to schedule conferences for the years, 2014 and 2015 in the near future. Please contact me if you have any proposals that the Board can consider. I presume that the 2016 meeting will be held in Capetown, South Africa, following the decision to hold the 35th IGC in that city.

INHIGEO also provides discussions on “Classic Papers in Geology” for the IUGS Journal *Episodes*. Members are asked to reflect upon possible further contributions to this ongoing series, and are invited to contact, with suggestions and offers, our colleague David Oldroyd who co-ordinates these articles.

My thanks especially to members of the INHIGEO Board who have been quick to respond to my calls for advice and information and especially to our President Silvia Figueirôa. During the year, the Board has also added Ex Officio to our ranks our immediate past Secretary General Ken Bork, who continues to be a major source of advice.

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 the History and Philosophy of Science, Division of History of Science and Technology (IUHST/DHST). Production of our newsletter, maintenance of our website and support of our annual conferences could not proceed without that much-appreciated help. In addition to my compilation efforts, David Oldroyd also arranges printing and distribution of this newsletter. Thank you, David.

The Geological Survey of South Australia (until my retirement on 30 September 2009) and the University of South Australia have also provided me with facilities without which I could not undertake my role as INHIGEO Secretary-General. The University of New South Wales, David Oldroyd’s host institution, also continues to assist greatly through mailing this newsletter.

As a final note, please keep me advised of any address changes especially email as the latter is undoubtedly the most rapid means of communication. Also let me know at any time whether you simply wish to receive this newsletter as a pdf file. Members should be aware that additional copies of this newsletter can be readily produced from our website www.inhigeo.org.

My very best wishes to all INHIGEO members.

Barry J. Cooper, Adelaide, South Australia

INHIGEO ANNUAL MEETING FOR 2010
History of Research in Mineral Resources
Madrid–Almadén–Iberian Pyritic Belt, Spain
1–14 July 2010
(Scientific Sessions 5–10 July 2010)

Historians of geology from Spain are pleased to invite all interested researchers to attend and take an active part in the INHIGEO Conference in Madrid–Almadén–Iberian Pyritic Belt.

Symposia topics

- History of research and exploitation of metallic ores.
- History of energy resources (coal, petroleum, uranium...).
- History of research and exploitation of non-metallic and industrial minerals.
- History of research into ground water as a mineral resource (mineral waters, groundwater, etc.).
- History of mineral exploration techniques.
- Related topics

Scientific Sessions

a) *Madrid-base activities*

Monday 5 July 2010: Reception at the Madrid School of Mines. Welcome and opening Ceremony. Keynote address: Dr. Antonio Arribas Rosado (Newmont, Denver, USA): “Volcanoes vs. Gold Deposits. A Century Lost in Translation”. Oral communications (morning). Lunch. Oral communications (evening). Visit to the Geominero Museum (Geological Survey of Spain) and Mining History Museum D. Felipe de Borbón y Grecia (Madrid School of Mines) Poster session and cocktails.

Tuesday 6 July 2010. Keynote Address: Prof. Manuel Carlos Serrano Pinto (Aveiro University): “Geology and Mineral Resources in Portugal, a Recent Marriage”. Oral communications (morning). Lunch. Oral communications (evening). Visit to historic Madrid.

b) *Almadén-base activities*

Wednesday 7 July 2010. Travel to Almadén by coach. Visit to the volcanic region of Campo de Calatrava (Ciudad Real). Lunch. Oral communications (evening) Visit to the historical mining museum “Francisco Pablo Holgado” of Almadén and jail of “Forzados” plus cocktails.

Thursday 8 July 2010. Keynote Address: Dr. Pablo Higuera Higuera (Castilla La Mancha University): “Industrial minerals and rocks: The Spanish perspective”. Oral communications (morning). Lunch. INHIGEO General Assembly. Visit to the Almadén Mining Park.

c) *Iberian Pyritic Belt-base activities*

Friday 9 July 2010. Travel by coach to the Iberian Pyritic Belt (Sevilla-Huelva). Visit to the Mosque of Córdoba, UNESCO World Heritage. Visit to the Mining Park of Riotinto (Huelva). Lodging in Aracena (Huelva). Conference dinner in Aracena.

Saturday 10 July 2010. Visit to Las Cruces mine (poly metallic sulfides). Conference conclusion in Seville. Keynote Address: Prof. José Luis Rebollo (Colorado School of Mines, USA): and Prof. Juan Carlos Baquero (Las Cruces Mine). Lunch. Return to Madrid by AVE (high speed train).

Field trips:

Pre-Meeting Trip (1–3 July 2010) Eastern Andalusia. Visit to the Linares Pb–Cu mining District in Jaén and the Miocene volcanic region of Cabo de Gata in Almería, including the Rodalquilar Au–alunite deposits. Visit to La Alhambra (Granada), UNESCO World Heritage Site.

Post-Meeting Trip (12–14 July 2010) Iberian Range.

Visit the iron ore resources of Somaén and aragonites deposits of Velilla de Medinaceli (Soria), and Medinaceli village. Visit to the ichnites of La Rioja, the pyrite mine of Navajún (La Rioja), the fossil trees of Hacinas (Burgos), the Silos monastery (Burgos) and Burgo de Osma village (Soria).

Registration and Fees

Registration has to be made online at the conference web page, shown below. Registration will be confirmed as soon as payment has been received.

The Registration Fee for the meeting (Scientific Sessions: 5–10 July 2010) is 350.00 euros per person. It includes a proceedings book, travel by coach Madrid–Almadén–Iberian Pyritic Belt, and train travel Sevilla–Madrid, lodging in Aracena (Huelva), lunches, coffee breaks, and visits (Madrid, Almadén Mining Park, Mosque of Cordoba, Riotinto Mining Park). The Registration Fee for students is 200.00 euros. There will be a special program of accompanying persons at a fee: 250.00 euro per person.

The fee for each field-trip is 290.00 € per person and includes travel by coach, accommodation (2 nights), breakfast, lunch, and entry fees to visits.

Further Details

The Secretary of the Organising Committee is José Eugenio Ortiz Menéndez, Madrid School of Mines. Universidad Politécnica de Madrid, C/ Ríos Rosas, 21, 28003 MADRID, SPAIN, Telephone: 34-91-3366970. Fax: 34-91-3366977, Email joseeugenio.ortiz@upm.es

Additional information as well as registration are also available at the Conference web page: www.sedpgym.org/inhigeo2010.htm

INHIGEO BUSINESS NOTICES

**Minutes of the INHIGEO Business Meeting 2009
Lecture Hall, Education Building
University of Calgary, Calgary, Canada
Thursday 13 August 2009**

Members Present: Carol Bacon (Australia), Keynyn Brysse (Canada), Barry Cooper (Australia), Mike Johnston (New Zealand), Irena Malakova (Russia), Gerard Middleton (Canada), Sally Newcomb (USA), George Pemberton (Canada), Stephen Rowland (USA), David Spalding (Canada), Yasumoto Suzuki (Japan), Darren Tanke (Canada), Philippe Taquet (France), Susan Turner (Australia).

Presiding: Past President Philippe Taquet (France) and Secretary General Barry Cooper (Australia)

1. Welcome and Opening Past President Philippe Taquet opened the meeting at 4.05 pm and welcomed members to Calgary.
2. Regrets and Apologies from those unable to attend

President Silvia Figueirôa (Brazil), Kennard Bork (USA), David Branagan (Australia), Gregory Good (USA), Rodney Grapes (New Zealand), Martina Kölbl-Ebert (Germany), Ernst Hamm (Canada), Alan Mason (New Zealand), Randell Miller (Canada), Simon Nathan (New Zealand), David Oldroyd (Australia), Daniel Rubiolo (Argentina), Cecil Schnee (USA), Gerardo Soto (Costa Rica), Kenneth Taylor (USA), Ezio Vaccari (Italy), Gian Battista Vai (Italy), Bruce Waterhouse (New Zealand), Jiuchen Zhang (China).

3. Arrangement of the Agenda There was no change to the agenda that had been circulated.
4. Minutes of the previous meeting held in Oslo, Norway (August 2008). These were accepted unanimously without amendment. Moved Pemberton, Seconded Rowland
5. President's Report Past President Philippe Taquet (France) emphasised how delightful it was for INHIGEO to meet in the wonderful nation of Canada and how INHIGEO is held in high regard by the IUGS as one of its commissions.
6. Secretary General's Report. Secretary General Barry Cooper commented that the past 12 months had been a large learning experience for him. Significant activities had been:

a) Website

A new INHIGEO website has been created at www.inhigeo.org. General information and news about the Commission has been placed there as well as Newsletter #41. Provision has been made to place future newsletters at the site.

b) Newsletter

Newsletter #41 was issued with printing and mailing organised in Sydney by David Oldroyd. A new cover (with shadow logo) was designed by the Geological Survey of South Australia. The newsletter was made available in pdf format, although most members prefer to receive the newsletter in hard format.

c) IUHPS meeting in Budapest

In addition to the annual INHIGEO meeting in Calgary, INHIGEO members also organised two sessions at the IUHPS conference in Budapest in July 2009.

d) Publications

Vilnius Conference (2006). The proceedings have been edited by Rodney Grapes (New Zealand/Korea), David Oldroyd (Australia) and Algimantas Grigelis (Lithuania) and were published by Geological Society of London through its agreement with IUGS.

Eichstätt Conference (2007). The proceedings have been edited by Martina Kölbl-Ebert (Germany) and also published by GSL.

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 (Australia). The publication of "Episodes" has recently shifted to India.

Notices

a) Membership

INHIGEO currently has 216 members from 64 countries

The following deaths has been notified over the past 12 months:

Wolf von Engelhardt (1910–2008)

Goulven Laurent (1925–2008)

Kenzo Yagi (1914–2008)

Rudolf Truempy (1921–2009)

Obituaries have been published in or are planned for the newsletter

An election for new membership is scheduled for 2010.

New nominations for Argentina (3), Armenia (3), Portugal (1) have already been received as well as suggestions for nominations from Australia, Canada, Fiji, Finland, Morocco, Norway and Papua New Guinea.

b) Coming Meetings INHIGEO meetings are now scheduled in advance until 2012 with conferences planned for: Madrid–Almadén, Spain (2010); Toyohashi, Japan (2011); Brisbane, Australia (2012).

c) Book Reviews

The following books, in addition to INHIGEO publications, have already been received for review in the coming newsletter

The World in a Crucible

Shi Yafeng: An Oral Biography

Historia de la Mineralogia

Two volumes on the history of geology in Costa Rica

The Secretary General welcomed additional book reviews especially of those written by INHIGEO members. He apologised for inadvertently leaving out a review of Martin Rudwick's recent book in Newsletter #41. It will be published in Newsletter #42.

d) Budget

Satisfactory support continues to given by the IUGS and IUHPS. Matters arising from the Secretary General's report. There was none, except for matters raised in the following items.

7. Forthcoming Conferences

a) Madrid–Almadén Spain (1–14 July 2010) A draft of the programme has been received by the Secretary General from Octavio Puche Riart, the INHIGEO member organising the meeting. Details were announced and

circulated to the meeting. Pre and post conference field trips are planned for 1–3 and 12–14 July with conference from 5–10 July 2010. The registration fee for the scientific sessions: 5–10 July will be 350.00 Euros, including abstracts volume, travel Madrid–Almadén–Iberian Pyritic Belt, and Sevilla–Madrid, lodging, lunch meals, coffee breaks, and visits (Madrid, Almadén Mining Park, Mosque of Cordoba, Riotinto Mining Park).

b) Toyohashi, Japan (2–10 August 2011) Yasumoto Suzuki (Japan) described in detail the plans for the 2011 conference from 2–5 August 2011 which will have as its themes the history of seismology and tectonics. A post conference field trip is planned for 6–10 August 2011

c) Brisbane (2012) General concern was voiced that no details regarding the organisation of 34th International Geological Congress have been released nor a request to organise an INHIGEO session. The Secretary General will contact the organisers.

d) Later meetings. The Secretary General advised that serious consideration must now be given to conferences after 2012. There has already been a tentative suggestion for a meeting in the Netherlands also in 2012 by Tom Reijers. The 2016 meeting is already fixed for Capetown, South Africa with the 35th International Geological Congress. The 2017 meeting has been subject to preliminary discussions and high level support from the Government of Armenia as an INHIGEO 50th anniversary conference in Yerevan, Armenia. The next IUHPS conference in 2013 has been scheduled for Manchester, England so it can be expected that history of geology will also feature here.

8. New Business / Business without Noticea)

a) IUGS History project. With INHIGEO Board support, Susan Turner (Australia) has been commissioned to prepare a history of IUGS for its 50th anniversary in 2011. She organised a workshop immediately prior to the business meeting at which volume contents, archival sources and the participation of INHIGEO members was discussed. Susan plans to examine IUGS archives in early 2010. The meeting strongly endorsed Susan's efforts.

b) Proposed Calgary conference publication. George Pemberton (Canada) congratulated contributors for their excellent papers at the meeting and suggested that the material could be collected into a conference publication. The meeting endorsed this proposal and it was agreed that he explore the possibility of publication via the Geological Society of London as with previous INHIGEO publications. George will contact David Oldroyd for advice and contact details with GSL.

c) INHIGEO Virtual library Francesco Gerali, a student of Ezio Vaccari (Italy), gave an excellent presentation to the meeting on progress in developing a website (= virtual library) that can lodge past historical works by INHIGEO members with ready availability to the INHIGEO membership.

Concerns were raised over copyright restrictions of members' published contributions.

d) Thanks to Secretary General. Mike Johnston proposed a vote of thanks for the diligent work of the Secretary General over the past 12 months which was supported.

9. Vote of thanks for our hosts in Canada, 2009

Past President Philippe Taquet proposed a vote of thanks for the organiser of the Calgary meeting, George Pemberton, the Canadian INHIGEO delegation, keynote speakers and the University of Calgary. He also recognised that considerable efforts had also been invested in the coming field trip by David Spalding and Darren Tanke.

Past President Philippe Taquet (France) closed the meeting at about 5.40 p.m.

**INHIGEO Business Meeting
Almadén (Spain)
Thursday 8 July 2010 3:00pm**

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 Calgary, Canada (2009)
(* See above in this Newsletter)
4. Discussion / Matters arising
5. President's Report
6. Discussion / Matters arising
7. Secretary-General's Report
8. Discussion / Matters arising
9. IUGS Topics

10. Future Meetings of the Commission
11. Finalisation of the 2010 Ballot; Declaration of Election Results
12. New Business / Business without notice
13. Vote of thanks for our hosts in Spain, 2010

Report on the Workshop held to discuss a 50th Anniversary history of the International Union of Geological Sciences (IUGS): 1961–2011

Held in the Lecture Hall, Education Building University of Calgary, at 3.30 p.m. 13 August 2010

All INHIGEO Calgary conference delegates were present including Dr S. Turner (convenor) and Dr B J. Cooper (INHIGEO Secretary General). BJC introduced the intention of the IUGS to commemorate their 50 years of work and stated that INHIGEO had supported ST to lead the project and that the IUGS had appointed her following the request made by IUGS President Professor Alberto Riccardi (Argentina) to INHIGEO. However, ST explained that as yet there was no budget for the project. BC encouraged all INHIGEO members to participate.

ST reviewed since the early 2009 IUGS *Newsletter* announced the intention of producing a history. She had been in contact with Professor Cecil Schneer (USA), a founding INHIGEO member, who prepared an earlier IUGS history for the 25th anniversary (Schneer 1995) and arranged for his remaining papers and taped interviews to be sent to the IUGS Secretariat. ST mentioned the people who had already contacted her: Branagan *et al.* working on the 1976 Australian International Geological Congress (IGC); Grigelis (Latvia) to work on foundation of INHIGEO; Oldroyd (history of *Episodes*); Vai (Italy) on IGCs in general; and Pinto. She mentioned that the beginnings of an idea for a unifying geological body was mooted by Europeans after the First World War, discussed at the 1948 IGC, and again in 1952, and finally initiated at the 1960 Copenhagen IGC by the Scandinavians, many of whom have played a prominent role in the Union's activities. Other important events include the 1967 Gondwana meetings organised by J. Tuzo Wilson, INHIGEO's foundation in the same year, the Gondwana and Stratigraphic commissions, and a history of the IGCP. Biographies of individuals will be considered: e.g., former Executive members such as Jim Harrison, van Leckwyck, Johannes Dons, not forgetting the role of Australians such as Fisher, Glaessner, Howard, Rutland, etc. She showed some pictures already in the database: Executive founders, IGCP history, INHIGEO Founders, rare women e.g. F. Delaney, IUGS Executive post-2004. ST asked for volunteers to write chapters and help to find data, pictures, items of interest, such as photos of INHIGEO Foundation members, IGC badges, etc. A travelling exhibition might be produced to circulate during the anniversary year 2011 and beyond.

Delegates were generally supportive; Sally Newcomb suggested talking to founder member Ursula Martin (BC noted that she had been Secretary General and on the INHIGEO Board). Individual help was offered by Irena Malakhova (work on Soviet Union/Russia) who talked about the IGC sessions in Russia; Yasumoto Suzuki (Japan); and Philippe Taquet (France).

The draft for an IUGS history book was featured in the INHIGEO Abstract volume for the Calgary conference, and comments were invited. The IUGS Secretariat is now scanning all documents, because, after 25 years in Norway, the Permanent Secretariat begun by Richard Sinding-Larsen and capably managed by Hanne Refsdal for 20 years and then Anne Liinamaa-Dehls, is destined to move at the end of 2009 to a new home in the US. The general feeling was that the book was only one possible way to consider the history and other material should be accessible on the IUGS website, or at a new site (e.g. biographies of key individuals). Facebook or the like could be used to create the history group. The main drawback is the uncertainty and inaccessibility of archives and an accessible permanent one is really necessary. ST was able to visit the IUGS Secretariat Trondheim in Norway for two weeks in November, to enable her to get an overview of the material before the removal of the archives from Norway, courtesy of the Norwegian IUGS Committee and Dr Rognald Boyd.

ST acknowledges financial support to attend the Calgary meeting from the IUGS Executive and the Australian IGCP Committee. Susan Turner, 16 December 2009.

Some useful references

- Brett, Robin & Schmidt-Thomé. Michael 1994. International geological science cooperation—the role of IUGS. *Episodes* 17, 118–120.
- Harrison, J. M. 1978. The roots of IUGS. *Episodes* 1, 20–23.
- Schneer, Cecil J. 1995. The geologists at Prague: August 1968. History of the International Union of Geological Sciences. *Earth Sciences History* 14, 172–201.
- Skinner, B. J. 1992. Scientific highlights of two decades of international co-operation at the grass roots level. *Episodes*, 15, pp. 200–203.

Turner, S. 2006. Rocky Road to success. A new history of the International Geoscience Programme (IGCP). 297–314. In Petitjean, P., Zharov, V., Glaser, G., Richardson, J., de Paridac, B. and Archibald, G. (eds), *Sixty Years of Science at UNESCO 1945–2005*, UNESCO, Paris. www.IUGS.org.

CONFERENCE REPORT

The International Commission on the History of Geological Sciences (INHIGEO) Meeting Calgary, Alberta, Canada, 10 to 14 August 2009 with a post-meeting fieldtrip 15 to 19 August 2009



Delegates to the 34th INHIGEO Meeting assembled at the spacious and well endowed University of Calgary on the evening of 9th August 2009 and were greeted by Professor George Pemberton of the Department of Earth & Atmospheric Sciences, University of Alberta, Edmonton and convener of the organising committee. The university with its spacious grounds in northwest Calgary and adjacent to the rapid rail network was an ideal venue and many delegates took the opportunity to avail themselves of the accommodation provided by student hostels. Unfortunately numbers attending were down compared to previous years.

Formal proceedings commenced the next day at the university with a welcome from Professor Pemberton followed by three very relevant keynote addresses which set the scene for the meeting's theme "Fossils and Fuel". A very appropriate theme considering that Calgary is at the centre of the Canadian oil and gas industry and in the vicinity are several rock units that have played major roles in paleontology, including the Cretaceous "dinosaur beds" of the Red Deer River and the Cambrian fauna of the Burgess Shale. The addresses were followed by a wide variety of relevant papers and four posters were also on view during the meeting.

10 August 2009

Keynote Addresses

Des Collins – The Saga of the Burgess Shale, 1886 to 2000.

Clint Tippett – Growth and Evolution of the Canadian Petroleum Industry.

David Spalding – "Beat them to the Best Specimens . . ." The Canadian Dinosaur Rush, 1909–1917.

Papers

Simon Nathan – Canadian Influences on the development of New Zealand Geology.

Sally Newcomb – Richard Kirwan (1733–1812) and his Geology.

Philippe Taquet – The Respective Contributions of Georges Cuvier and Alexandre Brongniart to the elaboration of the "Essay sur la Géographie Minéralogique des Environs de Paris" after the Rediscovery of the Archives of Alexandre Brongniart.

Mike Johnston – Ferdinand Hochstetter in New Zealand – 150 years.

David Branagan (Talk given by Barry Cooper) – Alfred Selwyn: Preparing for Canada.

Irena G. Malakhova & Zoya A. Bessudnova – The 250th Anniversary of the First Museum of Natural History in Moscow.

11 August 2008

Clint Tippett – Shell's inherited roots in the Canadian Oil Industry.

Johan F. Dormaar and Robert A. (Rob) Watt – The First Oil Well in the Canadian Oil Industry.

Peter McKenzie-Brown – From North to South: How Norman Wells led to Leduc.

Gordon Jaremko – The Human Element – A Frontier in need of Exploration.

Clint Tippett – The Discovery of the Jumping Pound Gas Field – 1944 Fact and Fiction.

Gerald Middleton – Sedimentology and Oil: What was the History?

William Brice (Talk given by Keynyn Brysse) – Edwin L. Drake who was he and why do you know that name?

Barry J. Cooper – Arthur Wade and his 1915 Report on Petroleum Prospectivity in South Australia.
 Yasumoto Suzuki – Geological contributions of the Geological Survey of Japan to the Petroleum Industry until the end of World War II.
 Sue Turner – Founding Mothers in the History of Oil Exploration.
13 August

Francesco Gerali – From Apennines to the Carpathians: The oil researches of Giovanni Capellini.
 Keynyn Brysse – The Burgess Shale and the meaning of Phyla.
 Barry J. Cooper & James B. Jago – A history of the Cambrian in South Australia.
 Barry J. Cooper & James B. Jago – The Discovery of the Emu Bay Shale Lagerstätte, a Burgess Shale-type biota from Kangaroo Island, South Australia.
 Sue Turner – Fossil Lagerstätten in Australia Discover and Politics.
 Keynyn Brysse – Impacts and mass extinctions: the right answers to the wrong questions.
 Stephen M. Rowland & Darren H. Tanke – Greatness denied: the short, tragic career of Canadian vertebrate palaeontologist James E. Thurston.
 Darren H. Tanke – Preserving Alberta's paleontological heritage by relocation of lost dinosaur quarries and solving mystery dinosaur quarries through historical archeological techniques.
 Darren H. Tanke – William E. Cutler: a mysterious character in early 20th century Albertan vertebrate paleontology.
 Workshop led by Susan Turner – 50th Anniversary History of the International Union of Geological Sciences (IUGS) 1961–2011. (see separate report in this Newsletter).
 INHIGEO Business Meeting (also see separate report).

14 August

S. George Pemberton, Richard McCrea, James A. MacEachern & Murray K. Gingras – The correspondence between the Reverend Henry Duncan and the Reverend William Buckland and the discovery of the first dinosaur footprints.
 Darren H. Tanke – The sinking of the SS *Mount Temple* and her dinosaur cargo.
 Richard T. McCrea – History of vertebrate ichnology research in Western Canada.
 Darren H. Tanke – Dinosaur hunting by boat in Alberta, Canada: A 2010 Centennial Expedition.
 S. George Pemberton, Murray K. Gingras and James A. MacEachern – Edward Hitchcock and Roland Bird: Two early titans of vertebrate ichnology in North America.

Posters

The following posters were presented:

S. George Pemberton – John Joyce Carter: Civil war hero & petroleum mogul.
 S. George Pemberton – Harry Eugene Wheeler (1907–1987) one of the forgotten pioneers of sequence stratigraphy.
 S. George Pemberton – The Reverend William Buckland (1784–1856) and the fugitive poets.
 Francesco Gerali – Technical knowledge of the Italian oil industry from the second half of the XIX to the First World War.

Halfway through the meeting on 12th August, participants took the light rail train from the university into the centre of downtown Calgary where a historic precinct of mellow Paleocene Paskapoo Formation sandstone buildings, rarely more than two stories high, form an enclave in a sea of high steel and glass tower buildings that all seemed to be occupied by firms and consultants related to the oil industry. Also in the central city is the Glenbow Museum where we were shown around the archives by the affable Doug Cass, Director of Library and Archives. The museum is the largest west of Toronto and came into existence when oilman Eric Harvie donated his collection of material relevant to the oil industry and much more besides. Under a provincial act of parliament it is administered by a Board of Trustees and has a total permanent staff of 115. Its extensive and ever growing archives specialise in, but are by no means confined to, the oil industry. In fact most non-government archives other than those dealing with religion are collected. After seeing the archives several delegates remained to successfully search for ancestors who had been in Alberta while the rest toured the remainder of the museum with its many exhibits associated with oil and gas industry and the history of the Calgary area. Of particular interest was a large special display of photographs, paintings and films relating to the building and running of the Canadian Pacific Railway.

In the afternoon a number of delegates took up the offer of Clint Tippett to join an enjoyable and instructive guided walk around downtown Calgary to view a wide variety of building stones, ranging from those sourced locally to others from elsewhere in Canada or from overseas. A perfect day was rounded off by the

INHIGEO dinner that consisted of a banquet at the Heritage Park Historic Village on the southwest fringes of Calgary. Participants had the privilege of being transported to and from the venue in a genuine, bright yellow, school bus lacking springs. The dinner was in an early 20th-century hall of a type that was once common in the farming towns on the prairie and staff wore colonial costume. After dinner well-fed delegates had the choice of remaining in the hall or walking around the spacious park with its representative collection of buildings to be found in western Alberta up to about the beginning of the 20th century.

The post meeting fieldtrip with 12 participants (half from Australasia) under the knowledgeable David Spalding left Calgary on the morning of 15 August and headed east for Dinosaur Provincial Park, the first world heritage site to be established on the basis of geological criteria. Despite partly cloudy skies, with recent rain, expectations were high that fine weather would prevail for a day. Unfortunately hopes were dashed for on crossing the prairie, uncharacteristically green for this time of the year, light rain began falling and by the time an observation point on the rim of the badlands in the valley of the Red Deer River was reached it was being driven by a strong breeze. While a disappointment to all, and in particular to our guide for day Darren Tanke of the Royal Tyrrell Museum, the stark beauty of the badlands was enhanced. Numerous steep sided knolls and ridges carved out of Late Mesozoic horizontally bedded Cretaceous rocks of the Oldman, Dinosaur Park and Bearpaw formations by a huge flood of melt water that was released as the North American ice cap retreated, and in the process exposed the remains of dinosaurs and other fossils. With the rain and wind increasing a hasty tactical retreat was made to the park's visitor centre within the badlands. After viewing a documentary on Charles M. Sternberg, a small but magnificent selection of dinosaur fossils in the centre were admired and provided a fascinating glimpse of the paleontological wealth of fossils that the badlands have yielded. By now the ground outside was a slippery morass of bentonitic clay, derived from the weathering of numerous ash beds in the rocks, and any hope of visiting excavation sites within the park was out of the question. Nevertheless, participants were able to view one site with *in situ* dinosaur remains that are protected from the elements. With no chance of the ground drying out the trip headed back west, stopping at a prairie hotel for a drink before arriving for the night at Drumheller some 190 km up the Red Deer Valley from the dinosaur park. Drumheller is a town founded on coal mined from the Cretaceous rocks but since mining declined it has successfully rebranded itself as the dinosaur capital of the world. It backs up this claim with its streets having numerous replicas of dinosaurs, including one oversized *Tyrannosaurus rex* dwarfing the visitor centre, and more significantly by hosting the Royal Tyrrell Museum.



INHIGEO group at the Royal Tyrrell Museum

The second day of the field trip dawned bright and sunny and it was an early start at the museum on the outskirts of the town, which our trip leader was involved in the planning of. At the museum we were met by Darren Tanke and taken on a fascinating tour behind the scenes to see fossil preparation at first hand. However, before dealing with the terrible monsters of the fossil world, Patty Ralrick explained the work she was undertaking as part of her PhD thesis in micro vertebrates sieved from the Scollard Formation that straddles the K–T boundary. The fossils include the remains of mammals, frogs, birds, crocodiles, dinosaurs, sharks and many others. Although rarely identifiable to species level they do allow a reconstruction of the environment before and after the “big one”. It was then onto the macros and Darren explained how fossils are collected and transported to the museum and then the painstaking work preparing them. Examples shown were a duckbill dinosaur skull, a large turtle, armoured skull bones, an elasmosaur lacking its head, dinosaur eggs and much more. It was then time to join the public in the museum’s galleries where magnificently restored fossils are exceptionally well displayed along with more general geological exhibits.

After the prairie it was now time to tackle the Rocky Mountains part of the field trip so heading westward, and skirting Calgary, a picnic lunch was taken in the shade of a glacial erratic known to the Blackfoot First Nations people as Okotoks. The rock is a lump of Cambrian quartzite, reputedly weighing 15,000 tonnes, which fell off the mountains in Jasper National Park onto a glacier which ultimately fed it by way of the Athabasca Glacier onto the main south moving cordilleran ice sheet to be eventually deposited several hundred kilometres from its source.: an impressive reminder that not too long ago ice covered Canada. After the ice had melted the erratic was of significance to the Blackfoot people as shown by paintings on the underside of overhanging faces. Following lunch it was into the foothills of the Rocky Mountains which are manifested by low parallel ridges of Cretaceous rocks marking the upturned edges of thrust sheets progressively being upramped due to compression. This has provided structural traps for oil and particularly gas, including at Turner Valley where the first gas treatment plant in Canada was built in 1914 following the sinking of the Dingman Well. Commercially viable oil deposits were found a decade later and gas is still being extracted.

Plunging into the mountains at the Bow River valley, which is utilised by both the Trans Canada Highway and the Canadian Pacific Railway from Calgary, we saw the first of many of the thrusts that dominate the structure of the Rocky Mountains. In the haze enveloping Mt Yamnuska on the north side of the river a prominent change in slope marks a thrust, named after the geologist R. G. McConnell (1857–1942), between hard Cambrian rocks that structurally overlie more erosion prone Cretaceous rocks. Further upstream Ordovician limestone, full of fossils, were admired between the highway and Lac des Arcs. Even a large cement works on the opposite side looked attractive as it was reflected in the placid lake. The evening stop was in Banff circled by mountains with, on one slope, the Banff Springs Hotel. The hotel is one of several large chateau-like edifices built by the Canadian Pacific Railway to attract passengers and it is perhaps the most photographed building in the Rocky Mountains. Banff is also the headquarters of the first national park established in Canada. The town itself is crammed with tourist shops, many selling geological specimens. While numerous specimens are from overseas, the most outstanding are ammonites from the Cretaceous Bearpaw Formation found along the eastern side of the Rocky Mountains. Although the ammonites are generally crushed they still have preserved their aragonite shells displaying colours akin to opal. The shell is manufactured into jewellery under the trade name of ammolite. Showers in the evening curtailed walking around the environs of the town.

Monday 17th August was heralded with blue skies and an atmosphere cool and clear. Before departure there was sufficient time to walk around the town or venture up to the Bow Falls, a cascade of water between bluffs of shale. In the early morning wild deer were seen unconcernedly grazing in the public gardens on the edge of town. While the day’s destination was the distant Columbia Icefield, there was time for a brief stop at hot springs on the edge of Banff. Although formerly developed as an elegant spa, it is now not used in order to protect a rare snail inhabiting the warm water. From the spa, views of the surrounding mountains revealed more thrust faults. Reboarding the bus it was a long, but very scenic, trip up the Bow River valley passing spectacular peaks like Castle Mountain of Cambrian carbonates and named by James Hector (1834–1907), surgeon and geologist on the Palliser Expedition of 1857–1860. The New Zealanders on the trip have a special place for Hector who from 1865 was the inaugural Director of the Geological Survey in that country. Brief stops were taken at Saskatchewan Crossing on the North Saskatchewan River and farther up the river to photograph a large syncline whose limbs of Devonian rocks form the valley sides. On arrival at the edge of the ice field we had time during a picnic lunch to examine the terminal face of the Athabasca Glacier, one of the exit glaciers of the icefield. Terminal and lateral moraines clearly marked the retreat of the ice. After lunch we were taken by bus up the edge of the main lateral moraine before transferring to a special bus with huge wheels which slowly made its way up a graded ice road to a viewing point in the centre of the crevassed glacier. Returning to lower altitudes we retraced our steps and with more time available were able to make stops to see more of the mountain scenery and geology.



INHIGEO group visiting the Columbia Glacier

At Bow Summit a view over Peyto Lake and the linear Mistaya Valley graphically demonstrated the influence of thrusting and glacial erosion in the formation of the Rocky Mountains. After admiring several beautiful lakes, including Bow, Hector and finally Louise, the overnight stop was at the town of Lake Louise. In the evening the field trip dinner was in a restaurant tastefully converted from a genuine CPR station. To add to the ambience of the surroundings there were the passing rumbling lines of wagons as long trains made their way to and from Kicking Horse Pass.

The fourth day of the field trip was another fine day, but with hazy high cloud, and was initially along part of the route of the previous day. However, after a short climb out of the Bow Valley, the celebrated Kicking Horse Pass was reached. Here homage was paid to James Hector who was the recipient of the kick which his companions at first thought was fatal. A further stop on the other side of the pass allowed the railway to be viewed as it passes through two spiral tunnels to overcome the steep grade on the western side of the pass in the valley of the Kicking Horse River. The original railway route was the considerably steeper present highway. It is somewhat ironic that Hector did not recommend this route for the railway because of the grade and the mountainous nature of the valley. However, political expediency prevailed and the railway was constructed. Continuing down the valley, Mts Wapta and Burgess came into view along with the intervening Fossil Ridge of Burgess Shale made famous by Charles Doolittle Walcott (1850–1927). A short deviation into the forest to the north of the highway allowed us to see the other side of Fossil Ridge which was mirrored in the placid waters of Emerald Lake. On the return to the highway a brief stop was at a natural bridge where the Kicking Horse River flows through a short conduit in the core of a syncline of folded Cambrian limestone.

Mid morning brought us to the small railway town of Field in the shadow of Mt Stephens where Cambrian trilobites had been found during construction of the railway and were the first indication of the paleontological treasures that would be found in the area. Following a stop at the Visitors Centre, and after waiting at a level crossing for what seemed a never ending train to pass (108 wagons were counted but many more had passed before we reached the crossing) we arrived at what was formerly part of the Field School and now the base for the Burgess Shale Geoscience Foundation Centre. Established by Dr Randle Robertson, and run on a shoe string budget, the centre conducts fieldtrips to the now historic quarries on Fossil Ridge and also, for those like ourselves with less time, provides lectures on the Burgess Shale and its role in the history of the earth. We were given an overview of the shale by James Cresswell, a geology graduate from Bristol in the United Kingdom, and then allowed to handle samples of the shale exhibiting a number of the unique fossils, many with details of the soft tissues preserved. From Field the highway was followed to Golden at the junction of the Kicking Horse and Columbia rivers in the broad Rocky Mountain Trench. This major tectonic feature separates the mountains of western Canada into two. In the west in the Selkirk and other ranges there are sedimentary rocks with a range of granitoid intrusions, whereas in the east, as we had already seen, the Rocky Mountains comprise packets of parallel sedimentary rocks between thrust faults. After travelling 100 km

southeast along the trench we reached Radium Hot Springs, our destination for the day, where we enjoyed a soak in the hot pools before dinner.

The final day of the trip brought brilliant clear weather and provided magnificent views of the mountains on either side of the trench as we continued southeast crossing the imperceptible saddle to the Kootenay River before, close to the Canadian–United States border, heading eastward towards Crowsnest Pass. On the way to the pass, a stop was made at Sparwood, a town based on the mining of Cretaceous coal. Compared to Kicking Horse, the pass is broad and gentle and at a much lower altitude. It is dominated by Crowsnest Mountain, a klippe of Paleozoic rocks overlying the Cretaceous rocks. Descending the Crowsnest River we came to the Frank Slide. This landslide originated in 1903 from the upper slopes of Turtle Mountain and buried part of the coal mining town of Frank with 91 fatalities. Initial investigation concluded that the coal mining had undermined the upper slopes resulting in the failure of Paleozoic rocks thrust over the coal measures. However, later work showed that the Paleozoic rocks had been folded into an anticline and that the collapse involved the remnants of the severely weakened overturned limb. A visitor centre is now sited on the landslide rubble and there Chris Weber explained to us the landslide and the intensive multifaceted monitoring of Turtle Mountain so that there should be ample warning should another failure occur.

Emerging from the mountains on the eastern side of the pass, the Rocky Mountains gave way to low ridges of Cretaceous rocks in the same tectonic setting as had been observed on the second day of the field trip. The Cretaceous rocks were observed in detail in the Porcupine Hills at Head Smashed In Buffalo Jump. Here well bedded sandstone, with packets of cross bedding, forms an escarpment on the edge of the prairie. A visitors centre graphically displayed how the First Nations People would carefully orchestrate stampedes of buffalo over the escarpment thereby obtaining food and materials for clothing to last them through the succeeding winter. A short walk along the escarpment under the guidance of Little Leaf took us to the actual jump site. From the Porcupine Hills it was an hour's drive to Calgary.

The INHIGEO Meeting, fieldtrips and social events were well run and very instructive with an excellent Program and Abstract volume and field trip guide and it is a pity that so few attended. The reasons for the low turn out can only be guessed. Certainly Calgary is distant from densely populated continents such as Europe although for those “down under” it was only half the distance to meetings of recent years. Also numbers from across the border were also below what was anticipated so distance does not seem to have been a significant reason. In Europe there was competition from the *XXIII International Congress of History of Science and Technology* held in Budapest from 28 July–2 August 2009 and undoubtedly this would have attracted some, particularly in Europe, who would perhaps have attended INHIGEO. While clashes such as this are difficult to avoid, but fortunately happen infrequently, it is worth bearing in mind so that, if at all possible, similar situations can in the future be averted. Coupled with this unfortunate clash was the downturn in the global economy which meant that, whether funded by institutions or personally, there was less money available for travel. Another factor may have been the outbreak of “swine flu” at the time the circulars for the meeting appeared and may have deterred some from travelling.

Nevertheless for those who attended it was an outstanding conference and after a series of INHIGEO meetings in Europe it was refreshing to see and experience the new world. In particular, Calgary provided the opportunity to learn about two outstanding aspects of paleontology: the Burgess Shale and the dinosaurs of the badlands of Alberta, as well as the history of the development of the oil and gas industry in Alberta, which fuels much of Canada and a sizeable part of the United States. Then there was the spectacular scenery of the Rocky Mountains, the history of trying to forge communications between the Atlantic and Pacific coasts of Canada and unravelling the geology. Grateful thanks are extended to George Pemberton and the organising committee and to David Spalding, Darren Tanke and Clint Tippett for making all of the fieldtrips so memorable.

Mike Johnston, Nelson, New Zealand

CONFERENCE ANNOUNCEMENT

2011 INHIGEO Conference Toyohashi, Japan, 2–10 August 2011

The annual INHIGEO conference for 2011 will be held at Aichi University in Toyohashi City, Aichi Prefecture, central Honshu, Japan. Japanese members of INHIGEO established a preparatory committee in September, 2008, and have since held six meetings to discuss the theme of symposium, excursion routes, finance and so on.. They are pleased to invite all researchers interested in the history of geology to take part in the symposium at Toyohashi and the associated excursion to the Kii Peninsula from 2 to 10, August, 2011. The conference web page is <http://www.inhigeo-jp.or/index.html>. The first circular will be published in June 2010.

The overall theme of the conference will be “Visual images and geological concepts” and it will be divided into 2 major sessions.

Session 1 - “History of geologic maps and related geological images in the world”

Here local and regional geologic maps will be shown and their basic concepts discussed. The geologic concepts implied in figures, pictures, photos and literary works published in various ages will also be discussed.

Suggested Symposium Topics

- History of Geological Maps/ Geophysical Maps/ Geochemical Maps
- Geological Images appeared in Literary Works
- Geological Views appeared in Pictures/ Prints/ Cartoons
- History of Education for Mitigation against Natural Disasters
- History of Geoparks and Current Status
- History of Submarine Geological Survey
- History of Digital Geologic Maps and 3D Images
- Related Topics

Session 2 - “History of seismology, volcanology and tectonics”.

Island arcs including the Japanese islands are characterized by earthquakes and volcanoes, and the studies of deep earthquakes have deeply influenced on the geological sciences. The history of their investigation is involved here. Earthquakes and volcanoes in the continental and oceanic regions will also be discussed.

Suggested Symposia Topics

- History of Volcanology/ Volcanic Maps
- History of Seismology/ Seismic Maps/ Seismotectonic Maps
- History of Tectonic Maps/ Neotectonic Maps
- History of Study of Island Arcs and Marginal Seas
- History of Geological Disasters and Their Mitigation/Documented Historical record
- History of Geophysical and Geochemical Studies of Rocks/ Paleomagnetism/ High Pressure Experiment

Field Trips

A one-day field trip in mid-symposium on 4 August is planned. You can enjoy the outcrop of the Median Tectonic Line, the largest fault in the Japanese islands, a battlefield from the middle ages and the Horai-ji Museum of Natural History.

A five days post-symposium excursion from 6 to 10 August is planned to the Kii Peninsula, and you can enjoy the geology of the outer zone of southwest Japan. It is composed mainly of alternating beds of sandstone and mudstone from Jurassic and Cretaceous in the inner side and Paleogene Tertiary in the outer side overlain by Neogene Tertiary intruded by acidic volcanic rocks in the southeast side. Japanese Shintoism and Buddhism cultures are also appreciated. Ise Shrine, the head of Shintoism, Hayatama Taisha Shinto Shrine and Kumano pilgrimage routes for Buddhists are situated in the southeast part of the peninsula. You can enjoy Kiwa Mine (copper) Museum and Nachi Waterfall (World Heritage) on the way of the pilgrim route. You can stay in Koya-san Buddhist temple with its vegetarian diet. Nara was old capital from 710 to 784, where you could enjoy temples, shrines and sculptures. An unguided sightseeing of temples, shrines, gardens and museums in Kyoto, old capital of Japan from 794 to 1868 is also available.

The conference will be supported by the Science Council of Japan, The Society of Resource Geology, The Japanese Association for Petroleum Technology, The Association for Geological Collaboration in Japan, Tokyo Geographical Society, Japan Society of Engineering Geology, The History of Science Society of Japan, The Volcanological Society of Japan, Japan Association of Mineralogical Sciences The Palaeontological Society of Japan, Seismological Society of Japan, The Geodetic Society of Japan, Japan Association for Quaternary Research, Japan Society of Earth Science Education, The Association of Japanese Geographers, Aichi University and Toyohashi City.

Toshio KUTSUKAKE for the organizing committee

OTHER FORTHCOMING MEETINGS

**Sixth Symposium on Mining and Metallurgy Historical, Southwest Europe,
Vila Velha de Rodão, Portugal, 18–20 June 2010**
<http://sites.google.com/site/mineracaoemetalurgia2010>

Thematic Sessions will be held on:

- Mining and Metals in Pre-history and Proto-history.
- Mining and Metallurgy in Roman Times
- Mining and Metallurgy in Contemporary and Modern Ages
- Heritage Conservation and Recovery Mining and Metallurgical

Second Argentine Congress on the History of Geology, Department of Geological Sciences, University of Buenos Aires 12–13 August 2010

Please contact for further details Eduardo G. Ottone Department of Geological Sciences, University of Buenos Aires at ottone@gl.fcen.uba.ar

**20th General Meeting of International Mineralogical Association
Budapest, Hungary
21–27 August 21–27, 2010
www.ima2010.hu/
(Session CH31 “Mineralogical aspects of monument preservation”)**

The session will focus on the mineralogy and technology of monumental stones, historic mortars binders and bricks, historic earthen materials (adobe) as well as general mineralogical aspects of properties of historic construction materials.

**2nd International Conference on Science in Society
Carlos III University, Madrid, Spain
11–13 November 2010
www.ScienceinSocietyConference.com**

This conference addresses the social impacts, values, pedagogies, politics and economics of science. It is an inclusive forum that welcomes a breadth of perspectives on science from practitioners, teachers and researchers representing a wide range of academic disciplines.

The Science in Society Conference is held annually in different locations around the world. The Conference was inaugurated in 2009 at Cambridge University, Cambridge, UK. The 2010 conference will be held at Carlos III University in Madrid, Spain.

In addition to Plenary Presentations from leading speakers in the field, the Science in Society Conference includes parallel presentations by practitioners, teachers and researchers. Presenters will have their papers published in the peer refereed “International Journal of Science in Society”.

Other meetings on the History and Philosophy of Science

June 13–18, 2010, XIV IOSTE Symposium, Bled, Slovenia. Details at: <http://www.ioste14.org>.

June 17–20, 2010, Objectivity in Science, University of British Columbia. Details from Dani Hallet at: objectivity2010@gmail.com

June 24–27, 2010, History of Philosophy of Science Society (HOPOS) Conference, Budapest
Details at: <http://www.hopos2010.ceu.hu> <http://www.hopos2010.ceu.hu/>

August 19–21, 2010, First IHPST Latin American Regional Conference, Maresias, Brazil
 Details at: <http://www.hpsst-brazil2010.org/IHPST-LA/index.html>.

September 23–26, 2010, Integrated History and Philosophy of Science, Third Conference,
 Indiana University, Bloomington. Indiana USA. Details at: <http://www.indiana.edu/~andhps/>

November 4–6, 2010, Philosophy of Science Association and History of Science Society Joint
 Conference, Montreal, Canada. Details: www.philsci.org and www.hssonline.org

November 18–20, 2010, The 4th International Conference of the European Society for the
 History of Science, Barcelona, Spain. For all details, please, see the website of the
 conference: <http://taller.iec.cat/4iceshs/>.

January 5–9, 2011, epiSTEME-4 conference, Homi Bhabha Centre for Science Education,
 Mumbai, India

February 18–21, 2011, American Association for the Advancement of Science, Washington
 DC. USA Details at: <http://www.aaas.org/meetings/2010/>

July 1–5, 2011, Eleventh IHPST Conference, Thessaloniki, Greece.
 Details from: Fanny Seroglou (fsero@skiathos.physics.auth.gr)

July 19–26, 2011, 14th Congress of Logic, Methodology and Philosophy of Science, Nancy,
 France. Details at: <http://www.clmps2011.org/>

October 26–29, 2011, EASE 2011 Conference, Gwangju Korea. Details at: <http://theease.org/>

AWARDS

Sue Tyler Friedman Medal to Philippe Taquet

The Geological Society, based in London, honoured INHIGEO Board Member and Past President Philippe Taquet with its Sue Tyler Friedman Medal awarded for the contributions to the study of the history of science.

Below is a copy of Philippe's acceptance speech

President, honoured guests, Ladies and Gentlemen.

I am very proud and greatly honoured to receive the Sue Tyler Friedman Medal of the Geological Society.

I feel very happy for two main reasons: the first one is to be honoured by the most prestigious and oldest Geological Society, there is, to whose Bicentenary I had the privilege to participate in November 2007. The other reason is to be the second French geologist after François Ellenberger to receive this medal. For François Ellenberger had been my professor in applied geology in the 60s at the Sorbonne in Paris.

In retracing the life of the great scientist who was Georges Cuvier, I had the pleasure to study the fruitful relations that were tied at the beginning of the nineteenth century between French and British geologists. These founders of "Geohistory" as Martin Rudwick has said, were on one side, Cuvier, Brongniart, Lamarck, Prevost and on the other side Smith, Buckland, Mantell, Conybeare, Murchison, Lyell; they exchanged (in spite of the political difficulties that existed between the two nations) letters, specimens, samples, casts, drawings, publications and they met as often as they could. These naturalists on both sides of the Channel – de la Manche - were able to show by their work that geology and science had no frontier.

Let me say, that during my research in history of geology, I was fortunate to meet many British colleagues, to have with them stimulating discussions and exchanges, and also fun: celebrating together Buckland in Oxford, Mary Anning in Lyme Regis, Alcide d'Orbigny in Paris.

I deeply and sincerely thank the Geological Society and you Madam President for awarding me the honour of the Sue Tyler Friedman Medal

Honorary Membership of the Hungarian Geological Society to Hugh Torrens

Former INHIGEO President Professor Hugh S. Torrens has been awarded Honorary Membership of the Hungarian Geological Society, in acknowledgement of his merits in the field of long-lasting productive co-operation with Hungarian historians of geology (with special reference to the 18th-century British traveller Robert Townson).

CGCR (Guild of Geologists of Costa Rica) recognition of Gerardo Soto as specialist in history of geology

The *Colegio de Geólogos de Costa Rica* [CGCR, Guild of Geologists of Costa Rica] has accepted “History of Geology” as one of the many different professional areas of Geology in Costa Rica, where members can request to be recognized as “specialists”. INHIGEO Vice President Latin America Gerardo J. Soto has been elected as the first specialist of this newly recognized area in CGCR and thus the Costa Rican geological community.

Dokuchaev Award 2010 to Dan Yaalon

Professor (emer.) Dan H. Yaalon (INHIGEO member Israel) reports that he will be delighted to receive the prestigious Dokuchaev Award from International Union of Soil Sciences (IUSS) for his significant contributions to Basic Soil Science. The award ceremony will be held during the IUSS Congress in Brisbane, Australia in August 2010. Dan sees this as a wonderful conclusion to his scientific career.

OBITUARIES

Rudolf (Rüdy) Trümpy (1921–2009)

Rudolf Trümpy was a longstanding INHIGEO member from Switzerland. He was the primary organiser of the 1998 INHIGEO conference in Neuchâtel, Switzerland. The following obituary was written by John Dewey and first published by the Geological Society. References to other obituaries are given under the report from Switzerland.

The passing of Rudolf (Rüdy) Trümpy on 31 January 2009 has left a deep void in Alpine geology and in the lives of his wide international circle of friends, colleagues, and students. He was a sophisticated internationalist, geologist, and linguist of great knowledge, humour, wit, kindness, and humanity.

Rüdy, whose father and three uncles were geologists, was born in Glarus on 16 August 1921. A confident and intellectual boy, he discovered, in his grandmother’s library, Jakob Oberholzer’s *Geologie der Glarneralpen* and Alfred Wegener’s *Entstehung der Kontinente und Ozeane*. The latter made him a lifelong continental drifter. The former galvanised him to investigate the geology of his native mountains and to do some mapping as a schoolboy. Against his father’s advice but with the encouragement of his uncle, Jean Tercier (Professor of Geology in Fribourg) he entered the Natural Science Section of the Swiss Federal Institute of Technology (ETH) in Zürich in 1940, where he was a contemporary of Alberto Bally and Frances Delany. At ETH, he was taught by Rudolf Staub (badly prepared, but inspiring), Alphonse Jeannet (determinedly spoke only French), and Wolfgang Leupold (lovable but anarchic). Rüdy regarded Paul Niggli, Paul Scherrer (physics), and Hans Pallman (pedology) as his best lecturers. For his Diploma Thesis, he mapped the remote Ladréal Valley in Graubünden, when he introduced the concept of the Sub-Helvetian nappes. Rüdy was ineligible for military service because of his short sight but became the youngest member of the Geological Army Service and learned how to interface with civil engineers.

On graduating in 1945, he worked, during the summer, for Maurice Lugeon and Elie Gagnebin at the then very small Institute of Geology in Lausanne where he developed a keen interest in the Helvetic Lower Jurassic. Returning to ETH, he did his PhD on these strata and was the first to recognise early Jurassic normal faulting in the Alpine realm, an observation that was to become of critical importance in plate tectonic Alpine reconstructions. He then returned to Lausanne as “Chef de Travaux” where, upon Gagnebin’s death in 1950, he found himself in charge with the assistance of Jean-François Agassiz. He stayed on in Lausanne for six years under Héli Badoux (an excellent field geologist and likeable man), did a huge amount of teaching, and mapping in the Chablais Prealps of the Valais and Haute Savoie, married Marianne Landry, and had his two children. While in Lausanne, he mapped Pierre Avoi in the lower Valais, where he established a stratigraphy, dated the Barremian to Aptian conglomerates, and also studied the pebbles in the Oligocene conglomerates north of Lake Lemman, which demonstrated the huge former extent of the Simme Nappe and Austro-alpine nappes.

Following the claustrophobic war period, the 1948 International Geological Congress in London afforded Rüdy the opportunity to travel to take field trips, especially the Northwest Highlands of Scotland, where he met Sir Edward Bailey, Carlo Migliorini, and John Tuzo Wilson (whom he attempted, unsuccessfully, to convert to continental drift). In 1953, Rüdy was appointed as “Extraordinary Professor” at ETH and the

University of Zürich, where he was to spend the next 33 years until his retirement in 1986. During this time, he established himself as the master of Alpine geology by meticulous, field-based, studies of the Alps, especially the origin of the Pre-alpine nappes by detachment along Carnian evaporates from the distal Saint Bernard Nappe, and the derivation of the Helvetic nappes from a zone of subducted basement between the Aar and Gotthard Massifs. The central theme of his work, throughout his life, was the relationship between Alpine paleogeography and tectonics. He recognised that the relationship between facies belts and nappes is very complicated and that most Jurassic marine breccias were developed along extensional fault scarps. He also showed that the Glarus nappes are part of a single sheet with the same provenance. He was the first to call attention to the probability of large sinistral Cretaceous displacement in the Alpine realm. In 1958, he spent a field summer in East Greenland, where he demonstrated that Permo-Triassic marine sediments were deposited in rift basins open to the north. Rüdy was a wonderful host to foreign visitors and groups to the Alps, both at ETH and in leading spectacular, superbly-organized, field trips, after one of which Preston Cloud persuaded him to write his famous *Paleotectonic evolution of the Central and Western Alps*, which established his international reputation.

Rüdy was a very good, well-prepared, lecturer and teacher. He lectured and gave speeches fluently and, seemingly, effortlessly. I was mildly surprised when, chatting to me, he took a small shot of brandy before leaving to give a lecture. “Oils the works!” he said, with a wink and grin. He became Dean of Science at ETH, and Treasurer then President of the IUGS and was in constant demand for lectures and speeches. I remember, particularly, his masterful speech at his friend Bert Bally’s retirement symposium and party in Houston in 2001. During his last years at ETH, he devoted most of his time to undergraduate teaching, which was reflected in the vast audience that attended his farewell address.

In “retirement”, Rüdy concentrated mainly on the history of geology and corresponding with his friends around the world. He received many honorary degrees, medals, and memberships of academies, including the Wollaston Medal. He was the consummate intellectual Swiss gentleman. His life’s work is testimony to meticulous field work in geology combined with vision and the ability to analyse and synthesize large amounts of data. He was also great fun and a good friend.

Algirdas Juozapas Gaigalas (1933–2009)



Doctor Habilitus, Algirdas Juozapas Gaigalas, an eminent Lithuanian scientist and public figure, long-term Professor of Vilnius University, died on 4 June after a serious illness. He was one of the best modern Quaternary sedimentologists, a skilled field geologist who, with his penetrating eye and mind, investigated the composition and structures of clastic deposits and interpreted them within a wide context. Based on the results of his original

research, Prof. Gaigalas laid the foundations for the theory of formation of litho–sedimentation cycles of Lithuanian Pleistocene glacial deposits. This theory formed the basis of his doctoral dissertation (1977). Gaigalas published many important scientific works which influenced the development of Quaternary studies. His participation at conferences and geological expeditions, where he often announced critical ideas, motivated many young geologists to follow Quaternary studies.

Algirdas Gaigalas was born on 27 February 1933, in Gaižiūnai village of Pakruojis District. After the geological studies at the Vilnius University (1952–1957), he was engaged in scientific research work at the Institute of Geology and Geography within the Geographical Department of Lithuanian Academy of Sciences and at the Lithuanian Institute of Geology. From 1978 until his death, Gaigalas was a Professor at the Department of Geology and Mineralogy of Vilnius University.

Professor Gaigalas was a recognized scientist and public man, a member of the International Union for Quaternary Research (INQUA, 1999), a member of the Commission on the History of Geological Sciences (INHIGEO, 2006), a foreign member of the Russian Academy of Natural Sciences (1998), President of the Lithuanian Society of Naturalists (1995), and a member of the Lithuanian Geological Society, Lithuanian Geographical Society and Polish Geological Society, Chief Editor of THOMSON ISI Master List journal “Geologija” (Vilnius), an expert of the Lithuanian Science and Studies Foundation and International Association INTAS, a member of Editorial Boards of the Minor Lithuanian Encyclopaedia, international journal “Geochronometria” and “Mokslas ir gyvenimas” (*Science and life*), a patron of the topics about nature discussed in the publications of publishing house “Versmės”, and a tutor and scientific supervisor of the famous Vaclovas Intas’ stone museum in Mosėdis (Skuodas District).

At Vilnius University, Professor Gaigalas lectured on the Quaternary geology of East Baltic States, and Geomorphology and Quaternary geology, conducted the field training practice for students, and participated in educating bachelors, masters, and doctors and habilitated doctors of geology.

Prof. Gaigalas’ scientific works were devoted to Quaternary deposits in Lithuania and some other regions (Poland, Belarus, Russia, Karelia, and Yakut). He developed a petrographic method for moraine investigations and methods for glaciosedimentary research and determined the glaciosedimentation cycles of Lithuanian Pleistocene and lithostratigraphic attributes of moraine structures. Gaigalas was one of the first to study the Baltic Sea bottom moraines and buried palaeovalleys; he described the typical boulders found on the sea bottom. In an attempt to solve the complicated problems related with stratigraphic classification of Quaternary, Gaigalas did his best to introduce modern lithological, geochemical, palaeobotanical, palaeomagnetic Quaternary research methods and the newest absolute dating methods (thermoluminescence, optically stimulated luminescence, electronic rotation resonance, radioactive carbon and oxygen stable isotope shifts).

Together with his colleagues Valerija Čepulytė, Petras Vaitiekūnas, Vytautas Vonsavičius, and Ona Kondratienė, Professor Gaigalas developed and continually revised the stratigraphic scheme of Quaternary deposits which could serve as a scientific basis for Late Pleistocene geochronology. Professor Gaigalas was a universal researcher of Quaternary. He achieved much in the fields of Quaternary stratigraphy and palaeogeography, Quaternary research history and archaeology, geological heritage and nature preservation. He investigated the most interesting natural boulder fields of the country and put efforts to legalize them as national protected reserves (Šaukliai, Kulaliai, Igariai, and Erlėnai) and described many valuable landscape objects (boulders and outcrops) contributing to announcing them natural monuments. Gaigalas reported his research results at international geological congresses and conferences held in: Russia (1969, 1978, 1982, and 1984), Canada (1987), Sweden (1988), USA (1989), Belgium (1993), Netherlands (1993), Germany (1995 and 2000), France (1995 and 1997), China (1996), South Africa (1999), and Brazil (2000).

The life and activities of Professor A. J. Gaigalas were unfailingly supported by his family – wife and son. He devoted the noble ideas of his life to science and enlightenment. His activity was outstanding. We will strongly miss him.

Valentinas Baltrūnas, Algimantas Grigelis

Victor Efimovich Khain
(26 February 1914–24 December 2009)



On 24 December, 2009 historians of geology in Russia lost their best friend. Victor E Khain was a leader of geosciences in Russia for decades. He was a man of the highest scientific activity and consummate erudition. Being Professor Emeritus of the Moscow State University and a full member of the Russian Academy of sciences he lived a long life and was well recognized.

The Caucasus was the place of Victor E. Khain's birth, training and investigations. The beginning of his scientific career was associated with geological and oil-prospecting studies of the South-East Caucasus (1937–1947). Subsequently he relocated to Moscow and entered the University in 1954. His attainment of the position of its Professor was considered his main honor.

Victor E. Khain published about 1000 papers. In 1966 he was elected as a Corresponding Member of the USSR Academy of Sciences and became a full member in 1987. He has been an Honorary Member of the Russian Academy of Natural Sciences since 1992. He was awarded with the Order of the Labour Red Banner (1974) and the Order of Friendship of Peoples (1984). The five-volume monograph 'Regional Geotectonics' by Victor E. Khain received the USSR State Prize in 1987.

The Russian Academy of Sciences awarded Victor E. Khain with the A.P. Karpinsky Gold Medal in 1992 for his works on geotectonics and paleogeography. He was also a winner of the M.V. Lomonosov Prize of the Moscow University for publications on global tectonics (1992) and the Silver Medal of P.L. Kapitza of the Russian Academy of natural sciences (1998).

International recognition of this Russian geologist was by the New York Academy of Sciences and Academia Europæa in 1994. Victor E. Khain was also a member of the *Société géologique de France* (1977), Geological Society of London (1993) and Geological Society of America (1998).

In addition, Victor E. Khain was awarded the Gustav-Steinmann-Medaille by the *Deutsche Geologische Gesellschaft* (1991), the Paul Fourmarier Prize of the Royal Academy of Science, Humanities and Fine Arts of Belgium (1993) and the Prix Prestwich of the *Société géologique de France* (1995).

Many Russian geologists who are working in such fields as general and regional geology, tectonics, oil geology, geomorphology, paleogeography, the Pre-Cambrian geology, planetology, etc., consider themselves as Khain's disciples. All of them lost a great teacher. So it was also with historians of geosciences. This field was the integral part of the Victor E. Khain's world outlook. As the true scientist he realized advantage of the historical analysis and was its clever master.

Two fellow Russian geologists—Victor E. Khain and Vladimir V. Tikhomirov—opened the first page of modern study into the history of geosciences in Russia. Their book 'Short Essays on the History of Geology' (1956) was a major scientific monograph and associated research program.

The International Committee (now Commission) on the History of Geological Sciences (INHIGEO) was founded in 1967 with Vladimir V. Tikhomirov as its first President. Victor E. Khain joined INHIGEO later.

Many chapters of Victor E. Khain's textbooks and monographs are classic works on the history of geology: 'General Geotectonics' (1985), 'Historical Geotectonics' (1984–1988), 'Historical Geology' (1997, 2006), etc. He is also the author of the 'History and Methodology of Geosciences' (1997, 2004, 2008).

Victor E. Khain was fluent in many languages and classic works on geosciences represent the major part of his large library. He was always open for discussions and had a phenomenal memory. Our loss is irreplaceable. There is no more the scientist who can answer any our questions.

Historians of geosciences from Russia

Yang Jingyi (1945–2010)



INHIGEO member, the Chinese historian of science, Professor Yang Jingyi, left us on 17 January 2010 at the age of 65. Yang was born in Beijing in 1945. Although her five-children family depended on her father's salary, she received a good education in her primary and middle schools. She graduated from a senior middle school in 1964, and entered the Department of Geology, Beijing University, which was at that time the best department of geology in China. It seemed that her future was bright. But less than two years later things changed when the Cultural Revolution broke out.

The Cultural Revolution, which began in 1966 and lasted until 1976, brought the entire nation into chaos. Universities and schools suspended classes and all students had to take part in the political movement. In 1969, Yang graduated from Beijing University, though she had only studied two years in that traditionally five-year-education university!

Like most students at that time, Yang was sent to the countryside to be re-educated by the peasants and to 'remould' their ideology. After she married in 1972 she taught English in a middle school in western China, where her husband was then working. Later she had the opportunity to do two years of advanced study at Beijing University, during which period she learned German. Yang worked and studied most diligently. In 1978, she worked at Beijing University when the Department of Geology began to rebuild its exhibition hall. However, she wanted to do research instead of administration. So in 1981 she moved from Beijing University to the Institute for the History of Natural Science (IHNS) of the Chinese Academy of Sciences.

IHNS was established in 1957 and its aim was, for patriotic reasons, to endorse/explore the scientific and technological achievements of ancient China. Therefore, in its early years its main research fields were the history of science and technology in ancient China. After the Cultural Revolution, IHNS developed research on the worldwide history of science and technology in modern times. As a result, a new research department was established in 1978, which needed scholars with academic backgrounds in modern science.

From 1981, Yang worked in the IHNS's department of modern history of science and technology and undertook research on twentieth-century history of geology, both in China and the West. In the 1980s, she studied the historical stages of geology, Chinese plate-tectonic theory, modern Western geological ideas, etc. Most of her work was published in the 1990s, such as a chapter on geology in *The History of Modern and Contemporary Science and Technology in China* (1995) and 'The introduction and development of continental drift and plate tectonics in China' (1989), 'On the formation and development of the fixist theory in tectonics' (1998), as well as tens of other papers.

In 1987, Yang had the opportunity of a year of advanced studies abroad. She entered the School of History and Philosophy of Science at the University of New South Wales in Australia, where she attended various lectures, including ones on the Darwinian Revolution, the relations between art and science, etc.; and she co-

authored some papers with David Oldroyd, such as ‘On being the first Western geologist in China: the work of Raphael Pumpelly’ (1996).

After her year abroad, Yang developed her interests in the introduction of geological ideas into China, paying particular attention to Sino–Western scientific exchanges. And after she returned to China she published several further papers, such as ‘The introduction and development of continental drift theory and plate tectonics in China: a case study in the transference of scientific ideas from West to East’ (1989), ‘The interchange of geoscience ideas between the East and the West’ (1991), ‘The geological work in China of Bailey Willis’ (1998), and ‘A Chinese geologist, Ma Ting-Ying (1902–1979): from coral growth-rings to global tectonics’ (2003). She also translated some Western academic books into Chinese, such as David Oldroyd’s *Thinking about the Earth* (2006).

Yang loved her research and would like to have made more contributions on the history of geology. Unfortunately, however, the IHNS changed the retiring age of female scholars from 60 to 55. So she had to retire in 2000. After retiring, she still worked hard on research and translation. She is survived by her husband (a professor at Beijing University), a son and a daughter.

Jiuchen Zhang, Bing Wang (Beijing)

Jean Jones (1935–2009)

My friend Jean Jones, the pre-eminent scholar of the life and work of geologist, James Hutton (1726–1797), died on 3 May 2009, in Edinburgh, at the age of 74, after a long and heroic struggle with ill health. She received fine obituary notices in the *Guardian* (14 August, p. 35), as a “meticulous editor and historian of science”, while the *Scotsman* (15 August, p. 47) instead called her “editor, curator and artist”. These—both on line—give basic biographical data, and show the enormous range of her interests and skills. This notice will refer more specifically to her work as a historian of geology and science, and to the fun we had together.

We made contact because of a mutual interest in studying the private archives of the steam engineer James Watt (1736–1819), which were held at Doldowlod, near Lanwrthwl in Radnorshire/Powys. Their then owner, Lord James David Gibson-Watt (1918–2002), would understandably only allow limited access to them and so, in the early 1980s, Jean and I decided to try and get there together. Her letter of application, of 27 September 1983, having succeeded (I am sure only because Jean had written it), I found myself driving Jean, in March 1984, from Crewe into the wilds of mid Wales, in one of my old cars. Going together meant we could devote more time to being grateful, since, while one of us was busy in the attic, the other was able to say thank you, and drink the Gibson-Watt whisky. This helped us to get invited back, and on a later visit, another old car would not start. Lord Watt, regarding at least one of us, as a ‘lady in distress’, insisted I borrow the estate Land Rover to take Jean to the local hotel at Newbridge-on-Wye. This allowed us more time next day, to work on these wonderful papers.

On a final visit, Lord Watt asked what we thought of these papers being sold to America, as he had just been offered a seven figure sum for them. We both agreed that we had to try to keep them in Great Britain (although Jean thought in Edinburgh, while I thought in Birmingham, where the business papers already were). In the end, these private papers of James Watt and his family were purchased from Lord Gibson-Watt, in June 1994, with the assistance of the National Heritage Memorial Fund, Victoria and Albert Purchase Grant Fund and many other donors. They are now housed, and well catalogued, in the Archives Division of Birmingham Central Library. They comprise some of the most important documents in the entire history of the Industrial Revolution. Jean and I, meanwhile, had been able to publish our work on these fine, if bawdy, letters, in 1994–1995 (nos. 19 and 20 of her bibliography listed below). It should also be recorded that she was nominated for election to INHIGEO, but chose, in typical Jean style, to decline, so that younger blood could be allowed in instead. This alone justifies this notice here.

In later years Jean worked with Robert Anderson on the papers of Joseph Black (1728–1799), chemist and physician, and a friend of Hutton. A publisher accepted their publication only two weeks before she died and she was thus made aware of this good news. She had fallen ill with a strange, and undiagnosed Parkinsonian-like illness, and I was able to visit her all too rarely. But she remained as kind, stoical and thoughtful as ever. Two concepts defined Jean in all she did: *focus*, and *integrity*. A phenomenal degree of attention, coupled with her fine memory, informed everything she did, from painting, to research, to sport. Her integrity made her fearless in telling people when, in her view, they had strayed from the straight and narrow, from her closest family to simple professional advisers. I am proud and grateful to have had her as a friend. She will be much missed. Her Hutton archives have gone to the Natural History Museum, at the University of Oxford, and the papers on Doldowlod to the archives at Birmingham City Library.

Bibliography of Jean Jones

- 1) 1961, (editor), *Hans Andersen's Fairy Tales*, London and Glasgow: Blackie, 264p.
- 2) 1981, James Hutton: the inner man (a digest of letters), *Edinburgh Geologist*, 10, 17–20.
- 3) 1983, (with George Waterson), *Fair Isle: A Photographic History*, Edinburgh: Blackwood and the National Trust for Scotland, 86 p.
- 4) 1982 (with Gordon Craig), *A Geological Miscellany*, compiled by G.Y. Craig and E.J. Jones, Oxford: Orbital, 195p. : ill. ; 24cm also
- 4a) 1985, another edition: Princeton: Princeton University Press.
- 5) 1982, Some James Hutton (1726–1797) queries, *Times Literary Supplement*, 5 February 1982.
- 6) 1982, James Hutton and the Forth and Clyde Canal, *Annals of Science*, 39, 255–263.
- 7) 1983, James Hutton: Exploration and Oceanography, *Annals of Science*, 40, 81–94.
- 8) 1984, The Geological Collection of James Hutton, *Annals of Science*, 41, 223–244.
- 9) 1984, The Tassie Portrait of James Hutton, *Edinburgh Geologist*, 16, 2–5
- 10) 1984, *Scottish Men of Science. James Hutton 1726–1797*, Edinburgh: Scotland's Cultural Heritage, (booklet, 21 pp., unpaginated).
- 11) 1985, James Hutton's Agricultural Research and his Life as a Farmer, *Annals of Science*, 42, 573–601.
- 12) 1985 (April), No. 21, of a series of articles in Japanese on famous scientists, on James Hutton by Izumi Mori—the pen name of geophysicist Hitoshi Takeuchi (1920–2004)—for which Jean Jones and Gordon Craig contributed the five photographic illustrations (the Raeburn portrait of Hutton, granite and shale pebbles in Glen Tilt gorge, view of Salisbury Crags in Edinburgh, strata at Salisbury Crags, and the metamorphosed contact there), *Newton—Graphic Science Magazine* (published in Higashi-Murayama-Shi, Tokyo), 5, no. 4, 122–127.
- 13) 1986, *A Hotbed of genius: the Scottish Enlightenment 1730–1790*, edited by David Daiches, Peter Jones and Jean Jones, for the Institute of Advanced Studies, Edinburgh, Edinburgh University Press, xi, 160 p.: ill. (some col.), facsimils, 1 map, plans (some col.), ports. (some col.) ; 27 cm, also as 13a) 1996, another edition: *The Scottish Enlightenment 1730–1790*, Edinburgh: The Saltire Society [ISBN: 0854110690].
- 14) 1986, *A Hotbed of Genius*, check list of exhibits for the above exhibition. Edinburgh, Royal Bank of Scotland, 32 p., booklet.
- 15) 1987, James Hutton's Unpublished Manuscript: The 'Elements of Agriculture', *Royal Society of Edinburgh, Year book, 1987*, 44–47.
- 16) 1989, Exhibition Guide: 'Revolutions in Science 1789–1989: Our Changing View of nature and Ourselves', Royal Museum of Scotland: University of Edinburgh, 43 p. [ISBN 0 9514854 0 7].
- 17) 1990, *Morals, Motives and Markets: Adam Smith 1723–1790. A Bicentenary Exhibition*, Edinburgh: Royal Museum of Scotland, 48 p. ill.
- 18) 1991, James Hutton—The Road to Ecology, in Magnus Magnusson and Graham White (eds), *Nature of Scotland: landscape, wildlife and people*, Edinburgh: Canongate Press, 215p., col.ill., 32cm [ISBN: 0862413338].
- 19) 1994 (with Hugh Torrens and Eric Robinson), The correspondence between James Hutton (1726–1797) and James Watt (1736–1819) with Two Letters from Hutton to George Clerk-Maxwell (1715–1784): Part I, *Annals of Science*, 51, 637–653.
- 20) 1995 (with Hugh Torrens and Eric Robinson), The correspondence between James Hutton (1726–1797) and James Watt (1736–1819) with Two Letters from Hutton to George Clerk-Maxwell (1715–1784): Part II, *Annals of Science*, 52, 357–382.
- 21) 1996 (with Mary Uhl), *Under One Roof*, Edinburgh: National Museums of Scotland, 110 pp., ill.
- 22) 1998 (with Peter Jones), *James Hutton's An Investigation of The principles of Knowledge (1794, reprint)*, Bristol: Thoemmes Press, 3 vols, xi + lxxii + 649; xxiii + 734; xvi + 755.
- 23) 1999, Marine Science in the Correspondence of James Hutton and Joseph Black, *Scottish Naturalist*, 111, 157 (Abstract).
- 24) 1999, 'The correspondence of Joseph Black' in *The Petersburg Academy of Science Among Other Academies of the World, Petersburg Academy of Science, Proceedings of an International Conference (edited E.A. Ivanova) for the 275th Anniversary 1724–1999: Volume 4*, 29–39, St Petersburg [ISBN 5–86763-029-3].
- 25) 1999, Essay Review, "Priestley Enlightened": a review of R.E. Schofield, 1997, *The Enlightenment of Joseph Priestley: a study of his life and work from 1733 to 1773*, (publ. Pennsylvania State University Press), *Annals of Science*, 56, 95–98.
- 26) 2004, Sir James Hall of Dunglass, fourth Baronet (1761–1832) chemist and geologist, *Oxford Dictionary of National Biography*, 24, 620–621.
- 27) 2004, James Hutton (1726–1797) geologist, *Oxford Dictionary of National Biography*, 29, 60–63.

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ARTICLE

The emergence of geology in Mexico in the nineteenth century¹

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The Royal School of Mining and the study of geology in Mexico's early years of independence

As was true of other countries, geology as such was institutionalized in New Spain during the period marked by European historiography as the “Heroic Age of Geology” (1780–1840). It is common knowledge that it was within the course on oryctognosy and geognosy (1795) of the Royal School of Mining where for the first time, Werner’s geological theory was taught and the road was paved for formal training of technical and professional cadres that would study Mexico’s geological conformation.

Since he lacked texts in Spanish to use in his classes, Professor Don Andrés Manuel del Río taught those classes utilizing his own notes, which were later published in the book *Elementos de orictognosia* [*Elements of Oryctognosy*],² a work that constitutes the first book on mineralogy to appear in our country. Moreover, the fieldwork designed by professors of this school led to the first geological studies conducted in New Spain in accordance with modern canons.

The Royal School of Mining welcomed European professors such as Sonneschmidt and Lindner, as well as travelers like Baron von Humboldt, who all contributed to the development of geological studies in Latin America. The latter had a long-lasting influence upon the teaching of geology, for Andrés Manuel del Río included Humboldt’s “Geognostic essay on the trend of rocks in two hemispheres” (1822) in the second part of his *Tratado de orictognosia* [*Treaty on Oryctognosy*].

Aside from the intrinsic value of Humboldt’s studies, which I will not go into here, his works sparked interest among scientists, explorers, and investors who traveled to Mexico during its early years of independence and conducted studies in several different disciplines. Especially important as regards geology were European travelers associated with mining companies³ because of Mexico’s varied and little-known topography demanded the attention of technical experts and scientists to carry out geological and mineralogical studies.

During the above-mentioned period, there were a series of government projects involving geological and mineralogical research. For example, work was done on the Isthmus of Tehuantepec (1824, 1826, 1842)⁴ for the purpose of studying and charting the region due to the prospect of eventual interoceanic communication. Subsequently, other similar projects would be devised, making this particular region one of the best-studied areas in Mexico.

Meanwhile, it became increasingly apparent that there was a need for general research efforts that could underpin long-term planning and the organization of the Mexican Republic. Thus, in 1833 the Mexican Institute of Geography and Statistics was founded, with the aims of constructing a Map of the Republic and compiling National Statistics.⁵ Since its creation, this institute grouped together the country’s scientific and intellectual community; when its *Boletín* [Bulletin] began to be published,⁶ Geology finally had a means for disseminating the research done on various topics in this discipline.

Mexican geology in national and foreign projects during the mid-nineteenth century (1841–1864)

For the general history of the sciences, the period I am about to discuss involved the legitimation of geology as an academic discipline, regardless of its acknowledged value from a practical and economic standpoint. This was the result of a process taking place as of the fourth decade of the nineteenth century and comprised the following: the “universal” validation of Lyell’s geological theories and the beginning of an undertaking of international scope involving historical geology; the establishment of canonical methods for fieldwork; the

¹ This text was translated from Spanish by Susan Beth Kapilian. It summarizes some of the findings included in Azuela, Luz Fernanda (2005), *De las minas al laboratorio. La demarcación de la geología en la Escuela Nacional de Ingenieros (1795-1895)*, Instituto de Geografía/Facultad de Ingeniería, UNAM (Institute of Geography/Faculty of Engineering, National Autonomous University of Mexico), Mexico City.

² See the Bibliography for the complete title of this work.

³ From 1824 to 1850, the major investors were from Great Britain, followed by others from the United States of America and Germany.

⁴ The dates refer to commissions on the Isthmus headed by Tadeo Ortiz, Juan Orbegozo, and José de Garay, respectively, while the suspension points are intended to indicate subsequent projects.

⁵ This institute changed names twice, and in 1850 became what is now the Mexican Society of Geography and Statistics (MSGS). Hereinafter, the latter name will be used.

⁶ The first issue of the *Boletín del Instituto Nacional de Geografía y Estadística* [Bulletin of the Mexican National Institute of Geography and Statistics] saw the light in March, 1839.

creation of national commissions for geological exploration in diverse regions of the world; and the founding of professorships in geology at centers of higher learning.

At the same time, the practice of geology in Mexico continued to be limited to geographical exploration and the mining industry. However, the definition of its conceptual boundaries began to take shape in the mining engineering curriculum for 1833, when for the first time the term “geology” appeared as a subject that replaced the former subject of “oryctognosy” (Dublán and Lozano, 1833, document 1268).¹ And this change in nomenclature was repeated in the *Manual de Geología...* [Manual of Geology...] published by Andrés Manuel del Río in 1841, although it was not consolidated until Del Río’s disciple and heir, Antonio del Castillo (1820–1895), appeared on the scene. Del Castillo began to teach and practice Lyell’s geology in the professorship in geology and mineralogy that he took over when the elder professor, Del Río, passed away in 1849.

Yet new occurrences in this field were not restricted to the College of Mining.² In the curricula of the recently opened College of Agriculture (1853), the subject of geology was taught in all the different majors (Dublán and Lozano, 1851–1853, document 4001).³ The College of Agriculture did not play a direct role in the evolution of geology, but the fact that this discipline was a required subject is interesting in terms of the value it was assigned for “scientificizing” agriculture. This was because geology was given the same status as chemistry, physics, and botany—an equation indicating the growing legitimization of this discipline on the cultural horizon.

Nevertheless, the evolution of geology during those years depended upon widespread practice that was not necessarily linked to how it was progressing within the classroom. Rather, geology was subject to the ups and downs of instability and a lack of proper government. For example, there was the Commission of the Valley of Mexico (1856 and 1861), whose aim was to prepare the first *National Atlas including ancient history and geography, archaeology, zoology, botany, statistics, and geological and geodetic-topographic maps of the Valley of Mexico*.⁴ The work of the Commission was interrupted on two different occasions: first, due to a coup d’état and later because of the French invasion of Mexico in 1863 and only part of its original objectives were preserved. Here we should also mention the *Report for the Hydrographic Map of the Valley of Mexico*, which included a geological map of the region made by Próspero Goyzueta that was useful in later research.⁵

There was also an intention to consolidate Mexico’s institutional scientific system through the establishment in 1862 of the National Astronomical Observatory, whose first director was Engineer–Geographer Francisco Díaz Covarrubias. This was the country’s first central astronomical observatory, which was to serve as a model for those existing at the time but which were run by some other agency, such as the observatory operated by the College of Mining. Unfortunately, this was another project aborted by the French intervention, and had to wait a further fifteen years to materialize, despite the spectacular downfall of Maximilian’s Empire in 1867 after a bloody war.

The geological projects of the French during the Second Empire and their continuation in the Restored Republic

Maximilian experienced numerous difficulties in governing Mexico: besides facing Republican resistance, he also had to deal with resentment on the part of his former allies—the clergy and the conservatives—who felt they had been betrayed by the Emperor’s liberalism. Due to Maximilian’s ideology and marked scientific inclinations, his brief reign was characterized by the objective of making science the firm foundation of the organization of his empire. Here we could discuss Maximilian’s scientific policy and comment on his influence over the evolution of Mexican science (Azuela 2002),⁶ but in the case of geology, the initiatives of Napoleon III were much more important, since that French Emperor organized the Commission Scientifique du Mexique (1864–1867), whose major objectives included geological and mineralogical research in view of the interest in this country’s mining potential.

The Commission Scientifique du Mexique (CSM) was created by the Institute of France for the purpose of conducting research on different aspects of Mexico’s territory, inhabitants, and monuments (*Archives...*, Vol. I, 1865–1867).⁷ The French commissioners prepared manuals for each discipline, the one for geology being the

¹ See the Bibliography for the complete title of this work.

² After Mexico’s Independence (1821), the Royal School of Mining was named the College of Mining.

³ The original majors were: theoretical-practical agriculture and veterinary science. In 1856, engineering majors were introduced “for topographers, mechanical and civil engineers, and roads and bridges engineers.”

⁴ That was the tentative title of this ill-fated work.

⁵ Orozco y Berra, Manuel, “Memoria para la carta hidrográfica del Valle de México”, *Boletín de la Sociedad Mexicana de Geografía y Estadística*, primera época [“Report for the hydrographic map of the Valley of Mexico,” Bulletin of the Mexican Society of Geography and Statistics, first epoch], Vol. IX, pp. 337-512, Mexico, 1862.

⁶ One of the expressions of that influence was a reactivation of certain projects such as the Comisión del Valle de México [Commission of the Valley of Mexico], Observatorio Astronómico [Astronomical Observatory], and Museo Público de Historia Natural, Arqueología e Historia [Public Museum of Natural History, Archaeology, and History].

⁷ The decree founding this commission specified research on “the geography; geological and mineralogical composition of the country; a description of plant and animal species; studies on atmospheric phenomena and medical aspects; the study of different races, their monuments [and] their history” (*Archives...*, Vol. I, p. 266).

responsibility of Charles Sainte-Claire Deville (1814–1876),¹ who indicated that the goal would be to construct a geological map of Mexico.² Sainte-Claire felt that there was scarcely any knowledge at all on “the geognostic composition of the new Mexican empire,” and urged the commissioners to complete what little had been done by “a few European observers,” among which Humboldt was foremost.

As can be expected, the ambitious project of making a geological map of the country was not fulfilled, although in the opinion of Maldonado Koerdell, geology was the field in which “the best and most far-reaching work” of the CSM was achieved.³ Here we should add that, besides its bibliographical output, huge collections and specimens were compiled and sent to France. Outstanding among these was the 780-kg Charcas meteorite, which General Bazaine took to the Paris Museum.

As to the significance of the CSM expedition for the subsequent development of geology in Mexico, its members served as instructors to local scientists who joined the Commission to effect off-site and on-site research.⁴ Despite ultimate reluctance to acknowledge in any way the scientific experience amassed during the Second Empire, what we cannot deny is that Mexican science revitalized its research methods; incorporated new objects of study; ensured that modern instruments and bibliography were utilized in institutions; and, above all, realized that there were advantages to be had in an innovative way of organizing scientific practice, and this model that was maintained in later years.

In terms of the continuation of projects carried out by the French, the Restored Republic would begin by avoiding rifts with the scientific community and would also preserve the modernizing, science-oriented spirit that Benito Juárez had announced before the French Intervention.

An important step taken was to reform the country’s educational system, thanks to which the College of Mining was converted into an up-to-date School of Engineering, with new majors and curricula.⁵ Let’s take, for example, the case of geology, taught within the major of mining, but now including the subject of paleontology.⁶ With that, the education of future “geologists” –who were to receive the title of mineralogists– would now cover three subdisciplines which, along with physics and chemistry, were to round out systematic training in the theoretical and esoteric contents of the geology of that era.⁷

Naturally, during field practice, unprecedented geological explorations continued to be conducted, increasing the knowledge of Mexico’s territory. However, methodically organized research had to be postponed because until then, there was not even a general map of the Mexican Republic or specific ones for each of the states comprising the federation. Such limitations would be made up for during the administration of Porfirio Díaz, who founded more than twenty scientific institutions that came to transform the country’s scientific practice and thought.⁸

The founding of the Geological Institute of Mexico within the framework of a policy supporting science

President Porfirio Díaz began his administration with a great display of his interest in Mexico’s scientific development, creating the Observatorio Astronómico [Astronomical Observatory] (1876) to support precision mapping. In 1877, that project was complemented by the founding of the Comisión Geográfico-Exploradora del Territorio Nacional (CGE) [Geographic-Explorer Commission for the National Territory], which was to prepare the Map of the Mexican Republic and specific maps, as well as to establish the Observatorio Meteorológico Central [Central Meteorological Observatory], which would regulate the activities of a national network that began to take shape. The importance of the above-mentioned agencies for the development of geology involved, in the first place, the series of maps they completed as an essential, irreplaceable tool for research. But they were also fundamental to extending centralized scientific activities towards different points of this country’s immense territory, as was the case of observatories.

Professional education of geologists continued at the School of Engineering, albeit with substantial modifications in curricula. In the curriculum for 1881, mineralogy, geology, and paleontology were brought together in a single course, while applied chemistry and metallurgy courses continued to be taught.

¹ Sainte-Claire Deville, geologist, member of l’Academie des Sciences (1857), and founder/director of the Observatoire de Montsouris.

² Sainte-Claire Deville, Charles (1864), “Géologie et minéralogie,” *Archives...*, Vol. I, p. 37. [The following quotations are taken from this text (pp. 37-48), for which reason I will omit the reference.]

³ Maldonado Koerdell, Manuel (1965), “La obra de la Comisión Científica du Mexique,” p. 172.

⁴ Some were appointed as foreign correspondents by the French Ministry of Public Instruction, while others simply were among the collaborators.

⁵ Ramírez, Santiago, *Datos para la historia del Colegio de Minería...*, p. 490.

⁶ Actually, there was an earlier proposal to include paleontology in the curricula in 1861, but that intention was cut short by the Empire (Dublán and Lozano, “Decreto del gobierno sobre la instrucción pública,” in: *Legislación mexicana...*, Vol. IX, Art. 25, pp. 153–154).

⁷ Mining engineers were required to take the following courses: mechanics applied to mines and construction, topography, applied chemistry, chemical analysis, mineralogy, metallurgy, geology, paleontology, botany, zoology, artesian wells, mining ordinances, and mining practices (Dublán and Lozano, *op. cit.*, Vol. X, document 6182, p. 195).

⁸ See Azuela, “La institucionalización de las ciencias en México durante el Porfiriato”.

Nevertheless, the fact that the teaching of geology was aimed at training mining engineers hampered the potential for research. Two factors were necessary for such research: formal, systematic, and specialized schooling in this discipline, and the existence of an organization or agency that would direct research and promote a discussion of the progress being made in geological research throughout the world.

Eng. Antonio del Castillo was the person who advocated reaching those goals. After having represented Mexico at the III International Geological Congress, held in Berlin in 1885, he proposed the creation of a Geological Institute for the purpose of constructing a Geological Map of Mexico to be presented at the following Congress, to take place in London in 1888.

Del Castillo knew that the geological map of the country would be of little interest to politicians, so he worked out a justification for it in the sense that it would serve “the interests of the Mexican Republic.” For that reason, he claimed that the institute would be aimed at “effecting a geological study of the territory, making the information collected known from both a scientific and industrial standpoint.”¹ Evidently, his strategy was appropriate, for on 26 May 1886, the Mexican Ministry of Development submitted to the Chamber of Deputies an agreement signed by President Porfirio Díaz to establish that agency, although it would have to wait several years until it was allocated a budget and could come into operation.

That occurred when Mexico received an invitation to take part in the Paris Centennial Exposition where the belated Geological Map of Mexico could be displayed along with many other scientific and commercial items. Through the use of scientific terminology, that Geological Map would account for the country’s metal riches, which could attract both capital and investors. And, at the same time, it would show the world that under Porfirio Díaz’s guidance, Mexico was taking giant steps towards becoming part of “the concert of civilized nations.” Thus, in March 1888, a Comisión Geológica (CG) [Geological Commission] was created to draw up the Map and was assigned sufficient funds to compile and analyze an array of “scientific facts” regarding the geological and mining composition of the Mexican Republic.

At this point, it would be worth our while to stop for a moment and note that the Geological Commission was the first agency specifically established for the purpose of conducting “geological” research.² This fact alone entails an assimilation of disciplinary divisions in scientific endeavors: for the first time in Mexican history, the country’s geologists were to pursue fieldwork that would coincide with the classification of knowledge accepted by academia.³

Moreover, the presence of the Geological Commission within the institutional system for organizing the sciences contributed to the process of socially defining geology and legitimated the practice of this science within limits that were perfectly identified by the scientific community. It had prompted an unmistakable distribution of values within societal life: a separation had been established between the practice of mining and the independent practice of geology.

All of this could be observed in the collective efforts made to conclude the project, which would involve the Bosquejo Geológico de México [Preliminary version of the Geological Map of Mexico], Carta Minera de la República Mexicana [Mining Map of the Mexican Republic], and the 4 000-item collection of minerals, rocks, and fossils accompanied by various replicas of Mexican meteorites. On the other hand, as regards legal issues, on 17 December 1888, an initiative was approved to create the Instituto Geológico [Geological Institute], yet its inauguration would have to wait.⁴ With that promise in his heart and mind, Antonio del Castillo took a collection of items representing Mexican geology to the Paris Centennial Exposition, where the products exhibited received prizes and other forms of recognition.

When the Geological Institute was established in 1891 as an autonomous entity belonging to the Ministry of Development—with a special allocation within the Federal Budget for maintaining it—, geology in Mexico became formally institutionalized. The unique, independent nature of this scientific discipline had finally been acknowledged, as well as the legitimacy of its professional practice.

References

Archives de la Commission Scientifique du Mexique, Ministère de l’Instruction Publique, Imprimerie Impériale, 3 vols., Paris, 1865–1867.

¹ *Estatuto del Instituto Geológico de México*, cited in Ordóñez, Ezequiel (1946), *El Instituto de Geología*, pp. 10–12.

² The first director of the Commission was Antonio del Castillo, who included José G. Aguilera as an assistant geologist and Ezequiel Ordóñez—still a student—as a “draftsman and landscape artist,” although he actually served as a geologist. Also participating were the geologist Baltazar Muñoz, topographical engineers Francisco Garibay and Lamberto Cabañas, cartographer Juan Orozco y Berra, clerk and collection curator Francisco Brito (later replaced by Juan Alonso), and draftsman Luis Becerril (Rubinovich, Lozano, and Mendoza, *Ezequiel Ordóñez*, p. 34).

³ I am deliberately excluding geological explorations carried out by the Commission Scientifique du Mexique and those done by other foreigners.

⁴ *Diario Oficial de la Federación* [Official Gazette of the Mexican Federal Government], Vol. XIX, No. 152, p. 2, December 25, 1888.

- Azuela, Luz Fernanda, “La institucionalización de las ciencias en México durante el Porfiriato,” in: María Luisa Rodríguez Sala and Iris Guevara González (coords.), *Tres etapas del desarrollo de la cultura científico-tecnológica en México*, Instituto de Investigaciones Sociales/Dirección General de Asuntos del Personal Académico, UNAM [National Autonomous University of Mexico], Mexico City, 1996, pp. 73–84.
- “Los Naturalistas Mexicanos entre el II Imperio y la República Restaurada,” in: Patricia Aceves and Adolfo Olea (coords.), *Alfonso Herrera: Homenaje a cien años de su muerte*, Biblioteca de Historia de la Farmacia, Universidad Autónoma Metropolitana-Campus Xochimilco, Mexico, 2002, pp. 47–67.
- *De las Minas al Laboratorio: La Demarcación de la Geología en la Escuela Nacional de Ingenieros (1795–1895)*, Instituto de Geografía-Facultad de Ingeniería, UNAM, Mexico, 2005.
- Dublán, Manuel and José María Lozano, *Legislación mexicana o Colección completa de las disposiciones legislativas expedidas desde la Independencia de la República*, Talleres Gráficos de la Nación, Mexico, 20 vols., 1876–1902.
- Maldonado-Koerdell, Manuel, “La Obra de la Commission Scientifique du Mexique,” in: Arturo Arnaiz y Freg and 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, 1965, pp. 161–182.
- Ordóñez, Ezequiel (1896), “Memoir of Antonio del Castillo,” in: Proceedings of Philadelphia Meeting, *Bulletin of the Geological Society of America*, 7: 486–488, Philadelphia, 1896.
- *El Instituto de Geología. Datos históricos*, Instituto de Geología, UNAM, 1946. [Institute of Geology, National Autonomous University of Mexico], Mexico.
- Ramírez, Santiago, *Datos para la Historia del Colegio de Minería, Recogidos y Compilados Bajo la Forma de Efemérides por su Antiguo Alumno el Ingeniero de Minas ...*, Second facsimile edition, SEFI-UNAM, Mexico, 1982.
- Río, Andrés Manuel del, *Elementos de orictognosia, o del conocimiento de los fósiles dispuestos según los principios de A.G. Werner para el uso del Real Seminario de Minería de México* by . . . Professor of Mineralogy of the Royal School of Mining appointed by the King, Honorary member of the Leipsic [sic] Economic Society and other foreign societies, and Correspondent of the Madrid Royal Medical Academy, *Primera parte, Que comprende las tierras, piedras y sales*, Impreso en México: por Don Mariano Joseph de Zúñiga y Ontiveros. Año de 1795. 172 pags. *Segunda Parte, Que comprende combustibles, metales y rocas, seguidos de la introducción a la Pasigrafía geológica del Sr. Baron de Hunboldt* [sic], México, 1795.
- *Manual de geología, extractado de la Lethaea geognóstica de Bronn, con los animales y vegetales perdidos, o que ya no existen, más característicos de cada roca, y con algunas aplicaciones a los criaderos de esta República para uso del Colegio Nacional de Minería*, Imprenta de Ignacio Cumplido, Mexico, 1841.
- Rubinovich, Raúl, María Lozano, and Héctor Mendoza, *Ezequiel Ordóñez. Vida y Obra (1867–1950)*, 5 vols, El Colegio Nacional, Mexico, 1988.

NOTES AND QUERIES

Grove Karl Gilbert (1843–1918) and the “Gilbert Collection” in the Library of Denison University (Ohio, USA)

When Grove Karl Gilbert heard from his colleague Frank Carney, of Denison University, that a disastrous fire (1905) had destroyed the college’s science building, he bequeathed his geology library to the liberal arts institution in central Ohio. This note provides a microcosmic introduction to Gilbert, to Denison, and to the current holdings of the “Gilbert Collection.”

G. K. Gilbert is a major figure in the evolution of geoscience. His contributions touch upon pioneering exploration of the American West, research across a wide variety of subdisciplines, important administrative work at the young United States Geological Survey (USGS), and noteworthy reflections about the methodology and philosophy of natural science. He took part in the Wheeler and Powell Surveys that explored and sought to explain the geology of the West beginning in the 1870s. When the four great surveys of the West were amalgamated in 1879 to form the USGS, Gilbert and his good friend John Wesley Powell (1834–1902) headed to Washington, D.C., to form the core of the Survey. Powell subsequently became second Director (1881–1894) of the USGS. He relied upon the counsel and hard work of Gilbert to help forge the organizational structure and research programs of the young agency. Gilbert’s research ranged from glacial geology, beginning with work in Ohio in 1869, to quantitative sedimentology and experimental work with flumes, conducted late in his life in California. Among the best known of Gilbert’s research projects is his pioneering work in the Henry Mountains of Utah, where he recognized and named laccoliths. Another is his investigation of ancient Lake Bonneville,

also in Utah, where he not only called attention to such geomorphological features as descending strandlines associated with shrinking of the lake in dry intervals, but discussed isostasy as a function of crustal loading by huge volumes of water. This is not the place to consider the full range of Gilbert's research, but it should be noted that he made noteworthy contributions to geomorphology, structural geology, sedimentology, earthquake studies, quantitative geology, effects of hydraulic mining, and philosophy of science. William Morris Davis (1850–1934), the renowned geomorphologist, wrote a 303-page memoir (1927) that celebrated Gilbert's life and work. More recent treatments of Gilbert include the valuable biography by Pyne (1980) and an important collection of essays edited by Yochelson (1980).

In the same month that Darwin was setting sail on the *Beagle* (December 1831) a liberal arts college (to become Denison University) was founded in central Ohio. It would interact with Gilbert in a rather interesting way. Although young in the context of educational institutions founded in classical civilizations or in medieval Europe, American colleges date back to the seventeenth century (Harvard, 1636; William and Mary, 1693). They expanded into Ohio with the westward-moving frontier throughout the nineteenth century (Kenyon, 1824; Denison, 1831; Oberlin, 1833). Many of the schools had ties to Christian denominations, and part of their mission was to educate clergy who could then carry messages to the increasingly well-educated population in the rapidly expanding nation. Of note is the fact that many of the founders felt strongly about the merit of including natural science in the instructional program. For example, by the mid-1830s Denison had a professor of geology, and courses in geology and mineralogy were already in the curriculum. Field investigation was a featured pedagogical practice. In the Civil War era (1865), young women from the associated Young Ladies Institute accompanied Denison men on geological field trips. Early on, faculty recognized the value of creating a strong library and extensive collections of rocks, minerals and fossils. When a huge fire engulfed the Denison science building in 1905, the entire accumulated resources of library books, lab equipment, and collections were lost overnight.

G. K. Gilbert came to the rescue! His colleague Frank Carney had joined the Denison faculty in 1904, was distraught at the horrific loss of valuable materials, and communicated his concerns to Gilbert. Already contemplating divesting himself of much of his library, Gilbert agreed to donate his rich collection of geology-related materials. As the college newspaper reported on 7 October 1908, the friendship between Prof. Carney and G. K. Gilbert was the reason for the very substantial gift. The newspaper stated that Carney had written to Gilbert, explaining the situation and inquiring about the availability of elements of his personal library. Gilbert's response was the prompt and generous donation.

At the present time, the "Gilbert Collection" at Denison University contains more than 500 volumes, plus a large number of maps and charts. Many of the items bear Gilbert's handwritten signature, and others have dedications penned by the author of the book or article. The staff of the library recently created a spreadsheet that lists titles, Library of Congress classification, and information regarding signatures and dedications. Anyone with specific questions about titles and availability of works in the collection is welcome to contact me (bork@denison.edu).

References

- Davis, William M., 'Biographical Memoir of Grove Karl Gilbert, 1843–1918,' *National Academy of Sciences*, 1927, 21, 1–303.
- Pyne, Stephen J., *Grove Karl Gilbert: A Great Engine of Research*, University of Texas Press, Austin, TX, 1980.
- Yochelson, Ellis L. (ed.), *The Scientific Ideas of G. K. Gilbert: An Assessment on the Occasion of the Centennial of the United States Geological Survey (1879–1979)*, Geological Society of America Special Paper 183, Boulder, CO, 1980.

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"Global Heritage Stone Resource"

INHIGEO members may be interested in the proposal to create a "Global Heritage Stone Resource" designation that aims to provide formal recognition for those natural stone resources that have been utilised in artistic and architectural masterpieces, and/or heritage construction.

The Global Heritage Stone Resource (GHSR) suggestion has been developed under the auspices of "Commission C-10 Building Stones and Ornamental Rocks" of the International Association for Engineering Geology and the Environment (IAEG) and details of the proposal have also been circulated to IUGS (to which IAEG is affiliated) with publication of an article being planned in the journal "Episodes".

The proposed GHSR designation will uniquely address the crossover realm between the geological sciences and human culture. The historic value of recognising a GHSR arises as such recognition will raise the profile of many heritage building stones to greater prominence through the researching GHSR citations. It will also promote increased overall awareness of building stone and its widespread utilisation in human culture. The associated designation of a 'Global Heritage Stone Region' has been further recommended for areas where there are many closely related types of building stones of historic importance.

At this development stage, there is a need to further discuss and develop rules for GHSR designation. Draft statutes are available and have been published in the First Circular of the "Global Heritage Stone" in May 2009. For designation it suggests that there must be a history of usage involving a GHSR nominee encompassing a significant period, perhaps 50 years. Also crucial is that a GHSR nominee would need to be utilised in important historic works, which would need to be listed. This could be a single major construction or use over a period of time in routine works that may range from domestic building to fencing or even industrial applications. Wide geographic utilisation is also important although not perhaps an essential GHSR characteristic.

How should the GHSR status be regulated? It has been suggested that formal designation could be facilitated via a Commission under IAEG and/or IUGS. Certainly a permanent organisation will be necessary that has international credibility and that includes representatives from all major world stone producing regions, including Europe, North America, South America, North & East Asia, South Asia, Africa, Oceania with no one country or region having dominance.

INHIGEO members are welcome to contribute to these GHSR development discussions and have their names placed on the circulation list for future Global Heritage Stone Circulars

More details about the proposed GHSR designation, including the 'Global Heritage Stone—First Circular' and current Draft Statutes, can be obtained from the INHIGEO Secretary General, Barry Cooper, who is also convener of the IAEG C-10 committee that is guiding this proposal.

Barry Cooper, Adelaide

"Society for the History of Geophysics and Cosmical Physics"

Wilfried Schröder (INHIGEO member Germany) reports on the 10th anniversary of the Society for the History of Geophysics and Cosmical Physics. In 2000 some interested scientists founded the "Society for the History of Geophysics and Cosmical Physics". In the following years, the number of members has grown and now more than 300 scientists from all parts of the world are members. The Society publishes its own journal "Contributions to the history of geophysics and cosmical physics" in the last issue of which were papers on the great aurora of 1770, the discovery of solar wind, the relations of internationally renowned geophysicist, Sydney Chapman, to German scientists, a biography of French oceanographer, Bernard Saint-Guily, the discovery of sunspots by Johann Fabricius, the well known geophysicist and expert in geophysical hydrodynamics, Hans Ertel, and other topics. From time to time meetings are arranged. Further details from Wilfried Schröder, E-mail geomoppel@t-online.de.

History of Oceanography Newsletter

INHIGEO members may be interested in the "History of Oceanography Newsletter, the new Editor of which is Dr Paul Hughes (e-mail: tides@btinternet.com). Dr Hughes will be pleased to receive any suitable material for the forthcoming issue: short articles, book reviews, work in progress, notices, announcements of meetings—anything of interest to historians of oceanography and the marine sciences in general.

Sources of Second-Hand Books and Reprints

INHIGEO Members may like to know about 'ABE Books' (find them with Google). They provide (online) a vast listing of second-hand books from hundreds (thousands?) of dealers round the world, many of the books being geological in character. Books are listed according to price, so you can choose a cheaper or a more expensive version.

A lot of geoscience books have recently been reproduced as books on demand and are very cheap. For example I have just bought Greenough's *Examination of the First Principles of Geology* and Murray's *Comparative View of the Huttonian and Neptunian Systems of Geology*. You get the texts, but in the case of the Greenough it was rather garbled as they scanned by letter recognition, not by scanning as a pdf for each page (for example). But the Murray was fine. The publisher is called General Books LLC. These are listed by ABE Books (and shown with brown covers), though they aren't strictly second hand.

Another company, Kessinger Publishing, produces facsimile reprints on demand, a bit more expensive, but you get facsimile copies. Their stuff appears in the ABE listings also (blue and white covers). It's well worth while visiting their website (www.kessinger.net). They have thousands of books, but nearly all in English.

ABE are very efficient. It takes about 10 days from ordering to delivery in Australia. It would be quicker in Britain or America.

If there's a book you want badly or in a hurry, ABE is the way to get it.

David Oldroyd, Sydney

BOOK REVIEWS

Giovanni Arduino's geological correspondence

Ezio Vaccari (ed.), *Lettere di Giovanni Arduino (1714–1795) geologo*, Edizioni Think Adv, Conselve, 2008, 239 pp.

This volume epitomizes a recent new wave of Italian historiography in the Earth sciences and the strictly related pre-historical archaeology to investigate and document the enormous amount of relevant legacy of this country mostly hidden so far to both national and international audiences. Beyond this *Arduino's correspondence* by Ezio Vaccari, I could quote *Fossils and Reputations* by Pietro Corsi in 2008 (reviewed in INHIGEO Newsletter No 41, 2009) and *Gli scavi di Scarabelli a S. Giuliano di Toscanella: un inedito secolare* by Gabriella Morico in 2007, both shedding more light on leading and pioneering scientists still floating more in the legend than truly evaluated for their works and writings.

Ezio Vaccari is the top specialist historian of Arduino, having published a complete monograph on his life and works in 1993, and a series of special papers on Arduino's wide ranging interests within the Earth sciences.

The current volume opens with a synthetic introduction of Arduino's scientific life which goes hand in hand with the selected letters—60 out of a total of more than 600 in and out from 1753 to 1795, mostly unpublished and only a few previously published—extending from 1757 to 1785, and documenting Arduino's life as a geologist. A schematic Arduino's bio-bibliography, and an updating of his bibliography already published (Vaccari 1993) follows.

A large part of the volume is devoted to 59 mostly unpublished Arduino's letters followed by his most famous *Lettera Seconda ad Antonio Vallisneri* dated 1759 and published in 1760. Letters are chronologically arranged. One half of them are addressed to Antonio Vallisneri junior, the others to 19 different scientists among which the most prominent are Alberto Fortis, Giovanni Targioni Tozzetti, Friedrich Heinrich Wilhelm Martini, Carlo Allioni, Martin Brünnich, Ignaz von Born, Johan Anders Retzius, Benedetto Spirito Nicolis di Robilant.

This volume is the third issue of an editorial series aiming at unravelling by means of correspondence the relevant role played by savants and naturalists of the Venetian region of NE Italy in the development of modern science as it appears in a multi-central federalist approach.

The letters are of extreme interest especially for an international audience, so that their lack of an English translation is highly regrettable. Therefore a wide review of the numerous items of interest is appended here with extensive comment.

As an immediate result of the reading, a lively characterization of the man, known from only a few portraits, is obtained. Through the different editions of the *Encyclopaedia Britannica* and a series of Stratigraphy and Geology text-books, Arduino is one of the most quoted ancient Italian geologists for having introduced as early as 1759 the terms Primary, Secondary, Tertiary, and by extension Quaternary, two of which are still alive and of growing use. In fact, in spite of the successful replacement of the first two with Palaeozoic and Mesozoic by J. Phillips in 1840 and the equivalence of the second two with Cenozoic, Tertiary and Quaternary are even more used, and Primary and Secondary were never discontinued nor abolished (Vai 2007). Surprising enough, the reason for introducing the junior synonyms, Palaeozoic and Mesozoic, was the difference in biotas, the same major difference stressed by Arduino a century earlier in making this distinction.

What was the nature of scientist and the man?

Now the letters tell us he was special in **character**, strong in feeling and humble at the same time, never impudent but fully aware of his value and a proud defender of his discoveries, continuously claiming not to have the time needed for doing field research and writing his thoughts because of his professional and institutional duties. He frankly admits to having no special training nor aptitude in languages, to ignore the true meaning of Gallicism, and to have little experience of writing books, as to declare "I may lack of ability but not of materials".

He is neither competing nor envious of anybody, moreover he appreciates other's merits and labour. "I know well my faults and admire other's virtues and doctrine, even if little". However, he reveals a great challenge in dealing with envious and wicked colleagues.

He is striving for precision at all time professionally, in research and in technical **terminology**. For example, he does not accept that publishers modify his use of the Italian term *minera* = mine, instead of the common Italian *miniera*.

Biographical notes are widespread in the letters. It is a pleasant surprise to know that Arduino was warmly wishing the best to “our Italy” more than a century before the political unity of the country was accomplished in 1861, suggesting that a common national feeling was growing beyond the pure common language.

At least two references to the ongoing peak decades of the Little Ice Age during the mid Eighteenth century are made. Arduino was persecuted by rain and snow during his Recoaro travel in October 1758. And a shortage of burning wood was increasingly felt (1771). We are also informed that Arduino asked for a print run of 50 to 100 copies of his two letters printed in the Venetian *Nuova Raccolta* by Father Angelo Calogerà in 1760.

Arduino was really in love with his stones: “I like my stones, and except when I have to donate them for some important reasons, they feel well with me”.

Although busy in his Engineering profession, Arduino did not abandon “the research on fossils [i.s.], their origin and meaning to understand the great Book Nature keeps open to let us understand his true history, only a few have meant”.

In Arduino’s studies and research at a pit in post-Tertiary alluvial deposits, a large manual screw drilling tool is mentioned to investigate the most suitable sites of the foothill plains. Additionally, Arduino had extremely observational powers.

It is useful to know that in the second half of Eighteenth century many savants in Germany and Sweden cultivated the Italian language, and the scientific magazine *Giornale d’Italia* was “available all over Italy, in Germany, France, and even England”.

In his letters Arduino **quotes** usually with respect or admiration the following scientists: A. Vallisneri senior, M. Mercati, G. Buffon, C. Linnaeus, B. Maillet, N. Steno, V. Donati, G. Baldassarri, G. Targioni-Tozzetti, J.H. Pott, J.J. Becher, A. Barba, J.J. Rousseau, J.E. Guettard, J. Strange, Plato, Aristotle, W. Whiston, J. Woodward, I. de Born, J.J. Ferber, John Stuart of Bute, A.F. Cronstedt, J.F.W. Charpentier, H.B. de Saussure. However, he does not hesitate to criticise on specific topics Buffon, Linnaeus and Guettard.

His **palaeontological** remarks on fossil [s.s.] remains are relatively common. “Hardened” or “petrified shells” are considered as fragmented lithic components of “soft stones as those in the Berici Mountains”.

Arduino is deeming to have found fossil corals in the Venetian rocks, and is looking for verification by peer colleagues. The same apply for comparison between nummulites that he has collected in the Venetian and Tuscan hills. Arduino knows well the *Systema Naturae* by Linnaeus and is happy to share with Buffon the opinion “that Linnaeus’ system is out of nature”.

To make the point clear, Arduino states “one should not be fanatically captured by men’s opinion, although renown”: a structural refusal of any authority principle in science.

As many other scientists of his time, although enlightened, Arduino was a Roman Catholic **believer**. At the same time, he was clearly aware of the differences between and the autonomy of science from both metaphysics and theology.

Arduino is an outspoken **experimentalist** and a follower of the school of natural history established by U. Aldrovandi, M. Malpighi, N. Steno, A. Vallisneri, L.F. Marsili, and the Istituto delle Scienze di Bologna.

As with many other Italian geoscientists, Arduino does not take part to the major controversy of **Neptunists** vs **Plutonists**. His position (representing the large majority of the Italian Earth scientists) is a very balanced and realistic interplay of water and fire actions, based on wide-ranging field research.

As an example of water action, Arduino is one of the first authors, after G. Monti in 1720 (Sarti 2003), to speak about fluid (“water and air”) inclusions he had observed inside minerals like opal and other gems secreted from water in the process of petrifying.

As an example of fire action, Arduino states “All types of Gabbro I have observed in Tuscany and the Duchy of Modena . . . seem to have been originated from the subterranean Fire”. The conclusion is “The more I observe structures, materials, and phenomena of our Globe, the better I am convinced that Neptune and Vulcan have been the main re-builders, at least in the visible part of the Globe”.

Arduino used neither the term geology nor the term geognosy in these letters. Geognosy was introduced by Werner in 1774. Geology and geologists were used by Arduino in 1758, 1760, 1774. In 1760 “Geology” replaces a previous “Theory of the Earth” (Vaccari 1993) showing Arduino’s synonymic intent. However, though writing sometimes Geogony (origin of Earth) and Orognosy (mountain knowledge), Arduino commonly refers to **Oryctology and Oryctography**. Oryctology (the science of excavated things) is a perfect synonym of Geology (the science of the fossils i.s., according to U. Aldrovandi 1603). Oryctography is the analogous descriptive term giving the advantage to prevent semantic confusion with ‘geography’, and has a meaning very close to stratigraphy as later used by W. Smith in 1817, A. d’Orbigny in 1849, and G. Scarabelli in 1859 (Vai 2007). This stratigraphic meaning was quite different from the geognostic (strongly petrographic-

linked) approach of the Freyberg school. It is not by chance that Arduino does not quote any of the leaders of that school except for Charpentier.

Arduino's oryctography incorporates the concepts of earth history (as a goal of research) and geologic time related to the succession of strata and their organic fossil content (as a working tool). The geognostic approach made reference to the rock type only. In fact, Arduino recognizes different types of fissile (metamorphic) rocks (some primaeval, some younger) and different generations of granites (some older, some younger).

Arduino's "four general Orders" are rocks of partly different lithology that are fundamentally identified for being "successive" and for bearing the formal homonymic name of "Epochs", thus having a direct chronologic implication. Unlike geognostic units, resembling primarily our lithostratigraphic units, Arduino's **orders/epochs** are the prototype of our chronostratigraphic/and chronologic units, as they were introduced at the 2nd IGC in Bologna 1881 (Vai 2007, 2009). For him, his orders are the tools to unravel "the Physical History of the Earth . . . and the general Epochs of its formation".

Quite like L.F. Marsili, Arduino's continuous and unfulfilled dream was to write and print a "**Theory about formation and different ages of the mountain strata**". However, in many letters he reviews or summarizes hints, aims, scope and criteria of this challenge. Special important remarks which are not or only partly contained in his famous *Seconda Lettera* printed in 1760 are as follows.

- (a) "I am wondering the uncountable diversity of Animals and Plants, most of them products of the sea imprisoned in such an immense amount in our Hills and Mountains".
- (b) There are "different degrees of perfection in the species of petrified marine Animals, those in the lower strata being imperfect (Secondary) and those in the upper strata more and more perfect, following the order of their successive formation, so that in the last strata (Tertiary) species are the most perfect, and quite the same as those which are found in the present sea. It is surprising to see that in the stony strata deeper than those referred to above, only uncountable Productions are seen, like embryos or attempts" (1760). This offers an astonishing early preview of an evolutionary theory of life and Earth history.
- (c) Marine sedimentation is briefly described in clear uniformitarian terms (this is not surprising, having been observed even in Aldrovandi's works in the late Renaissance, Vai 2003). An early uniformitarian principle is formulated when Arduino requires somebody to make observations on Vesuvius and the Zolfatara near Naples "considering which differences are remarkable between the ancient and the modern eruptions" (1765). An even more operational definition of uniformitarianism is given when he says "the marvellous effects produced by Water and Fire in our Globe during the most remote centuries are tentatively explained based on the analogous products they are providing at present" (1773).
- (d) After the publication of his *Seconda Lettera*, Arduino is curious to compare his theory and classification with other systems. In the case of Guettard, "it does not seem to me that his zones [or mineral bands] may correspond to my great strata". He argues that "the theory of the Earth is still very faulty and derived from inconsistent and not precise observations" (1764). This happens also because "many Cabinet's Naturalists have seen almost nothing of nature except what is preserved in the Museums" (1764).
- (e) Worthy of notice, Arduino was the first "to think about the Genesis of Mountains, and Plains" (1764) and not only mountains. To the plains in fact his "Fourth Order" is critically referred. This means that "Mountains and Plains" are not regarded as landscape or geomorphological units, but as 'geologica' entities, worthy to be described and classified for their internal contents.
- (f) In later letters, Arduino claims for his priority in discovering very ancient extinct volcanoes (1773). He also recognizes that his "Language" (Orders = Epochs) is getting used commonly by naturalists and also Amateurs "which are prone to think" (1773). Such pride is shared by the entire Italian geoscience community when Arduino stresses "it should be known that the Subterranean Realm is observed not only by ultramontane savants in the cold North" (1773).
- (g) A summary of Arduino's chronostratigraphic/chronologic classification in Primaeval, (1) Primary, (2) Secondary, (3) Tertiary, and (4) Fourth Order is reported in many letters. The most interesting, perhaps, provides some details about the Fourth Order, substantially an explicit predecessor of the Quaternary. It contains (i) coarse grained pebbles and blocks of different lithologies "deposited from Rivers at high altitude of our Mountains in the most remote centuries as I show in Sette Comuni, Folgaria and more places of the Feltre and Verona Mountains; (ii) bodies of small pebbles and gravel, more or less cemented, deposited after some *sea-level rise* [italics added] at the foot of the Sette Comuni mountains up to a horizon which perhaps is higher than the surface of our plains by one quarter or two of a mile, as one may see near Marostica, etc" (1774). In Arduino's mind, therefore, the Quaternary, or his Fourth Order, also contained sediments related to the late sea transgression.
- (h) Arduino's classification was favourably received and soon gained international consensus and wide recognition, also through some critical debates, especially with Alberto Fortis who, being placed in Paris, enjoyed a wide audience. Arduino's reference to Fortis stresses that products of extinct or very old

volcanoes are not limited to his Tertiary Order “but are often found in the Primary and Secondary Orders as well”. An additional remark of extreme value is added that “the volcanic processes are manifested for their occurrence later than most of the other materials [found in the corresponding order] of mountains. This concept in modern geology and volcanology is expressed by saying that ‘emplacement of volcanic rocks in the mountain belts is mostly a late to post tectonic process’. That Arduino had already discovered and possibly understood this feature measures the level of excellence reached by his observations.

I hope this summary will stimulate the interest of many historians of geology and science, making the translation in English of this body of letters more expected and thus feasible.

Sarti C., 2003. The Istituto delle Scienze in Bologna and its geological and palaeontological collections. In Vai G.B., and Cavazza, W., eds, *Four centuries of the word Geology: Ulisse Aldrovandi 1603 in Bologna*. Bologna, Minerva Edizioni, 204–219.

Vaccari E., 1993. *Giovanni Arduino (1714–1795)*. Biblioteca di Nuncius, Studi e Testi 8, Firenze, Olschki, 407 pp.

Vai G.B., 2003. *Aldrovandi’s Will: introducing the term ‘Geology’ in 1603*. In: Vai, G.B., and Cavazza, W., eds, *Ibid.*, 64–111.

Vai G.B., 2007. A history of chronostratigraphy. *Stratigraphy*, vol. 4, nos. 2/3, 83–97.

Vai G.B., 2009. Light and shadow: the status of Italian geology around 1807. In: Lewis C.L.E. & Knell S.J. (eds) *The Making of the Geological Society of London*. *GSL Special Publications 317*: 179–202.

Gian Battista Vai, Bologna, Italy

Narrating the History of Geohistory

Martin Rudwick, *Worlds before Adam. The Reconstruction of Geohistory in the Age of Reform*, Chicago University Press, Chicago & London, 2008.

In the first half of the nineteenth century, some scientists in Europe were intensely concerned with questions regarding the history of the earth, and proposed solutions for their questions. This history was still conceived as completely separate from human history, but was substantially influenced by the paradigms of the latter. Researchers, partnered with the élite, assembled their information both through expeditions and in collections. The protagonists, already working in considerable numbers, reviewed the publications and various approaches among themselves, across national borders and local cultures, exchanged their evidence and their objects, posited explanations, modified and improved these, or brought them into opposition.

The period from 1817 to 1845, which Martin Rudwick covers in *Worlds Before Adam*, appears narrow at first glance. It is an extremely important work, however, both in content and for the writing of history of science, for as the author states “geologists had reconstructed a consistent outline of geohistory with plausible causal explanations of many of its main features”. It was also a period when intensive and dynamic discussion took place, and in which the questions and results were fundamental for the future development of ‘geology’.

Rudwick does not start from the historic contexts, specific historic conditions, or social resources. Rather, he develops his narrative from the problems. But this does not mean that the relevant political or social contexts are ignored. On the contrary, they are dealt with not as external factors but in an integrated way. The integration takes place at the level of both content and discourse, and not merely at that of individuals. First, the author refers to the topically most important and intellectually most fascinating concepts that were an essential driving force for research. The approaches to determining geohistory extended from early insights via the significance of the bones of fossil mammals and reptiles for the reconstruction of the conditions of past ages, to questions about the adequateness of current forces, and the historicization of stratigraphy with respect to the Ice-Age theory.

Rudwick’s book is conceived as a continuation of his earlier monograph *Bursting the Limits of Time: the Reconstruction of Geohistory in the Age of Revolution* (2005), with which there is some overlap of content and chronology. Geohistory, already considered in the earlier volume, now stands uncontested at the centre of interest, as it was likewise understood by the historical figures. It was to be determined according to its supposed intrinsic ‘character’. There are different explanations for its interpretation: the catastrophist or uniformitarian or actualistic concept; ‘biological transformism’; directional geohistory; the praxis of ‘geognosy’ and stratigraphy; research on life on a cooling earth; and dynamic conceptions, in which the interpretations of the ‘diluvial’ evidence, local facts, and a global considerations are involved.

For Rudwick, neither geology nor the earth sciences are considered in their entirety. Rather geohistory is coupled with one of its dominant paradigms—its historical dimension, which is considered as integral and essential to both geologic praxis and concepts.

The conscious attempt to avoiding a kind of Anglocentric or Anglophone account, as has been predominant in international research hitherto, is highly appreciated because this promise is not only given but kept. Indeed, the theme of the narration starts in Paris, which at that time—to use Bruno Latour's phrase—was a 'centre of calculation'. During the Napoleonic and post-Napoleonic Periods the 'democratized' *Muséum d'Histoire Naturelle*, which had developed from its aristocratic predecessor during the Revolution, proved to be an excellent place where, for the first time at such an institution attention, was directed to the new science of 'geology' and where George Cuvier as new 'antiquarian', and as 'historian' of the earth, reconstructed the forms of fossil mammals and made them meaningful for or relevant to geohistory. Already by the first chapters of this massive book it becomes obvious that Rudwick does not focus on one place or one leading character, but introduces further settings and changes of perspective, even within a chapter, if this is necessary for reconstructing considerations that result in the further elaboration of problems. This principle is maintained throughout the book, the 'actors' appearing again and again in different constellations according to the particular topics under investigation. In this way Rudwick rejects dichotomizing competing concepts in favour of an interwoven, developing and changing dynamic of research and debate. And the chronological axis itself is not presented as a simple sequence but as a parallelism and interweaving of events. Just as the span of time of the geologists proves to be increasingly more differentiated, no less densely differentiated is that span of time in which the work of the historic characters is located. The book's narration and structure depicts this aesthetic and methodological preference.

Such a technique of description is convincing. It is convincing for several reasons: already in Johann Martin Chladenius's *Introduction to the Correct Interpretation of Reasonable Speeches and Writings* (1742), with its *Sehe-Punkt* (point of view) it was postulated that history can only be constructed by being aware of 'perspectivity'. And since Hayden White's works—particularly his *Metahistory: The Historical Imagination in Nineteenth-Century Europe* (1973)—it has become obvious that for serious historic work not only the question of selecting the facts and combining them is of relevance but the way in which the description is structured is *constitutive* for the historiographic content. The way of narrating represents the aspect of reflection, which is so essential for being a historian. As is well known, White defined historical work as a structure in the form of narrative prose that classifies past structures and processes in order to explain what they were representing as models.

Rudwick's narrative way is both reflective and complex and can be recognized as an extremely successful realization of Clifford Geertz's recommendation of 'thick description'. This approach allows for generalization only in the densely described individual cases and not for general statements about the brief period of twenty-eight years encompassed in this book. Thus Rudwick discusses a large number of individual cases, which is only possible for someone who, with expert knowledge, is able to draw from seemingly unlimited resources. Here the details, coming from knowledge of a huge number of different sources provide a secure foundation, as does the 'reflective' manner of narration. Rudwick breaks up his complex analysis by pursuing the details by individual themes in his thirty-six chapters, in each case starting from an extended complex of questions, but eventually recombining them all.

So we could regard Rudwick's narrative as a micro-history. This is often said to be a kind of 'village history', but in respect of Rudwick's book this could only make us smile, as he lets the protagonists' international contacts take place in a 'global village', as European science already was in those days.

Rudwick himself gives a hint as to his narrative style with a reference to Dickens' *Bleak House* (1852), for which I allow myself an interpretation, as Rudwick himself does not clarify this connection further. An interminable lawsuit, the case of Jarndyce v. Jarndyce, forms the axis for the events in the novel, around which Dickens organized his numerous figures. Throughout the case, all stand in direct or indirect relation to each other. Verbosity, Dickens' typical characteristic, is more than counterbalanced by the panorama enclosing different social classes that the author artfully unfurled.

Rudwick's panorama (which in contrast to Dickens is not accused of long-windedness) is not a beginner's work but the product of an author who is unlike almost anybody else working in this field, with his many innovative and well-known monographs and papers.

Rudwick, the 'reflecting narrator', seeks the liberation of the history of geology from its Cinderella-like situation in the overall history of science. That this connection to general historiography is intentional is evident from the title of the book and by the titles of many of its chapters. Consciously, the "reconstruction of geohistory in the Age of Reform" introduces us to a concept of ages influenced by general historians and creates associations where science and social history meet. For example, the title of the chapter 'The Engine of Geohistory' makes us imagine the age of machines, in the context of which Rudwick describes how action really happens, without using a simple cause-effect explanation, but, more subtly, by depicting the cultural frame in which the debate belongs.

Yet Rudwick's audience is explicitly both beginners and more advanced readers. In this also he is most successful, for the summary at the close of each chapter makes reading easier for the beginner, while the extended footnotes are helpful for or relevant to the more advanced reader. And what we must particularly

admire, as in all Martin Rudwick's books, is his judicious way of using illustrations while the captions impress by their detail.

Thus the small community of Earth science historians can only be happy about this further evidence of a successful historiographical accomplishment and a lively branch of history of science.

Marianne Klemun, Vienna

Postscript: The Secretary General apologises for inadvertently neglecting to include the above review in last year's newsletter.

“Father of Polish Geology”

Stanislaw Czarniecki: *Poklosie Staszycowskie*. Editor: Muzeum Stanislaw Staszica, Pila, 2009, 311pp. (in Polish).

Stanislaw Staszic (1758–1826), labelled by Czarniecki in this volume as the “Father of Polish geology”, was only preceded in his geological study of Polish territory by eminent naturalists J.E. Guettard, J.Ph. Carosi and B. Hacquet. During his extensive travels in Central Europe, commencing in 1781, Staszic took advantage of their pioneer works and some their ideas to prepare a monumental monograph entitled “On the geology of the Carpathians and other mountains and lowlands of Poland” that was published in Polish in 1815. The associated geological map of the vast territory of present-day Poland and Slovakia, as well as some parts of the Ukraine, Belarus, Lithuania, Russia, Hungary and Romania, was unquestionably prepared by Staszic alone.

These facts are described by Czarniecki in the book reviewed here. However, this voluminous monograph is not a comprehensive biography of Staszic but a collection of numerous articles, published by Czarniecki since 1955, when he first became interested in Staszic's contribution. Soon after he became aware of the exceptional character of this great man of the enlightenment period: philosopher, political writer, author of pedagogic papers, but, first of all, the founder of the basic elements of the middle and higher school system in the territory of the so called Polish Kingdom, then ruled by Russian Tsar Alexander I.

The author of the reviewed book is fascinated by Staszic's personality, as a man devoted to the prosperity of his partitioned and subordinated homeland by imperialistic neighbors not only by his exploration for and practical application of mineral resources, but also by the development of an educational system in association with proper organisation of industry and agriculture. Such a personality Czarniecki also reveals in some Staszic's successors, first of all in one of the most eminent 19th century European geologists, Ludwik Zejszner. This contribution by itself is the leading motive of this book and over several decades has led to S. Czarniecki's rich historical contribution.

This book is worthy of major attention by historians of geology. Unfortunately it has been published only in Polish, without English summary.

Zbigniew Wojcik & Wojciech Narebski

Chair of Mineralogy, Petrography and Geochemistry of the Academy of Mining and Metallurgy in Cracow – A history

Katedra Mineralogii, Petrografii i Geochemii Akademii Gorniczo-Hutniczej im. Stanislaw Staszica w Krakowie 1919–2009 (collective publication), Wydawnictwo Naukowe (Editor) „Akapit”, Krakow, 2009, 168 pp. (in Polish).

The present-day Chair of Mineralogy, Petrography and Geochemistry at the Academy of Mining and Metallurgy in Cracow was created at the beginning of 1919 in what was then named the Academy of Mining. Initially it was headed by Professors of the Jagellonian University Jozef Morozewicz and Stefan Kreutz – well known mineralogists. Their successors were Zygmunt Rozen and later Walery Goetel. After World War II it was, for many years, headed by Andrzej Bolewski, who was succeeded by Witold Zabinski and Andrzej Manecki. In the year of its 90th jubilee the Chair is occupied Tadeusz Ratajczak.

All occupants have been well known as leading specialists in the mineralogical sciences and the Chair is one of the main centers of this branch of geosciences in Poland. Apart from strictly theoretical researches, this Chair is successfully co-operating with industry. During the first years of its activity the Academy was predominantly educating mining engineers and metallurgists. Since 1952, with the creation of a Chair of Geological Exploration, thanks to A. Bolewski's efforts, it became also one of leading centers of mineralogical studies in Poland. One of its strengths has been modern geochemical exploration of natural environment. Its staff has organized several scientific expeditions to Spitsbergen.

This book can be considered as the first historical monograph of a university mineralogical chair in Poland. The collective publication was edited primarily by Tadeusz Ratajczak, Andrzej Skowronski and Tadeusz Szydlak. The contribution of Andrzej Manecki, who presented data on international co-operation and the results of Spitsbergen expeditions, is also worth emphasizing.

This monograph also contains an appendix presenting the list of research workers associated with these position, including a listing of Ph.D. and other research theses, as well as graduate students in the two specializations: “Applied mineralogy and management of mineral resources” and “Mineralogy and applied geochemistry with elements of gemmology”.

Each thematic branch (mineralogy, petrography, geochemistry, protection of environment, mineral raw materials) is documented by a bibliography of the most important publications.

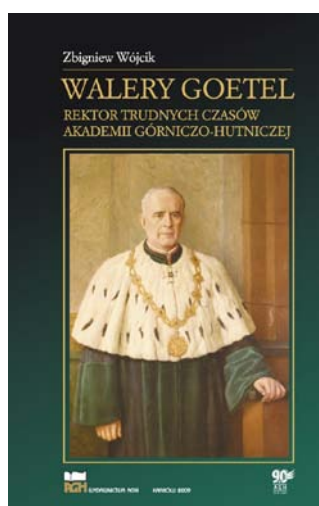
The staff of the Chair of Mineralogy, Petrography and Geochemistry of the Academy of Mining and Metallurgy in Cracow is well known in Poland and abroad, and its staff has founded in 1959 the Mineralogical Society of Poland.

It is a pity that this jubilee monograph was published in Polish only. However, because Polish mineralogists continue to work in numerous scientific centers abroad, it is hoped that it will become known also to geoscientists who do not know the Polish language.

Wojciech Narebski & Zbigniew Wojcik

Walery Goetel and the Mining Academy in Kraków

Zbigniew Wójcik *Walery Goetel. Rector of the University of Mining and Metallurgy during hard times.* AGH University of Science and Technology Publishing House, Kraków, 2009



Walery Goetel was an eminent personality with vast interests and enormous academic output. His name is inherently connected with the Mining Academy in Kraków, that later became the University of Mining and Metallurgy (nowadays called AGH University of Science and Technology). He spent much of his occupational life as Professor and Rector of that university during so called hard times of World War II and years after it.

Prof. Zbigniew Wójcik, author of the book, is a geology expert and biographer. He has written biographies of such geologists as Karol Bohdanowicz, Ignacy Domeyko, Aleksander Czekanowski and Józef Siemiradzki. His monograph on Walery Goetel's life and work consists of several parts: the first one is entitled “Biography” (pages: 22–295), the second – “Problems” – relates to his academic output (pp. 299–344). Prof. A. Manecki provides a conclusion (pp. 345–349) which is followed by a photo album (consisting of 73 photos). The book is written in language that is easily understood. Prof. Zbigniew Wójcik's book about Walery Goetel's life and work effectively also describes history of the biggest Polish mining academy – AGH University of Science and Technology.

Walery Goetel was born in 1889 in Sucha Beskidzka – a town situated on Kraków-Zakopane railway. He graduated from St. Anna Junior High School in 1907 and started studies at Faculty of Philosophy at the Jagiellonian University in Kraków. Later Goetel wrote a thesis on a geological structure of the Tatra Mountains and received the doctor's degree at the University of Vienna in 1913. After that he worked at the Jagiellonian University where he received postdoctoral degree in 1918. Two years later Goetel took the post of Associate Professor of Geology and Palaeontology at the newly opened Mining Academy. He established the Institute of

Geology and Palaeontology that was later transformed into Department of General Geology. Goetel managed it until he was retired in 1960. In addition he also held the position of a Dean of the Faculty of Mining and was Rector of the University of Mining and Metallurgy from 1939 till 1951. Walery Goetel died in 1972 and is buried in Rakowice cemetery in Kraków.

Walery Goetel's interests in nature preservation began before World War I. As a young geologist and mountaineer Goetel realised that the Tatra mountains were seriously endangered. His personal views on nature preservation evolved through the years. At first he struggled for national parks and reserves but later concentrated his activities on the international stage and coordinated protection actions at both levels. Walery Goetel was also the creator of the term "sozology". He introduced it for the first time in article entitled "Sozology – the science of wildlife conservation and its resources" that was published in "Kosmos" journal in 1966 (Series A, Biology, year 15, fascicle 5, pages 473–482). The name of the term comes from combination of two Greek words: *sódzein* (protect) and *logos* (science). Sozology is the study of systematic environmental protection from malicious impacts of various human activities. Professor Zbigniew Wójcik writes: "Nature provided Walery Goetel with many qualities: talent, linguistic abilities, diligence, ability to avoid conflicts, humility to bear failures. What's more, even in the most difficult situation he could find the best solution". Those abilities had an enormous importance during the "hard times" mentioned in the book title. Throughout the war Walery Goetel was helping lecturers and students of the Mining Academy both financially and protecting them from war repressions.

Experimentation in Early Geology

Sally Newcomb, *The World in a Crucible: Laboratory Practice and Geological Theory at the Beginning of Geology*, The Geological Society of America Special Paper No. 449, 2009, 204 pp.

I happen to know that this book has had a long period of gestation, so it is a pleasure to see the fine finished product. The Geological Society of America is to be warmly congratulated for publishing such a volume, for although the number of readers will probably be quite small, at least in the short-run, it fills what has been a gaping void in the literature on the history of the earth sciences. Not only that, it points to new understandings of the early development of mineralogy, petrology and geochemistry, and geoscience more generally. Also, it will serve as a corrective to English-language writings' emphasis on British, American, and French geology, at the expense of German, Italian and Scandinavian texts. However, Russian and the lesser European languages such as Spanish are not dealt with in any substantial way.

Sally Newcomb's original focus was on experimental techniques, with an examination of the procedures used for the determination of parameters such as hardness, crystalline form, temperature, specific gravity, cleavage, and so on. Thus in the present volume she goes into the minute details of the history of the development of techniques for determining such quantities or characteristics, providing numerous illustrations from early texts so that we can gauge what was done and how. Among the many instruments, tools, or pieces of apparatus described, balances, furnaces, crucibles, and pieces of glassware were especially important and are given due prominence in the text.

Odds and ends of such pieces of equipment may often be seen in museums, but I have sometimes wondered what actual *use* could have been made of them for the purpose of providing a scientific understanding of the Earth. How was the jumble of surviving instruments used at the time of their making and help to make some kind of intelligible interpretation of the phenomena? Crude methods of assaying were well established from ancient times, but would hardly be sufficient to characterize rocks and minerals in a geologically useful way. What could one *do* with a furnace that could fuse highly refractory materials? What did all this experimentation, evidenced by the surviving instruments, actually accomplish? The case of Sir James Hall and his attempted experimental support for Huttonian theory is well known, but that was not carried through until the early nineteenth century, and Hutton himself had doubted its efficacy. How could the operations of the globe be mimicked in a crucible?

Well, we must appreciate the importance of 'humid' chemical analyses, as opposed to 'hitting' substances with blowpipes or furnaces. By the mid-1770s 'chemists' began to recognize the existence of *different* kinds of earth (silica, lime, aluminous earth, ponderous earth, etc.) and in the 1780s the Swedish chemist Torbern Bergman showed how, in principle, one might get silicates into solution by fusion with alkali, extract the products with water or acids, and then identify the 'constituent' earths by a sequence of solutions and precipitations, with each precipitate being suitably roasted and weighed. His results were *hopelessly* inaccurate, but his ideas on 'humid analysis' were quickly followed up and elaborated until, by the late 1790s, master analysts such as the German Martin Klaproth were obtaining remarkably reliable results, though still using quite crude equipment. Here experimentation could be and was really useful.

Years ago I traced some of Klaproth's descriptions of rock analyses and found it difficult to comprehend how he 'did it'. Of course, his accounts described the eventually successful analytical pathways.

But they leave us in the dark as to how the analyst knew what to do next at every stage of the investigation, for each analysis was unique; or each substance required its own procedure and ‘route’ even after some general empirical algorithm had been established. I can only suppose that Klaproth took many false turns and had to explore many blind alleys before he found a route to a final result, when the percentages by weight of the constituent earths could be summed and found to give (more or less) 100%. Newcomb has unravelled some examples of analytical procedures, somewhat more complicated than those that I examined. And she too seems to have been baffled as to how Klaproth and others succeeded. Incidentally, the processes did *not* depend on whether one was a phlogistonist or a Lavoisierian. The phlogistonist Richard Kirwan, though not such a master as Klaproth, achieved some successful analyses.

Anyway, the point I wish to make is that it was *chemical* analysis, together with the later application of goniometry and microscopy, that eventually provided breakthroughs to new developments in the study of the Earth, taking over from Werner’s emphasis on the external characters of minerals, and providing a mode of study that was substantially different from the examination of strata and fossils, which has become the standard way of viewing the emergence of geology as an *historical* science in the late eighteenth/early nineteenth centuries.

So *how* did the emerging experimentation, depending on work in the laboratory rather than the field, affect geothory and the emergence of the scientific study of the Earth? The contributions of Sir James Hall and Louis Cordier (for example) are well known. But Newcomb takes us well beyond these figures, giving important new insights into the way experiments on fusion and crystallization, tried to show what might happen if portions of the Earth were heated, cooled, or dissolved in some way. But the results were confusing and difficult to interpret. A cooling granitic melt (say) might be expected to yield granite, if the Plutonist theory were accepted. But that was not the result. The quartz crystals might be expected to be euhedral, as silica had the highest melting-point of the component substances and would thus crystallize first on cooling a melt. But they weren’t. And granite itself does not, generally speaking, have euhedral quartz crystals. So it was not obvious (as Hutton had anticipated) that the workings of the world could be replicated in a crucible.

Nevertheless, problems of this kind exercised investigators’ minds greatly at about the turn of the eighteenth/nineteenth centuries and Newcomb fully demonstrates that there was much more to the emergence of geology than its ‘historicization’ at about that time and the rise of biostratigraphy, comparative anatomy and what we might anachronistically call palaeoecology. On the other hand, one may readily acknowledge that it was these kinds of concerns that came to greatest prominence in the nineteenth century, and which captured the attention of enthusiastic amateurs (and professional geological surveyors). And, of course, we should not forget the growing interest in what we might call ‘protogeophysics’, as admirably expounded in Pascal Richet’s *L’âge du monde: à la découverte de l’immensité du temps* (1999), though that book covers a wider time-range than Newcomb’s volume and also treats of some of the more traditional features of the history of geoscience.

In her closing chapter, Newcomb valuably discusses the place of her study of what she calls ‘regulated observations’, relative to the already existing literature on the history of geology. Her subjects were involved in ‘active’ as opposed to ‘passive’ observation and she notes (unsurprisingly) that modern historians have had difficulty in replicating old experiments successfully. The experimentalists were—more than the stratigraphers, etc., who gradually gained increasing dominance in studies of the Earth—notably interested in practical/economic matters rather than the more abstract issues that captured the imagination and attention of the ‘gentlemen geologists’. Newcomb writes that her book has “emphasized the search for the origin of minerals and rocks”, not the origin of the Earth. But in studying the history of such searches she says that she has found rather less of the distinctions made in Martin Rudwick’s *Bursting the Limits of Time* (2005) between studies of mineralogy, physical geography, theories of the Earth and geognosy, which he has seen as characteristic of pre- (or proto-) geological investigations and thoughts about the Earth before 1800 or thereabouts, and the flowering of historical geology in the nineteenth century.

So Newcomb’s book presents a somewhat different picture. She sees a unity amongst the several strands that went into the making of ‘modern’ geology. And she underscores the notion that “the experimental spirit permeated questions about the Earth” and was the “unifying principle that makes geology a science” (p. 176). So the hammer, the hand-lens, the clinometer, and even the auger, were and are all instruments serving to investigate the Earth in a scientific manner, regardless of whether the goal was or is the determination of the structure, history, or the economic importance of the things found within or on its surface. Newcomb concludes that experimentation has been “far more part of the overall fabric of geology than historians of that science have previously recognised” (p. 176). I agree, and I think that her book proves the point. It is well written and admirably documented and it has an extraordinarily striking and appropriate cover picture.

As a little codicil, I might mention that application to omniscient Google revealed that the illustration is from a collection of cartoons, produced by one G. Spratt (London), of characters such as ‘The Conchologist’, ‘The Physiognomist’, ‘The Itinerant Apothecary’, etc. They are fun to look at and modern copies can be purchased. ‘The Mineralogist’ (1830) will cost you the eccentric sum of \$180.79 and is available from

<http://www.1st-art-gallery.com/G.-Spratt/G.-Spratt-oil-paintings.html>. But the GSA and Sally Newcomb offer you much better value. After all, the picture is there on the front cover!

David Oldroyd, Sydney
(also published in the IUGS journal *Episodes*)

History of the Geological Sciences in Costa Rica

Giovanni Peraldo Huertas (guest editor), *Revista Geológica de América Central*, Special Issue: *A Retrospective Vision of Geological Thought. History and Philosophy of Geology in Costa Rica*, No. 36, June 2007.

Giovanni Peraldo Huertas (guest editor), *Revista Geológica de América Central*, Special Issue: *Historical Aspects of Geological Sciences in Costa Rica*, No. 37, December 2007.

Science development in Costa Rica—as in any other country—depended on government support and economical affluence. During colonial times, Costa Rica was a small region depending from the Audiencia of Guatemala, whose economical flourishing started in the late eighteenth century. People aspiring to higher education traveled to Guatemala's University of San Carlos, the most prominent cultural institution in Central America. That was the case of Costa Rican José de Liendo y Goicochea (1735–1814), who was born in Cartago and developed a substantial scholarly career in Guatemala, in connection with the introduction of modern and experimental science.¹

After its independence from Spain, Central American countries supported scientific development, especially in disciplines related with geographical assessment and natural resources registry. The end of Spanish monopoly unlocked the path to traders and explorers, as well as immigrants from other countries, some of whose activities (mining, agriculture) produced scientific information about this region. Local efforts to establish trading routes and interior roads, also contributed to topographical and natural knowledge, producing some bibliography about Costa Rica's natural environment. In the meantime, a growing intellectual community graduated from the local University of Saint Thomas (1843). In the eighteen sixties Statistical and Public Works Offices were founded, where geography, meteorology, cartography and astronomy were pursued.

State consolidation in Costa Rica (1880) was supported by local oligarchies interacting with foreign investors and a small but productive scientific community, supporting economical growth. Scientists often worked on various scientific fields—as teachers and researchers—and were instrumental in the establishment of scientific institutions: the National Museum (1887), the Meteorological Institute (1888), and its successor, the Physics and Geography Institute (1889). Directed by the Switzerland immigrant Henri Pittier, the latter became the most important scientific establishment for the promotion of geological sciences in the late nineteenth century. By the turn of the century, a vast scientific bibliography shed light on a range of geological aspects of Costa Rica's territory, that today shape the object of the history of science.

The two issues of Central American Geological Journal (*Revista Geológica de América Central, RGAC*), reviewed in the next pages, cover articles written by scientists from Costa Rica's past, in addition to studies of their scientific accomplishments and deeds. Prepared and published during Gerardo Soto's appointment as editor of *RGAC*, both numbers reveal his commitment to the history of geology in Costa Rica. Accordingly, texts, maps, and sketches completed by pioneer surveyors and scholars, were recovered, and/or translated. In addition, historians and geologists prepared essays regarding the works of Costa Rica's main researchers and explorers of the nineteenth and early twentieth centuries.

A retrospective Vision of Geological Thought. History and Philosophy of Geology in Costa Rica, reunites six historical and philosophical studies by contemporary authors and the transcription of three articles, published by international mining journals in the early twentieth century, preceded by an introductory piece.

From the perspective of philosophy of science, Luis Camacho discusses the philosophical status of geology. Following Rachel Laudan, the author argues that geology has been absent in philosophy of science's discussions and demands attention from scholars to analyze its object and methods. The article presents a case study on a failed prediction of an earthquake, as an example worth analyzing, with the aid of philosophical tools.

Giovanni Peraldo and Walter Montero transcribe a collection of colonial documents, concerning earthquakes in Costa Rica. Perhaps the main contribution of the article is the use of ecclesiastical and clerical documents containing past registries of geological events. Providing guidance through old Spanish terminology and contextual information, is also worthy for a new field of historical investigation. Just as valuable is the map of localities affected by the referred earthquakes, along with an intensity estimate, provided by Peraldo and Montero. Nevertheless, further research is needed to establish scientific interpretation of earthquakes in Central America during the colonial period, as well as common knowledge understanding and its social impact.

¹ Historical data on the subject of Costa Rica's scientific development were taken from Solano and Díaz. Interpretation is my responsibility. Solano, Flora and Ronald Díaz, *La ciencia en Costa Rica (1814–1914)*, Cuadernos de Historia de las Instituciones de Costa Rica, Universidad de Costa Rica, San José, Costa Rica, 2005.

Another article co-authored by Peraldo, this time with Jonathan Chinchilla and Teresita Aguilar, rescues the life and works of Paul Schaufelgerger, a Swiss geologist contracted by Costa Rica's government as a geology professor. Schaufelgerger arrived in 1929 and was appointed to the National Center of Agriculture, where he directed the Section of Geology and Mineralogy. His main contribution to the development of these subjects, reveal the authors, was in the field of popularization and teaching, since Schaufelgerger wrote extensively for his lessons in Costa Rica's Lyceum and Women High School. Peraldo, Chinchilla and Aguilar record Schaufelgerger's published works in a table, explaining each one's extent and contents. They also discuss his field studies and contributions to Costa Rica's geology, comparing them with other geologist's contributions, such as Carl Sapper, and explaining them in the light of recent findings.

Written by two historians of science and one geologist,¹ "The Scientific Legacy of Pedro Nolasco Gutiérrez (1855-1918)" places the reader in a different frame of mind. According to the authors, Gutiérrez was a prominent figure in Costa Rica's intellectual atmosphere. However, he maintained an archaic outlook to interpret and explain natural phenomena, such as earthquakes, using the obsolete theory of astrometeorology. Wrapped in a rich contextual analysis of Costa Rica's history of science, the authors explain Gutiérrez' intellectual background in terms of his lack of formal education, and deduce his popularity from the social need of control over natural events, in the context a poor scientific culture. Based on documental material and nineteenth century newspapers, this essay provides a vast view of Costa Rica's scientific and institutional background, helpful for the understanding of all articles offered in this issue.

"Celestial Phenomena in Costa Rica: Meteorites, Fireballs and Meteor Showers", is another article authored by Solano and Díaz, teaming up with a scientist, in this case Mario Fernández from Central America's Seismological Center. As in the prior essay, a thorough examination of the contextual conditions of science and society paves the way to explain sequential accounts of celestial phenomena. Attending astronomy's popularity among ordinary people, the article exemplifies its presence in everyday press and highlights the contrast between scientific reports and popular beliefs relating celestial phenomena and human fate. Again, the article is full of data on scientists and institutions, as well as the impact they had on Costa Rican society.

The next work, by Siegfried Kussmaul, "Early Twentieth Century Articles on Gold Mines in Costa Rica", is an introduction to the three articles the author transcribed for this historical issue of *RGAC*. Kussmaul provides biographical data on the authors; conveys information about gold legends in Costa Rica; gives an historical account on gold mining by locals and immigrants; and evaluates productivity in the early twentieth century mining enterprises.

As for the three articles transcribed, one can clearly observe that economical concerns overcame scientific analysis. Whereas geographical and geological data are accurately given, social and political context is scantily explained in terms of mining enterprising viability. Costa Rican government and laws are considered "liberal and ample", since machinery and supplies are "admitted free of duty, and full protection is accorded to the business". Native labor is described as "good, cheap and steady", and workers as "strong and intelligent". Nature is portrayed in terms of its benign climate and profusion of timber, water and natural produce.

In a sense, those articles could have been written by any other entrepreneur, describing financial potential of Mexican, Paraguayan or Brazilian mines. Local features and singularities are lost, and financial gain prevails over any other consideration. Therefore, in addition to Kussmaul's estimation, supplementary social and historical analysis could begin to clarify the question of scientific research with economic aims in the history of Costa Rica –or any other third world country.

A last word on this issue should emphasize the careful edition of historical sketches and maps, and the insertion of ancient pictures and images that illustrate each and every article.

The next issue of *RGAC* could be considered a second volume, where historians of science and scientists meet to give an account of the history of geological sciences in Costa Rica. Nevertheless, *Historical Aspects of Geological Sciences in Costa Rica* possesses its own editorial concept, since in this volume all works but one, are devoted to foreign or immigrant scientists, and a selected study of each is either translated or transcribed. On the other hand, some of my remarks on the previous historical issue are also valid.

The first scientist analyzed, is the German naturalist Alexander Von Frantzius (1821–1877), whose works on Costa Rican mineral springs appear in a couple of articles translated and published in the same issue. Explaining that Frantzius was mainly known by his works on volcanoes, Asdrúbal G. Vargas and Guillermo E. Alvarado, clarify the significance of his research on mineral springs, added to the fact that they were scarcely diffused in Latin America. Beginning with Frantzius' brief biography, the essay continues with a critical summary of the articles' contents, comparing actual knowledge with his findings. A table is supplied, including data of Frantzius' estimated location of springs, and its presumable location nowadays –expressed in geographical coordinates–. Authors value Frantzius works on mineral springs in terms of its priority, and also

¹ Flora J. Solano and Ronald Díaz are historians of science, often teaming up with historian and geologist Giovanni Peraldo, in the University of Costa Rica.

for his contribution to present knowledge, since 9 springs registered on his works have never been accounted for in subsequent bibliography.

Based on the translation of a report on jades, written by German naturalist Heinrich Fischer, the next essay ponders the pretended pioneering nature of his work. Luis Hurtado, Guillermo Alvarado and Oscar Lücke explain Fischer's authority on nephrite and jadeite, since 1875. They continue presenting a brief account of current bibliography on geoarcheology, noticing that Fischer's findings are never referred. Explaining the absence in terms of the lack of translation of the German-written article, and its scarce diffusion in Latin America, the authors aim to incorporate Fischer's results in current geohistorical and archeological literature. The article contains a concise biography of Heinrich Fischer, followed by an account of his methodology, in the frame of XIXth century archeological paradigms. "Pioneering Nature of Heinrich Fischer Works on Jades, in [the context] of Costa Rican Geoarcheology", is followed by the translation of his "Report on a number of stone sculptures from Costa Rica", and completed by the reproduction of jade figure illustrations.

Giovanni Peraldo and Jorge A. Amador, chose to analyze the life and works of Luis Matamoros, the only Costa Rican born scientist exposed in this issue. "Luis Matamoros' Philosophical and Physical Hypothesis on Seismology. An Influence of Aristotle and Feijoo's Ideas at the Beginning of the Twentieth Century", deals with Matamoros research on seismology appearing in his book *Internal Dynamics of the Globe* (1902). Revealing his consistent efforts to explain earthquakes, supported by prevailing scientific thought and traditional thinkers as Aristotle and Spanish philosopher, Benito de Feijoo, Peraldo and Amador enlighten overlapping scientific traditions in nineteenth century Costa Rica. A well studied state of affairs, common in colonial countries; Matamoros' case reinforces Trabulse's theory on the development of science.¹ Nevertheless, Peraldo and Amador's attempt to understand and value Matamoros studies in its own frame of mind is a contribution of the utmost importance to Costa Rica's history of science.

Keeping track of Luis Matamoros' performance as a Publics Works officer and engineer, the article provides his succinct biography. Subsequently, Peraldo and Amador offer a concise view of seismological theories from Aristotle to the nineteenth century, paying special attention to Feijoo's interpretation. Centering their reflection on Costa Rican science, the authors point out its institutional frame, and scientific diffusion in the daily press. Stressing the differences among a tiny but strong scientific community, Peraldo and Amador successfully picture Costa Rican seismological ideas. Perhaps the most skilled article in both issues reviewed herein, Peraldo and Amador's essay is complemented by Matamoros' "The Interior of the Earth's Crust: A New Theory on the Origin of Earthquakes".

The last scientist analyzed is William M. Gabb, an American naturalist that supplied Costa Rica with a wealth of studies on its geography, ethnography, zoology, and geology. Presented by Percy Denyer and Oscar H. Lücke, "Commentary on William M. Gabb. Unpublished and Forgotten Legacy and Contributions" shows the reverence professed by Costa Rican geologists for the American scientist. Gabb's findings are reviewed and evaluated in the light of actual knowledge, stressing the importance of his geological map, portrayed "as the only display of geognostic constitution of southern Costa Rica". Denyer and Lücke continue examining Gabb's studies on ethnography and zoology—whose collections were sent to American museums—, and pondering on the fieldwork supporting his geographical map. The usual biographical outline concludes the essay, and prepares the reader for the first edition of Gabb's manuscript *On the Geology of the Republic of Costa Rica* and his geographical map—reproduced in this issue—, along with the transcription of Augusto Peterman's 1877 presentation.

Again, a commendation should be made about the careful edition of historical sketches and maps—specially, Frantzius' and Gabb's—as well as the historic illustrations.

Edited by geologist and historian Giovanni Peraldo, both issues exemplify the efforts of a small, but solid community of science historians delving into their scientific past. In the context of a very scarce historiography, the mere reunion of works presented in these issues, can and should be interpreted as an important contribution to the history of science in Costa Rica.

In that sense, *RGAC*'s emphasis on the rescue of historical documents and ensuing analysis, deserves a warm congratulation from INHIGEO members.

Luz F. Azuela
Mexico D.F.

¹ Trabulse establishes overlapping scientific traditions to explain Mexico's scientific development. Elías Trabulse, "Introducción", *La ciencia en México*, vol. 1, Fondo de Cultura Económica, México, 1983.

Geologizing in the Unknown

Paul Mohr: *Africa Beckoning: Explorers of eastern Africa, its rift valleys and geology, in the 19th and early 20th centuries – Two essays and bibliographies*. Millbrook Nova Press, 2009, 192 pp.

First, I have to confess that this is not the book, I expected it be from the title and the little information, I received, when I was asked to review it. But I soon realized how unrealistic my expectations had been. This actually is the book, which comes before any detailed accounts of European geological research in the remote areas of eastern Africa can be written, scrutinizing archive material to bring the personal experience, the joys and sorrows of long ago generations of geologists back to life.

This is the book that comes before any more personal history of geological research in eastern Africa can be written. Divided in two essays for basically geographical reasons, one dealing with the Horn of Africa, the Afar depression, the Ethiopian Highlands and the northernmost part of the African Rift Valley, while the other looks further to the south, to what once was British and German East Africa. The two general regions seem to have been influenced by two somewhat different styles of research and travel. From the text, one gets the impression that the Horn of Africa was more the land to attract adventurers from many different European nationalities as well as diplomats on route to the ancient Ethiopian Empire with a sprinkle of Italian colonialism, while the South was more homogeneously explored by the colonial interests of Germany and the UK concerning mineral resources.

Africa Beckoning assembles two large and comprehensive bibliographies of published reports and results on the geological work done in this part of the world, which for anyone interested in the geohistorical side of Africa, will be a valuable starting point for scholarly investigation. From these primary printed sources, the author has drawn a narrative of expeditions and their motivation, of the perils of travels, of political unrests and of the division of labour between the sunburnt field-geologist and the stay-at-home petrographer and rock-chemist and those who condensed reports of a detailed nature into review papers of greater scope but quite often never set foot in the area themselves.

This narrative is further subdivided according to narrower geographical areas, which I sometimes found a bit confusing, but for anyone taking the book as a starting point for further and more detailed research, might be quite helpful as it underscores the encyclopaedic nature of *Africa Beckoning*. Nevertheless, the book reads rather well, not at all like a dry list of impersonal events, but rather interesting as a promise of more to come, and I very much hope that the book's author as well as many of his readers will pick up from there.

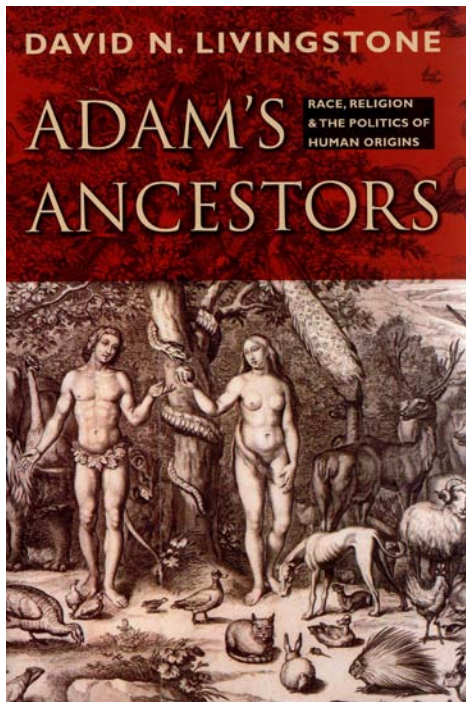
The book is nicely illustrated with many, many maps and profiles which give an idea of the locations visited and the quality of work done by the individual workers. There are numerous copies of portraits, which to amass must have entailed much work. They give a face to many if not most of the people discussed in the text, and so, where biographical information is lacking, we at least get a first look at these people.

What struck me most, maybe naively, is how tedious it had been in the age before the advent of plate tectonics to venture into the unknown. Obviously there was no concept of a more general nature that could have taught these geologist beforehand what to expect, and so to distinguish between the "normal" and the "unusual". There was no theoretical framework in which to incorporate the observations related to the East African Rift. And thus, as the author has noted, the achievements sometimes seem slight and unconnected, but nevertheless, decade by decade the little pieces of the jigsaw were brought together and slowly but steadily a picture emerged.

It is a pity that the narrative breaks off before plate tectonics began to make sense of this picture. I also missed a few words on what the native people thought of the geological enterprises of these Europeans, but perhaps there are no archive sources to tell us about this issue. Also one wonders, from what time onward, geology in eastern Africa was (also) conducted by African geologists. Yet despite these and other open questions, I enjoyed reading the book and can heartily recommend it as a starting point for further geohistorical research in and about Eastern Africa.

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Christian Interaction with Geology



D. N. Livingstone *Adam's Ancestors; Race, Religion & the politics of Human Origins*, by. The John Hopkins University Press, Baltimore 2008 301 pp, Cloth, ISBN978-0-8018-8813-7

The assumption that human beings existed before Adam was anathematic in the Jewish, Christian and Islamic worlds, safely and comfortably founded on the Mosaic record as narrated in the opening chapters of Genesis. In these religions it became a standard doctrine that all mankind was directly descended from Adam and Eve by natural processes of generation. Differences between human races were traced back to the three sons of Noah. People's sense of themselves, created in the image of God and master over all things divinely created and ordered, rested on the assumed literal truth of the biblical narrative.

But already early fleeting thoughts emerged that questioned that doctrine. In the fourth century, the Roman Emperor Julian the Apostate reverted from Christianity because amongst other things he saw variations in human customs and cultures as a sign that the human race descended from more than one original couple. Gregory of Nyassa, a pupil of Origen, opined that Adam's physical body, derived from animal forebears, only became human because a rational soul was added to a vegetal (derived from plants) and an animated (derived from animals)

soul.

In the Renaissance, further doubts arose about the adamic narrative through the increased availability of 'pagan chronicles' with diverse legends on human origin. The assumed presence of monstrous races at the fringes of the known world raised questions about how to fit them into the adamic story. The discovery of a 'New World' created tensions with the Mosaic record. Increased interest in antiquity, one of the dominant traits of the Renaissance, triggered West European theologians and philologists to attempt to calculate the chronology of worldly and biblical events. The Huguenot scholar Josephus Scaliger (1540–1609) had to acknowledge that Egyptian dynasties predated the calculated dates of the biblical flood and the Creation narrative. Chinese and Egyptian evidence was uncovered which broke through Christian time frontiers and posed profound challenges to biblical chronology. For some time such ancient and foreign cosmologies were denied but ultimately doubt about the validity of the Christian estimated age of the earth of some 6,000 years crept in.

In 1655, Isaac La Peyrère (1596–1676) published the controversial book *Praeadamites*, which within a year was denounced as heretical. It attracted severe criticism but also attracted some support from various savants and gave expression to the lingering uncertainty about the descent of man. One important trigger for publication was La Peyrère's detailed geographical/ethnographical work on Greenland and Iceland, in which he discussed the origin of the inhabitants. Iceland's Norwegian descent was well documented but he drew attention to the pre-existence of local inhabitants in Greenland before Icelanders arrived there, and wondered from where these people came and how they fitted in the Mosaic record. In addition, La Peyrère drew attention to a number of irritating inconsistencies in Genesis: e.g. whence did Cain get his wife after being driven from Eden, and in the land of which people did he settle? To the chagrin of Christian authorities, evidence from old chronological records, new geographic findings and internal biblical exegesis seemed to support La Perère's claim on the existence of pre-adamites.

In the eighteenth century, the political significance of a putative polygenetic origin of humans reasserted itself with great force in the ongoing, closely interwoven, scientific inquiries of linguistic diversification, moral philosophy (in particular in connection with slave holding), race relations and cultural policies. To explain the rapid spread of Adam's offspring, Edenic hyper-fecundity was invoked and child-bearing continuing many years longer than occurs in modern times. In addition, people occasionally could have reached ages of 900 years. Influential savants like Montesquieu, Blumenbach, and Oliver Goldsmith claimed that climate influenced human racial variations and some used this to explain the descent of both black and white people from one original couple. Others, however, argued that climate did not make races, but races spread according to climate. Some reached the heterodox conclusion that God created 'various first couples' in different climatic regions, which might explain the occurrence of different races. Questions about human origins spread well into the realms of national politics, social relations and moral philosophy, in relation to the foundations of civil society such as marriage, family, agriculture, and rituals. The opinion that there were groups of non-adamic people and that mankind was created as one genus but developed as different species with

different capacities and powers, gradually led to a distinction between 'higher' and 'lower' racial groups, which opened the possibility of exploiting this line of reasoning in defence of the policy of slavery. The Jamaican plantation owner Edward Long (1734–1813) justified the enslaving of Africans, who were considered to be a subhuman inferior species. He exploited human diversity to its fullest possible extent by even including the orang-utan as a 'savage man' into the human family.

James Burnett, Lord Monboddo (1714–1799), a brilliant Scottish controversialist and polymath, and well-known deist, argued that anatomically orang-utans could be capable of speech. In addition, socially they lived in groups like human societies. Thus, he concluded, orang-utans, like certain African human groups, although bereft of speech, 'belonged to a barbarous nation which has not yet learned the use of speech' and both groups were in the 'orbit of humanity'. Based on this proto-evolutionary account of the emergence of articulate speech for which 'there was no reason to assume that it was invented only by one nation on one part of the earth', he showed his polygenetic leanings.

In defence of a monogenetic origin and orthodox theology, the American religious minister-philosopher and Professor of Moral Philosophy at Princeton (college at that time) Samuel Stanhope Smith (1751–1819) argued that the unity of the human species was not only good science but also good theology and even better, good moral philosophy. He insisted that climatic factors and social conditions together could fully explain racial variations and therefore rejected polygenism. At base Smith's fundamental concern was management of moral economy because science and theology alike were directly implicated in matters of social policy and maintenance of social order. He argued that, if there were different species of humans, they would be subject to different laws both in the physical and moral constitution of their nature.

In the nineteenth century, pre-adamic hypotheses gradually harmonised with evolving science and religion. The rejection of pre-adamism by the Church was increasingly challenged by developing geology, ethnology and philology, and evolving Darwinism encouraged harmonising these sciences with pre-adamism. Pre-adamite vocabulary was increasingly frequent used in the dialogue between scientific theory and religious conviction. There appeared to be a growing need for ways to read the Bible while accommodating results and speculations of evolving science. Consequently, two groups emerged; one fiercely defending biblical orthodoxy; another applying hermeneutic manoeuvres of a labyrinthine nature to fit in pre-adamism.

In the mid-nineteenth century, geology had evolved to the extent that pre-adamic worlds could be shown at the Great Exhibition in London (1851) and in numerous lithographed books depicting, in the words of Martin Rudwick (1992) 'scenes from deep time'. The primeval earth was reconstructed and man's place therein tentatively fixed. Based on the two first chapters of Genesis a putative double creation story of the earth and of man was employed to explain the nature of pre-adamic inhabitants on the earth that were variously interpreted as fallen angels or demons. When increasing amounts of archaeological artefacts and human remains were found they were referred to as indications for a primitive previous population of our globe. In an ingenious reasoning by Reverend James Gall (1808–1894) a compromise 'solution' was found between a choice of polygenism (several Adams) and monogenism (one Adam) by claiming that all pre-adamites were swept from the planet prior to the coming of Adam from which thence all mankind descended. Remains of the material bodies of the degraded pre-adamite race that had lived in a savage state of society under the influence of satanic forces were gradually found in Denmark, England, and France and became topic of study by the emerging sciences of prehistory and archaeology.

But present-day human racial diversity and linguistic differences were also the focus of attention and were used in the evolving science of ethnology to explain findings of physical anthropologists, and if possible in line with biblical exegesis. Louis Agassiz, also known as the exponent of the hypothesis of Ice Ages, explained and defended animal and human geographical distribution in terms of climatic zones. In his view 'races were made for places'. He emphasised that monogenism was not explicitly stated in Genesis and that creating one pair of any living being only raised a number of knotty problems (e.g., how the lion might feed if only one pair of gazelles was created). He claimed that various races were created independently from each other and analysed racial types with a strong racial bias. His theories raised sharp theological comments.

Edward William Lane (1801–1876), an orientalist and Professor of Archaeology at University College, London), aimed at demonstrating compatibility between archaeology and anthropology on one hand, and Christianity on another. He used his expertise in Semitic languages to carry out this intention by following some fairly labyrinthine exegesis of various obscure passages in Genesis and merging this with current trends in textual criticism. He urged a case for two separate human creations, one pre-adamic the other adamic. The conclusion that man was far more ancient than generally assumed in his time was rested on flint arrows discovered in cave deposits from the Pliocene alongside teeth and bones of extinct species. In contrast to Reverend James Gall (1808–1894), known for his book *Primeval Man Unveiled* (1871) in which he sought ways to accommodate traditional faith to both geology and Darwinian evolution, Lane argued that pre-adamites continued to exist during and after Adam's time and interbred with adamic stock. He considered that the 'first Creation' took place in the valley of the upper Nile, whence humans spread through Africa and Asia, and branched out into a range of racial types resulting in the various current racial types. This he supported with an

involved treatise on development of languages that evolved from primitive (monosyllabic sounds) to complex (agglutinated and amalgamated sounds). Lane's work, as well as that of the Irish judge Dominick McCausland (1806–1873), was laced with racist interpolations all boiling down to the superiority of the adamic Caucasians and the inferiority of pre-adamic stock.

After Darwin had published the *Origin of Species* many people thought that the 'death of Adam' had come. But those that wanted to retain human continuity and accept evolution suggested that Adam was born of pre-adamic parent or, in other words, Adam got a navel and ancestors. This made a monogenetic form of pre-adamism possible but this evolutionary solution raised a number of theological problems e.g. the metaphysical question how the dualism of body and soul was handled. Did Adam's ancestors undergo physical evolution to the point that a hominid body became suited to receive a human soul or did pre-adamists coexist with adamic stock and what was then the relationship between these groups? This revisionist pre-adamism appeared to be transformative both to scientific developments and theological beliefs. Once adopted monogenetic pre-adamism—like its polygenetic predecessor—channelled intellectual and political energies along explanatory roads to reorient both theology and science. The second half of the nineteenth century was full with examples of this reorientation of which the work of the American Alexander Winchell (1824–1891), a leading geologist and Methodist layman, is a good example. His efforts were directed to mediate between science and religion which gave him simultaneously considerable acclaim and notoriety. His main works emphasised that the derivation of species should be accepted and that the derivative descent of animal and vegetal forms represents the truth. Palaeontology, empirical evidence of species, variability and development embryology all conspired to render plausible the evolution theory. This stance in favour of evolution was disapproved by the governors of his university, Vanderbilt, who dismissed him. Winchell found it likely that a pre-adamic population preceded the current adamic one and that the time in which the pre-adamics lived (the anthropological history) must have been very long and preceding adamic human history. He also strongly believed that the common progenitor of black, mongoloid and other races was placed far back in time, well before the biblical Adam appeared. In summary Winchell emphasised human unity and all human varieties are traced back to an original pre-adamic stock. The descendents of this primitive stock dispersed across the earth long before the adamic family first appeared. Adam was the immediate progenitor of the nations that figure in biblical history and does not reflect all primitive ancestors of all mankind.

Throughout the time in which pre-adamism evolved from polygenism into monogenism in response to Darwinian transformations, the theories potential to serve politics of racial ideology was being fully exploited. Supremacists were haunted by fears of racial amalgamation in the aftermath of black emancipation and found refuge in pre-adamists themes. They reinterpreted original sin through Eve's miscegenation and supported scientific anthropologists who supported primitive polygenism. By identifying pre-adamism they found the conviction that justified their anxieties scientifically and theologically. By identifying adamic and pre-adamic bloodlines, white supremacists constructed a bio-biblical dogma allowing traditional loyalties to the Bible to draw on a mélange of scientific specialities.

Pre-adamism had its heyday in the second half of the nineteenth century but it continued into the twentieth century in certain 'ecological niches'. The idea only attracted those for whom a historic Adam retained some significance, religiously or scientifically. This is rather ironic as the idea was originally conceived as a heterodoxy, grew in 'profanity', but finally came to reside amongst religious conservatives and fundamentalists. It shows that the theory's versatility and its capacity to perform different functions have remained characteristic. For some it enabled rapprochement with Darwinian biology and a rereading of the Mosaic narrative; for others its potential virulent racism remained attractive through which it has been recast as a pillar supporting some branches of nationalism. Thus the pre-adamists' shadow continues to fall on questions of human origins up to the present day.

The future of pre-adamism is uncertain, but its varied past invites any serious student of the history of sciences to contemplate and study its tenets. In addition to the main text, the book has twenty-nine pages of notes and a bibliography of thirty pages. It is compulsive reading and is wholeheartedly recommended both to technical scientists and historians.

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Worthy contribution on Quaternary history

R.H. Grapes, D.R. Oldroyd and A. Grigelis (Editors), *History of Geomorphology and Quaternary Geology* Special Publication Geological Society of London 301 (2008), 344 pp., £85.00, hardback, ISBN 978 -1-86239-255-7.

Contrary to what one may have expected from the title, this book is not a comprehensive history but really the proceedings of a conference. At similar conferences the content is usually dictated by the availability of appropriate presenters, and certain selected topics are covered in great detail, whereas other pertinent topics are sometimes only marginally dealt with or omitted altogether. Under such circumstances it is always difficult to achieve a comprehensive balanced textbook-style account. Often, also, there is a local bias depending on the location of the conference. This collection of papers is no exception – but, in this case, the local bias is an advantage rather than a disadvantage; for example, insights are presented into the history of fieldwork and concepts on glaciation from a northern and eastern European perspective, i.e., by geologists and historians from countries and regions like the Balkan states and Russia that actually experienced extensive glaciation and deglaciation during the Pleistocene and Holocene.

The eighteen papers published in this volume in fact represent topics presented at an International Commission on the History of Geological Sciences (INHIGEO) Conference held in Vilnius, Lithuania in 2006. The introduction by David Oldroyd and Rodney Grapes is a lucid summary of the issues covered in the book and a synopsis of the papers presented. The introduction alone is well worth reading. The authors highlight some of the still unresolved issues associated with providing an unequivocal time base for the Pleistocene and how it relates to other Systems/Periods, Series/EPOCHS and Stages such as the Neogene, Quaternary, Holocene, Pliocene, Calabrian, Gelasian and so on. They discuss the coining of the term ‘Quaternary’ by Jules Desnoyers in 1829, but also Adolphe Morlot’s earlier use of the term in a different context – a topic dealt with in detail by Marianne Klemun in the first paper in the book.

In terms of content undoubtedly the main strength of the book is its emphasis on the evolution and gradual acceptance of ideas about Pleistocene glaciation. No fewer than eleven of the eighteen papers are specifically on that topic. With that many papers the subject is approached and appraised from a variety of perspectives. As the various authors point out, argument and agreement took place by different groups of scientists at different times in different countries. Anto Raukas, for example, states that “the theory of continental glaciation was worked out independently in different countries”. It was a protracted and multifaceted debate and as the conference participants make clear, during the Quaternary Period different conditions prevailed in different regions around the world, even though there were also commonalities such as global temperature change and sea level rise and fall.

In his paper Raukas stresses that although the idea that glaciers formerly covered much larger areas was originally conceived in Switzerland, which was a region of ‘living glaciers’, the situation was somewhat different in northern and eastern Europe where different conditions prevailed and one had to argue more by analogy. Raukas mentions the important part Swedish geologist Otto Torell played in promoting the acceptance of large scale former glaciations in northern European countries, particularly his reports to the Stockholm Royal Society in 1864 and at the German Geological Society in 1875.

Although earlier contributors to the glacial or ‘land-ice theory’ in the European Alps such as Ignace Venetz, Jean de Charpentier and Louis Agassiz have received reasonably wide attention in English speaking countries for their work, the same does not appear to have been the case with Torell; for example, only a passing reference is made by Anthony Hallam (1989, p. 101) in his *Great Geological Controversies*. Torell’s contribution is examined in detail in Frederick Van Veen’s paper on erratic boulders and glacial phenomena in the Netherlands where he discusses a trend in some nineteenth century scientific societies to offer competitive prizes for essay submissions on unresolved or controversial scientific issues.

The conference convener Algimantas Grigelis states in the *Preface* that many of the papers have “an emphasis on the pioneers” in the field of glacial geology. An example of this biographical (and local) emphasis is the paper by Kondratiene and Stancikaite on Lithuanian scientist, Valerija Cepulyte, who carried out work on Quaternary stratigraphy, geomorphology, and glaciation and deglaciation in Lithuania. A similar example is the paper on Lithuanian geologist Ceslovas Pakuckas by Gaigalas *et al.*

The paper by veteran Russian geologist Evgeny Milanovsky on his work on glaciation in northern and eastern Europe, Iceland, the Caucasus and Siberia is presented as an “autobiographical” contribution to the history. A novel aspect of his paper is that he demonstrates his obvious interest and talent in artistic illustration and includes some of his own original hand-drawn sketches, including portraits of some of the significant contributors to studies on glacial geology.

The lack of an easy exchange of scientific information between nations and cultures historically is highlighted by Ivanova and Markin in their paper on Prince Piotr Kropotkin, who, of course, is famous as a political anarchist, and his book *Mutual Aid* (1902) became fairly well known in the West, but his significant

contribution to glacial studies published as *Researches on the Glacial Period* (1876) remained virtually unknown to non-Russian speaking scientists (this publication may now change that situation).

Still another paper with a biographical emphasis is the paper by Michiko Yajima on the “Palaeo-Tokyo Bay” concept which looks at the work of Hisakatsu Yabe who could be considered as a “second generation” Japanese geologist as he learned geology in Japan itself from Japanese teachers rather than from foreign teachers, as had previously occurred. It was not until the early 1930s that there was a consensus among Japanese geologists that glaciation had occurred in Japan during the Quaternary Period.

The seminal contribution to the foundations of modern theoretical geomorphology in the late nineteenth century by William Morris Davis with his ‘geographic cycle of erosion’ is mentioned in the introduction. As has been stated elsewhere of Davis (Shroder, 2000, pp. 210–211) “Seldom has a scientist risen so high in his lifetime to have fallen so low soon afterwards. . . . W.M. Davis so dominated his field that progress in geomorphology was retarded by his efforts. While he was alive, and for several decades thereafter, one either taught Davisian models of landform evolution, or one left the field; no alternatives were available.” Some of these intriguing struggles by geologists to accommodate, modify or contest the Davisian model are covered in papers by Oldroyd, Grapes, Brook and Zhang.

Zhang discusses the wholesale application of Davis’s ideas in the study of “planation surfaces” in northern China by American geologist Bailey Willis early in the twentieth century. These studies were interrupted by the Japanese invasion of China, the civil war, and the Cultural Revolution, but were re-established again in the 1980s, albeit in highly modified form.

As with the Davisian model of erosion cycles, difficulties associated with the overzealous application of a favoured theory or paradigm is also highlighted by Victor Baker in his paper on the Spokane Flood debates where a too strict adherence to Lyellian gradualism delayed any serious consideration of a more catastrophic alternative, i.e., possible cataclysmic flooding by an ice-dammed Pleistocene glacial lake, dubbed Lake Missoula. This paper is nicely backed up by the paper by Antony Orme on the Pleistocene pluvial lakes of the American West where he emphasizes the sometimes “episodic but cumulative” stages by which scientific knowledge increases.

Quaternary geomorphology studies in Australia and New Zealand is generously represented in this volume which is probably a reflection of the interest and dedication to the history of geology in that part of the world. David Oldroyd’s detailed and lengthy paper on the development of river systems in the Sydney region provides somewhat of a contrast to the many papers on glaciers as a major agent in landscape evolution. The pervasive influence of Davis on the thinking of Thomas Griffith Taylor and other Australian geoscientists is highlighted. This case study underlines the great “explanatory power, and the weaknesses, of Davisian geomorphology”. As the author states, even today there is still no universal agreement on the geomorphology and tectonic history of the Sydney region.

Another comprehensive paper on Australian Quaternary (and Tertiary) geomorphology is by David Branagan who traces the early European observations up to the mid 19th Century. His references testify to the considerable contribution he personally has made to documenting and sorting out the early history of Australian geology. As Branagan shows, knowledge about the Australian landscape necessarily began offshore with the marine coastal observations, followed by local observations close to settled areas, and then finally by intrepid explorers venturing into the extensive flat, dry and harsh inland regions. The new geology tended to be interpreted through traditional European eyes. It took some time to comprehend the geology and geomorphology (a process that is ongoing) and to adjust to the fact that the landscape, climate and soils were often markedly different to those in the northern hemisphere where Quaternary glaciation had profoundly modified the landscape.

In fact, much of inland Australia desertified during the most recent glaciation. This aspect of the Australian landscape is further explored in Rowl Twidale paper on desert dunes in Australia. Twidale points out that, unlike the relatively rapidly migrating dunes in some other parts of the world such as the Sahara, the dune systems in Australia are remarkably stable and often have a consistent orientation over vast areas. Wolf Mayer, likewise, comments on early work on an interesting facet of Australian Quaternary geology, the Tamala Limestone, which outcrops extensively along the Western Australian coast. The nature and origin of the odd coral-like, or root-like, calcareous structures associated with the limestone was a topic of debate for early explorers and geologists, and as Grigelis remarks, it is interesting to reflect that while extensive ice-sheets covered northern Europe the Tamala Limestone was being laid down in warm shallow waters.

The paper by Rodney Grapes on the work of Charles Cotton exemplifies the unique geology of New Zealand and the difficulties of fitting it all into a Davisian model. Nevertheless Cotton published many innovative papers on a great variety of topics in geomorphology and received international recognition. The contrast between the ideas of Cotton, who was a consummate professional academic geologist, and the talented amateur George Leslie Adkin, is explored in the final paper in the book by Martin Brook. In hindsight Adkin was successful in providing some enduring alternative explanations for the evolution of the New Zealand landscape, including a limited Pleistocene glaciation.

This book is an original and worthy contribution to the general corpus of the history of geology and geomorphology. It is also interesting from a philosophy and sociology of science perspective. As one of the contributors, Victor Baker, remarks in his abstract, it is possible that there are “aspects of geological reasoning that are distinctive in degree from those of other sciences.” Whether or not that is a valid assumption, this book provides much information about, and many insights into, a range of issues and debates specific to geology and geomorphology.

References:

- Hallam, A. *Great geological controversies*. 2nd ed. Oxford University Press, 1989
 Shroder, John F., Jr. “Davis, W. M. (1850–1934) and landscape evolution” in *The Oxford companion to the Earth*. Editors Paul L. Hancock and Brian J. Skinner. Oxford University Press, 2000.

Doug McCann, Melbourne

Italian geologist—Giuseppe Scarabelli (1820–1905)

Gian Battista Vai (Editor), *Il diamante e Scarabelli*, Comitato Promotore per le Celebrazioni Scarabelliane, 2009, 212 p. ISBN 88-88782-18-4

This volume represents the final stage of twenty years of studies and research on the scientific figure of the Italian geologist Giuseppe Scarabelli (1820–1905), which culminated in an international symposium held at the end of the celebrations organized in Imola in 2005. Scarabelli’s published works, unpublished papers, drawings and maps, as well as his valuable geological, paleontological and ethnographical collections, kept in the Public Museums (Musei Civici) and Library (Biblioteca Comunale) of Imola (Italy), have been described and analyzed since their ‘rediscovery’ in 1986, within several pieces of excellent scholarship: among them we must recall a wonderfully illustrated book on Scarabelli’s geological and paleontological collections (edited by Gian Battista Vai and Marco Pacciarelli in 1995), a widely annotated catalogue of his manuscripts, correspondence and private library (edited by Marina Baruzzi in 2006), as well as some papers published by Stefano Marabini (in 1986, 1995, 1998, 2006), which all proved to be of great interest for the history of 19th century Italian geology. Thanks to this impressive amount of publications, which also includes the facsimile reprints of some of Scarabelli’s most significant works, we can now understand the role of this scientist in the founding of a prehistoric archaeology based on stratigraphic excavations, as well as his contribution to the European debate on the structure of mountains and on the stratigraphy of Tertiary and Quaternary. His interest in the local geology of the north-eastern Apennines (between the regions of Romagna and Marche) provided numerous specimens for the geological and paleontological sections of the Natural History Museum of Imola (established in 1857), but also prompted an impressive production of geological maps.

Now, the proceedings of the 2005 symposium on Scarabelli, collected in this well printed book, reveal other aspects of this eclectic scientific figure, who was also involved in agronomy (papers by G. Amadei, C. Rotelli, C. Giovanni), policy and patriotism during the Risorgimento towards the united Italy (papers by F. Merlini, C. Ceccuti), as well as of course ‘prehistoric archaeology’ or paleoethnology (papers by M. Tarantini, A. Guidi). Concerning Scarabelli’s contribution to the Earth sciences, some still little known aspects of his work are presented in five papers: Jean Gaudant has discussed the relationships among Scarabelli, Eugenio Sismonda and Igino Cocchi about the study of the fossil fish fauna from the Messinian of Romagna; Stefano Marabini has investigated Scarabelli’s sixty-year long research on marine and continental Quaternary deposits of the Romagna Apennine foothills and the facing Po plain of Imola; Stefano Mariani has identified Scarabelli’s modern views about conservation and promotion of geological heritage (geosites) in some of his works and maps regarding the Messinian Vena del Gesso evaporite ridge of Romagna Apennines, the Monte Castellaccio geosite and the small mud volcano area of Bergullo; Gian Battista Vai has analyzed the unpublished correspondence between Scarabelli and his former teacher at the University of Bologna, Domenico Santagata (kept in the Library of Archiginnasio in Bologna), revealing Scarabelli’s ambitious plan to undertake detailed geological mapping province by province; finally Pietro Corsi has reconstructed the significant and intense relationship between Scarabelli and the Pisa ‘school of geology, in particular with Leopoldo Pilla, but also with Paolo Savi, Giuseppe Meneghini and Igino Cocchi.

This book also contains a section dedicated to Scarabelli’s heritage today and it is encouraging to note how his scientific collections, papers and books, as well as the itineraries of his fieldtrips, have been exploited and promoted by local scholars, curators and even politicians throughout the last two decades. This interaction involving a local community, local history and history of geology has not only reappraised the scientific role of Giuseppe Scarabelli, but also produced positive results for the diffusion of the history of geological sciences among the general public.

Ezio Vaccari, Varesi

The significance of religious understanding in the History of Geology

Martina Kölbl-Ebert (Editor) *Geology and Religion, a History of Harmony and Hostility* Special Publication Geological Society of London 310, 2009, ISBN 978-1-86239-289-4. Obtainable at: www.geolsoc.org.uk/bookshop. (A record of papers presented at the 32nd annual conference of INHIGEO, held at Eichstätt, Germany, July 28–August 5, 2007.)

This is a bold and timely collection of biography and opinion on the significance of religious understanding in the history of geology. It is immaculately edited by Martina Kölbl-Ebert, and prefixed by her splendid essay examining current problems in this field, and summarizing each author's contribution to the volume. The subject matter as a whole contains many examples of doctrinal disputation from past and present-day geological history—disputations that might better have been avoided than allowed to grow into the fractious issues that occupy the closing pages of this volume. Nevertheless, the book will be of lasting value to anyone giving thought to ethical guidance for future earth-scientists. In that respect, the last five papers are particularly relevant, ranging smoothly and informatively among the unusual features to be found in alternative geology.

The collection itself consists of thirty-two separate articles or 'chapters' filling about 350 pages. As a guide to its overall content, one notes that at least seventy percent of the authorship comes from academic and professional geologists, and about fifteen percent from naturalists or natural-history writers. For the remainder, which tends more to theological sources, there are five authors. Amazingly, among all thirty-seven authors whose work appears in *Geology and Religion* only one is a clerk in orders, an actual *persona ecclesiae*. That is not to say that the subject matter is one-sided or unbalanced, as this apparent ratio of one clerical voice in a chorus of thirty-six laymen might suggest. Indeed, only one author claimed specifically to be an 'atheist' (not saying whether of the heathen or the pagan sort). Nevertheless, such an apparent authorship ratio reminds readers that present-day geologists, even those coming from academic and professional bases, are not generally conversant with practical theology.

For example, most of the geological contributors write as though the word 'religion' were more or less synonymous with doctrines formerly promulgated in this country by the Church of England. Such doctrines, here and everywhere else in the old Empire, functioned in practice as instruments of social control and ethical guidance; they were nation-wide in scope and wonderfully effective. Initially, they were put into practice during the reign of Queen Elizabeth I (1558–1603), who insisted on uniformity of doctrine, the authority of central government in matters ecclesiastical, and compulsory church attendance for all. By injunction and monopoly Elizabeth took control of the printing presses in London, giving herself licence even to monitor and influence published thought. She thus made the Church of England effectively an arm of secular Government, and by decree made virtually the entire content of the Bible in English to be read aloud in churches during the course of every year, with explications and homilies attached. In short, Elizabeth's regime enabled the Bible to become the singular most powerful cultural object in the English-speaking world.

Turning back to the book's content, the contributions are organized into eight sections, entitled as follows: (i) Introduction (2 papers); (ii) From mythological approaches towards the European Enlightenment (7 papers); (iii) The Flood and the age of the Earth (6 papers); (iv) Geology within 'religious' organizations (2 papers); (v) Geological clerics and Christian geologists (6 papers); (vi) Evolution (3 papers); (vii) History of creationism (4 papers); and (viii) Theology and creationism (2 papers). At the end of the text the reader will find a high-calibre Index, nine pages of closely packed entries and sub-entries covering both proper names and subject names, including figures and tables.

Current problems surrounding the English Bible as a cultural object are revealed in the last two sections of the book, devoted particularly to 'creationism' and 'intelligent design'. This was a thoughtful and illuminating decision by the book's Editor, for as one author observed: 'conventional natural scientists find creationist presuppositions and methods and conclusions to be so far from orthodox that they are simply unable to take them seriously.'

That the whole subject of 'geology and religion' as interpreted by popular science is moving toward centre stage, means that sober thought about the natural history of the Earth, and the language used to express that thought, is now caught up in a process of retrenchment. Several contributions address this development under headings of 'creationism' and 'special creation'. This is undoubtedly a problem for geologists and theologians alike.

For scientists to assert, as loudly as they do, that creation by intelligent design is not science leads nowhere. One must accept that literature furthering the spread of intelligent design and creationism does exist, and is being widely read, whether science or not. More to the point, geologists and theologians may find themselves at a loss to understand how this literature is helping to articulate the non-intellectual and semi-political aspects of educational dissatisfaction. To this reviewer, the proponents of alternative creation resemble drifting clusters of unsatisfied curiosity, minds educated to ask questions yet baffled by the incomprehensible mega-babble offered in reply. These are plain intelligent everyday people, searching in ethical darkness for a

reliable guide, above all for something trustworthy, honest and straightforward. What better choice to make than the singular most powerful cultural object in the English-speaking world? It is so easy to underrate the obvious.

If I were asked to reduce this complex and very desirable book to a fifty-word paraphrase it would go like this: A college class studying ‘science and religion’ was struggling one day with a Hebrew story describing the Divine origin of living creatures, including mankind. A young student spoke up claiming that Man himself would soon be able to create life. ‘Indeed so,’ said the Rabbi, ‘And who made that possible?’

Buy the book.

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Shi Yafeng, founder of glaciogeoscience in China

Jiuchen ZHANG, *Shi Yafeng: An Oral Biography. The Oral History of Sciences in 20th-Century China Series*, Hunan Education Press, Changsha, 2009, 399 pp. (in Chinese).

The first time I noticed the name *Shi Yafeng* at the beginning of 1980s was when I had just become a student at a college for geology in northeastern China. The given name *Yafeng*, means ‘refined wind’. This impressed me. Unlike many Western names, Chinese names carry a lot of meaning: family background and origin, history, possible generation, expectations of parents and grandparents, aspirations, etc. So I started to read *Shi*’s articles in newspapers and cut out his articles from them as well. Even now, after twenty-eight years, I still have some of the cuttings. From the newspaper, I know *Shi* as a glaciogeoscientist. At that time, there was a rumour that he was one of the few Chinese geologists who dared to make negative comments on the geological theories proposed by the most powerful geologist in China at that time, *Li Siguang* (or J. S. Lee). This was a sensitive and dangerous political event in the China of the 1980s, even though the Cultural Revolution had ended in 1976. China still closed its doors to the world and the Chinese could not comment or discuss the politically powerful names including geologist *Li* who was (incorrectly) regarded as the founder of modern Chinese geology. More importantly, he was officially said to be the person who found the Daqing Oil Field, the first oil field discovered in China after 1949. If one searches online for *Li Siguang*, the following information can be easily found:

Li Siguang (1889–1971), is the founder of China’s geomechanics. He made outstanding contributions to changing the situation of “oil deficiency” in the country, enabling the large-scale development of oil fields to raise the country to the ranks of the world’s major oil producers. A native of Huanggang, Hubei, *Li* studied in Japan and the UK in his early years. He became a geological professor at Peking University upon his return from abroad in 1920. After the People’s Republic of China was established, *Li* held the positions of deputy president of the Chinese Academy of Sciences and minister for the Ministry of Geology.

Li’s key contributions to Chinese geology were thought to include geomechanics—the only ‘correct’ and officially accepted geological theory that could be taught and applied in China before 1980, especially during the Cultural Revolution—and the discoveries of the Daqing field and glacial remains in the southern, eastern and northern parts of China. From the late 1980s, most Chinese geologists (not the average Chinese citizen) understood that *Li*’s supposed contributions are neither true nor correct. Geomechanics had many mistakes and was therefore discarded. The Daqing field was found by another well-known Chinese geologist of *Li*’s age. The so-called glacial remains in China were not formed by glaciation but (we now think) by mudflows. Shockingly, many excellent Chinese geologists, including the one who actually found the Daqing field were forced to commit suicide under *Li*’s leadership. These facts only became known in the geological community in China, after China’s ‘open-door’ policy was introduced during the mid-1990s. But even now the ‘man in the street’ in China still does not know these facts since *Li* has been strongly publicized as an important figure for many years, in the form of movies, non-fiction stories, plays, etc. But *Shi* was one of the few Chinese geologists who was brave enough to point out *Li*’s errors, as early as 1948.

When I first heard that my friend *Zhang* was planning to write a book about *Shi*, I wondered if she could handle the facts of the *Shi* and *Li* relationship. If she tried to avoid including these facts in her book, I would not read it and the book would have failed. But thankfully *Zhang*’s book clarifies the rumours mentioned above and provides as much evidence as she and *Shi* felt able to include. This is the main reason why I believe that this is a good book: detailed, honest, responsible, insightful, knowledgeable, and readable—with the help of the many pictures. By reading it, readers can understand not only *Shi*’s own career and family background, but also Chinese developments between 1920 and 2000.

Shi Yafeng (b. 1919), founder of glaciology in China, geographer, and academician of the Chinese Academy of Sciences, worked in northwest China for at least half his life. The book consists of three prefaces, one introduction, sixteen chapters, three appendices, and a postscript.

In her introduction, Zhang points out that a tenth of the Earth's continents are covered by glaciers and four fifths of the globe's fresh water is stored in glaciers. The number of glaciers in western China ranks first in Asia and is third in the world, after Canada and the USA. So it is very important to research glaciers in China.

Most glaciers are located on high mountains, with the special exceptions of the Arctic and Antarctic. Nine of the world's fourteen mountains over 8,000 metres are located in and on the borders of China. Surprisingly, there was no research on Chinese glaciers before the end of 1950s. But in 1958, *Shi* and his colleagues commenced the first scientific study on glaciers in western/northwestern China. As the group's leader, *Shi* and his team spent twenty-four years cataloguing all the country's glaciers.

Chapter 1. Hometown and Childhood

Shi was born into a farmer's family by the Yangtze River in Jiangsu Province, east China. He was not a hard-working student and nearly failed his elementary school. It has always been a traditional Chinese expectation that parents/grandparents wish their offspring to be well educated so that they can achieve high social positions in the future. So *Shi* was encouraged by his mother to study hard at school, rather than working hard on their farm, though his father died when *Shi* was twelve and his mother needed his help. His older brother, *Shi Chengxi* (1910–1990), was asked to do similar things by their mother and later became the founder of the lacustrine hydrogeology in China. *Shi*'s brother helped him greatly, not only economically but also academically and spiritually.

Chapter 2. Life of a Secondary School Student

In the beginning of the 1930s, *Shi* started his career at a local secondary school in the same year as the passing of his father. About that time, his sister got married and his brother left the home to work. It was also the time when the Japanese invaded eastern China and in order to understand the progress of the war, *Shi* frequently read maps. Thus began his interest in geography. When studying a textbook on the *Geography of China*, two names struck him in particular: *Zhang Qiyun* and *Zhu Kezhen*, respectively the editor and reviewer of the textbook. After graduating from secondary school he decided to enter the Department of History and Geography of *Zhejiang University*, since both *Zhang* and *Zhu* were Professors of the university, *Zhang* being the head of the Department.

Chapter 3. A Wandering Life with Zhejiang University

During the autumn of 1937, *Shi* passed the entrance examinations and became a student at *Zhejiang University* in Hanzhou—a well-known place of beauty and capital of the Zhejiang Province. It has continually been one of the top five universities in China. Unfortunately, *Shi* had to lead a wandering life with *Zhejiang University* and never studied at the main campus. Due to the Japanese incursion, until 1945 most of the universities, including *Zhejiang University*, in the north, east and central parts of China were occupied by the Japanese armies and they had to move from one place to another, mainly westwards.

Shi was fortunate, however, in that most of his teachers in *Zhejiang University* were masters in geological sciences, including geography. A few of them included:

- *Zhu Kezhen/Chu K'o-chen* (1890–1974), meteorologist, geologist and educator. *Zhu* went to the USA for further education in 1910. He graduated from the College of Agriculture, University of Illinois in 1913. Five years later, he received a PhD in meteorology from Harvard University. From 1920 to 1929, he was chairperson of Department of Meteorology, Nanjing University (from Nanjing Higher Normal School to National Southeastern University to National Central University). From 1929 to 1936 he served as the Director of Chinese Institute of Meteorology, *Academia Sinica* (predecessor to the Chinese Academy of Sciences of the PRC on mainland China and the *Academia Sinica* of ROC in Taiwan). From 1936 to 1949, he served as President of the National Chekiang University (now Zhejiang University) and elevated it to become one of the best universities in China. He was appointed Vice President of the Chinese Academy of Sciences on 16 October 1949. In 1955, he was elected and Academician of Chinese Academy of Sciences.
- *Zhu Tinghu* (1895–1984), geographer and geologist; graduated from the Geological Survey of China in 1916 and was further educated in the USA during 1920–1923. He has worked with the Geological Survey of Zhejiang Province, Yunnan Province, Guangdong-Guangxi Provinces, and Guizhou Province, China. He was the President of Department of Education of Anhui Province. As a Professor, he worked at Zhongshan University, Zhejiang University, and China Central University.
- *Zhang Qiyun* (1901–1985), geographer and educator, Director of Department of History and Geography, Head of College of Arts, Zhejiang University; Minister of Ministry of Education; Advisor to the President of Taiwan.

- *Ye Liangfu* (1894–1949), geologist, graduated from Geological Survey of China in 1916 and was further educated in USA in 1920–1922. As a Professor, he worked with Zhongshan University, Beijing University and Zhejiang University in China.
- *Ren Meie* (1913–2008), geographer. He got his PhD degree in 1939 from a British university. As a Professor, he worked with Zhejiang University and Nanjing University in China.
- *Zhang Yinlin* (1905–1942), historian, graduated from Qinghua University and was further educated in Stanford University in the USA. He has served as a Professor of Zhejiang University.
- *Tan Qixiang* (1911–1992), geographer, and academician of the Chinese Academy of Sciences.
- *Tu Changwang* (1906–1962), meteorologist, respectively educated in Shanghai China in 1929 and Britain in 1933. He served as a Professor with Qinghua University, Zhejiang University and China Central University.
- *Huang Bingwei* (1913–2000), geographer. He worked with the Geological Survey of China, Zhejiang University and China Committee of Resources.

In 1944 after visiting Zhejiang University in Guizhou and meeting the university's many excellent professors, Joseph Needham called it "the Cambridge of the East".

Both *Shi* and Communist China after 1949 benefited a lot from the geoscientists who had been invested in and educated by the Nationalist Kuomintang (KMT) Government. The Professors not only taught him geology and geography but also helped him financially.

Even so, the war and the frequent moves made things exceedingly difficult for *Shi*, and all Chinese, at that time, with little food and no electricity or money. But he studied hard and completed four years of studies in three years. *Shi* spent three months doing geological surveys by himself and completed a thesis for his bachelor degree. After getting this in 1942, he continued with a master's degree in geology.

In September 1944, *Shi* graduated and obtained a position with the *China Institute of Geography* at Chongqing in southwest China, the temporary capital during the war. This institute was founded in August 1940 and moved to Nanjing in 1945.

Chapter 4. The China Institute of Geography

One of the most important projects *Shi* became involved in after entering *Institute* was the investigation of the potential losses that might follow from the possible construction of the Three Gorges Dam at the Yangtze River. After visiting the area in 1944 and 1946, an American engineer proposed constructing a dam across the upper Yangtze River, in order to produce electricity, decrease flooding, and increase the river's shipping capacity.

A team of five, including *Shi*, spent half a year investigating the farmlands, houses, industries, and commercial properties that could be flooded by the proposed dam. In 1947, an investigation report was finished. In the event, the dam was not constructed until recently for various reasons including wars, economy and politics. On the other hand, the report by *Shi* and his team did set up a base for the final construction of the dam after about sixty years.

During this field investigation, *Shi* made an unrelated and unexpected discovery—he investigated the Yaozi Conglomerate at the Three Gorges and found that its origin was not what *Li Siguang* had described. *Shi* believed that the conglomerate was a Quaternary deposit formed from the metamorphic rocks from Xiangxi Creek, one of the Yangtze River's tributaries, while *Li* thought the conglomerate was a Tertiary deposit due to a reversed flow of the upper Yangtze River. In 1948, *Geography* published *Shi's* paper 'Genesis of the Yaozi Conglomerate at the Three Gorges of the Yangtze River'. This was the first time that *Shi* challenged *Li*.

Chapter 5. Joining the Chinese Communist Party

During *Shi's* field investigations, he frequently saw many poor Chinese farmers suffering and struggling in the countryside. In the cities, he saw evidence of the cruelty of the KMT officials. This made him dislike the KMT Government and tend towards the Chinese Communist Party (CCP). In 1947, he joined the 'Association of Science Times' and then the 'Association of Scientists', an underground organization supported by the CCP. And in 1948 he joined the CCP.

At the beginning of 1949, Nanjing, the KMT capital, was captured by the CCP. About two-thirds of the more prominent geoscientists, including *Shi*, decided to stay in Nanjing to work with the CCP, while one-third went to Taiwan together with the KMT Government.

Chapter 6. The Early Years of the Chinese Academy of Sciences

At the beginning of the 1950s, a new Institute of Geography of the Chinese Academy of Sciences was established. As the only party member of the Institute at that time, *Shi* was appointed to be the Secretary

responsible for the CCP business there and for the first time, he had to spend lot of time in political meetings and movements.

In 1950, a journal named *Knowledge of Geography* (now the *Chinese National Geography*) was started by *Shi* and his colleagues. Unfortunately, some of the articles in Volume 5, No. 5 were thought by the Government to have disclosed confidential matters (though in fact all the information was collected from already published newspapers). *Shi* and his colleagues received a severe warning and for the first time he realized the dangers of CCP politics.

Chapter 7. Administrative Work with the Chinese Academy of Sciences

During 1954 and 1957, *Shi* was asked to work with the *Chinese Academy of Sciences* at Beijing, as a Deputy Secretary of Department of Academic Secretaries. Numerous administrative meetings made him too busy to do academic research. During this period, he had several opportunities to accompany well-known geoscientists from the former Soviet Union to do field investigations in China and he learned a considerable amount from them. In February 1955, *Shi* took part in the Second Conference of the Association of Geography in the former Soviet Union. This was his first time abroad.

Chapter 8. Founding Glaciology in China

In June 1957, *Shi* for the first time visited a mountain with snow and glaciers, in Qinghai Province, western China. The pure white snow and ice crystals attracted and affected him deeply. He touched, grasped and tasted the snow excitedly. He noticed that there was snow and glaciers on the mountain's northern flank but nothing on its south flank. This simple observation made him want to undertake research and use glaciers to help develop northwestern China. It is very dry in most of northwestern China because the Gobi Desert dominates the region. Fresh water has been a major problem in the regions for over two thousand years.

In 1958, *Shi* organized a geological 'brigade' and started to investigate glaciers in Qilianshan Mountain area, without himself having any previous knowledge of glaciers. At the time, the only papers on ancient glaciations in Guizhou Province were by *Li*, who thought there was evidence of glaciation in the Guiyang area, but *Shi* believed *Li* was wrong since *Shi* and his classmates had not found any evidence of glaciation when they investigated the landforms and geology of the region in the 1940s. This was, then, the second time that *Shi* challenged *Li*'s authority. At this time, *Shi* was only an associate research professor while *Li* was the head of the Ministry of Geology and a powerful political figure in Chinese science.

Shi's glacier research was nevertheless strongly supported by both the Chinese Academy of Sciences and the local government, which needed fresh water to develop the local economy. A 'brigade' of over 100 people from different universities, colleges and institutes in China was rapidly organized and readied for research on glaciers. In addition, L. D. Dolgushin, a glaciologist from the former Soviet Union, was invited to join the team as an adviser. In the following months, they estimated the area and volume of the glaciers in the Qilian Mountain area, which were respectively 1,300 square metres and over a billion cubic metres. In addition, they tried out ways of melting the ice to irrigate the farmland in the area. *Modern Glaciers in the Qilian Mountain Area*, the first scientific report on glaciers in China, was published on 1 January 1959. During his career, *Shi* visited approximately seventy glaciers around the world. In 2001, when eighty-two, he visited the last glacier on Tianshan Mountain in northwestern China.

In 1959, the whole of China was carrying out political activities to combat 'Rightist opportunism'. *Shi* became involved and was criticized for holding a 'one book doctrine', because he wanted to publish a report on the investigations of the glaciers in the Qilian Mountain area. Unsurprisingly, he was frustrated.

In 1960, the Lanzhou Institute of Glaciers, Snow and Frozen Earth of the Chinese Academy of Sciences, was set up in Lanzhou, Gansu Province. In 1961, this Institute and the Lanzhou Institute of Geophysics merged to form the Lanzhou Institute of Geophysics, Glaciers and Frozen Earth. In 1962, this body was split into its original two components. Later, the Lanzhou Institute of Glaciers, Snow and Frozen Earth became the Lanzhou Research Division of Glaciers and Frozen Earth with *Shi* as director of the division (a smaller unit than an 'institute'). In August 1965, the Lanzhou Research Division of Glaciers and Frozen Earth was merged with the Desert Division of the Beijing Institute of Geography to form the Lanzhou Institute of Glaciers, Frozen Earth and Deserts, with *Shi* as Director. In the years 1958 to 1980 almost all organizations in China changed their names, merged, split and merged, and split again and again, for no good reasons. During this period, the Chinese scientists had to work hard on their research, but also had to take part in numerous political meetings and activities. (Today, I might have to criticize you; and tomorrow you had to criticize me, though we were good friends and we both knew we both had done nothing wrong. There was a joke that the CCP's political meetings were as numerous as the KMT's taxes.)

During this period *Shi* investigated landslides and mud flows along the Sichuan-Tibet highway in Yunnan, in addition to the research on glaciers. He also helped make a film of mud flows. Striations made by

mudflows and glaciations may be similar and thus very hard to distinguish. After seeing the film, *Li* fell silent. Possibly, he realized that his supposed striated boulders in southwest and south China were produced by mudflows, as *Shi* later argued with him. As a result of his field investigations of landslides, mud flows and glaciations, *Shi* well knew the differences. And *Li* was spending most of his time in office while *Shi* was in the field.

In 1964, *Shi* was one of a group that climbed the world's fourteenth highest mountain Xixiabangma, which is over 8,013 m high and the only mountain of that height that had not been climbed by that time.

Chapter 9. During the Cultural Revolution of China (1966–1976)

In late June, 1966, *Shi* was asked to go back to his institute as soon as he could, just as he was on his way to investigate mudflows in southwest China. On his return he was taken to a meeting like a criminal and was criticized. He could even hear people repeatedly shouting: Down with Shi Yafeng! His institute was obviously intending to criticize him, though he did not know what had happened. In fact the notorious Cultural Revolution was beginning. His house was searched and his property confiscated three times, but this was not unusual at the time. By the beginning of 1968, *Shi* was 'put in a cowshed'—a special primitive jail—and he was not allowed to go home. His wife *Shen Jian* too was 'put in a cowshed' but she was allowed go home to take care of their three children. Many of his fellow prisoners could not bear the torture, both bodily and mental, and committed suicide. One of them committed suicide together with his whole family. The so called criticism during the Cultural Revolution included insults, slapping, punching, and even killing. It is estimated that over thirty million Chinese were killed by hunger, mobbing or by being forced to commit suicide during 1958–1976. All of the so-called hundred of thousands anti-revolutionists like *Shi* were forced to do arduous physical work, and were called on to reform or update themselves by doing manual work. They were closely monitored—even if they went to the washroom, policemen would follow them.

Shi himself attempted suicide by jumping into the Yellow River from the Lanzhou Yellow River Bridge in August 1968. But fortunately he did not die as he knew how to swim. In October the following year, he was allowed to go home, though he still experienced frequent criticism. In 1970, he was sent to a remote countryside to be reformed and updated by doing grueling physical work for more than half a year. Then in 1971, he went back to his institute and could do scientific research again, though there were political meetings for criticism waiting for him almost everyday. In 1973, his coauthored paper 'Nature and Geological History of the Zhumulangma Mountain' was published. In 1974, as Chief Geologist, 55 year-old *Shi* investigated the over 50-km long Batura Glacier in the Karakoram Mountains in Pakistan, as a political mission.

Chapter 10. The China National Scientific Conference 1978

In 1976, the Cultural Revolution finally ended. Scientists in China were liberated and could focus on scientific research once more. In March 1978, the China National Scientific Conference was held in Beijing. All of the top leaders including Deng Xiaoping showed up. *Shi* took part.

Chapter 11. Returning to the Top Leadership of the Chinese Academy of Sciences

In the spring of 1978, *Shi* was appointed Director of the Lanzhou Institute of Glaciers and Frozen Earth. In 1979, he was the Vice-president of the Lanzhou Branch of the Chinese Academy of Sciences. In 1980, he was elected an Academician of the Chinese Academy of Sciences. In 1981, he was appointed Vice-President of the Department of Earth Sciences of the Chinese Academy of Sciences. From the end of 1987 to early January 1988, *Shi*, together with three Chinese colleagues, flew down to the Antarctic to do research.

Chapter 12. Responsibility of Scientists

To encourage academic interchanges, *Shi* organized the China Association of Glaciers and Frozen Earth, founded the journal *Glaciers and Frozen Earth*, and started international academic exchanges. After 1978, *Shi* visited Switzerland, France, UK, Japan, Australia, Germany, Austria, Norway, Canada, USA, the former Soviet Union, etc. In addition, as an instructor, he trained several graduates for Master's and PhD degrees.

Chapter 13. In Memory and Learning from Zhu Kezhen

As mentioned above, *Zhu Kezhen* is a very important scientist and educator in modern China. As the principal of Zhejiang University and supervisor of *Shi*, *Zhu's* affect on *Shi's* growth and development lasted almost throughout the latter's career. In 1997, *Shi* organized the publication of the *Selected Works of Zhu Kezhen*. *Shi*

was elected the first president of the *Zhu Kezhen Study Association*. In 2004, the first four volumes of the *Collected Works of Zhu Kezhen* were published.

Chapter 14. Research in *Shi*'s Later Years

In 1984, *Shi* retired from his administrative position with the Chinese Academy of Sciences. This gave him the chance to focus on scientific research. In 1985, he moved to Nanjing to live. In 1988, as the chief editor, *Shi* and his co-authors published *Regional Glaciers*. During 1985–1987, *Shi* was involved with the research and exploration of water resource for Xinjiang Province, northwest China. From 1987, *Shi* became interested in issues related to global warming and published several academic papers on this topic. In addition, he started to research environmental change of the later Cenozoic age in the Qinghai–Tibet Plateau.

Chapter 15. Family

A loving family is the solid base for a successful scientist like *Shi*. At the beginning of 1950 he married Ms. *Shen Jian*. They had two daughters and a son. *Shi* believes that his family contributed much to his achievement. At present he is writing a family tree for his family.

Chapter 16. Dialogues: Zhang and Shi

In 1921 and 1922, *Li* wrote papers about Quaternary glaciations in Lushan, Huangshan, Xishan of Beijing, Guangxi and Hangzhou and based on his observations in the Lushan area, he proposed three ice ages in China. Even at that time, most geologists did not agree with him. In 1934, he invited four scholars, including two well-known foreign geologists, to have an on-site check of his so-called glaciation deposits. Three of the four geologists did not agree with *Li*, while the other one did not make significant comments. From then on, a controversy has continued until the present.

Between 1949 and 1980, due to *Li*'s powerful political position in China, voices against his glaciation proposal were too weak to be heard much in public. In 1980, after visiting the Lushan area together with his colleagues, *Shi* took the view that *Li* had misinterpreted mudflow deposits as glaciation deposits. In *Shi*'s view, if there had been glaciers in the Lushan area, it would have had to have snowed in the summer in order for glaciers to form. *Li* had not observed mudflows and he never visited glaciers in northwest China. This made it very difficult for him to tell the difference between the glaciation and mudflow depositions. *Shi* also believed that it was a systematic misunderstanding for *Li* and his followers to interpret mudflow deposits as glaciation ones and to divide ice ages on the basis of that assumption. By the 1990s, most Chinese geologists were on *Shi*'s side.

Shi contributed a lot to help those in need: he donated his award to buy scientific books and journals for the library of the Nanjing Institute of Geography and Lakes, invested in the construction of elementary school in Gansu Province, northwest China, and also assisted secondary school students from his hometown in need of money to study at universities or colleges.

Shi is also worried about the serious corruption of both political officials and the academic world in China. He believes that many Masters or PhD degrees now in China are not properly trained.

Postscript

It would not have been easy for *Zhang* to complete this book. As she mentioned in her postscript: she had to read *Shi*'s publications, though she is not a geologist. She had to visit the libraries and archives of the Chinese Academy of Sciences, Institute of Geography and Resources of the Chinese Academy of Sciences, the China Library of Earth Sciences, etc. She also travelled to Nanjing from Beijing to interview *Shi*. She had to work over ten hours per day in *Shi*'s office to read his diaries, field notebooks, memoranda of meetings and conferences, and reading his notes. While doing this she was largely isolated from the outside world—without computer and internet.

Jianzhao [Jim] YIN, Richmond, BC, Canada (INHIGEO Member, China)

BOOK NOTICES

Festschrift: Tillfried Cernajsek

The “Yearbook of the Geological Survey of Austria” Volume 149/2+3 (2009), is dedicated to the long-time Chairman of the Working Group on History of Earth Sciences in Austria, Tillfried Cernajsek. In his capacity as Chairman from 2001 to 2007 Tillfried Cernajsek encouraged research into the history of earth sciences, and had a wide-ranging impact on employment with this branch of science.

This Festschrift contains an appreciation by Albert Daurer, the most recent manager of Tillfried Cernajsek in the Geological Survey of Austria, as well as the memories of Director Anton Ruttner. In Ruttner’s time as Director, Tillfried Cernajsek was employed in the Geological Survey of Austria.

The publications on Rudolf Sieber and Hermann Vettters also concerns former employees of the Geological Survey of Austria. The latter article resulted together with the remaining work from the Proceedings of the 7th Symposium History of Science of the Working Group on History of Earth Sciences in Austria with the title “From Paracelsus to Braunstingl / Hejl / Pestal” that was held at the University of Salzburg from 22-25 May 2008. This meeting included topics on mining and widely scattered subjects concerning earth sciences. In this process the history plays an important role, particularly in a region such as Salzburg, where mining has a long history that also involved significant geologists.

Eminent Hungarian Geologists

Dudich, Endre et al.: Outstanding Scholars of Earth Science (Original in Hungarian: A földtudomány nagy tudósegységéi.) Abstracts in English. Edited by E. Dudich, R.Keményfi and T. Póka. 160 pp. Hungarian Academy of Sciences – Didakt Kiadó, Budapest – Debrecen, 2009. – ISBN 978 963 878 006 5.

In five years (1998-2002) at ten joint meetings of the Count K.Klebsberg Foundation, the History of Geology Section of the Hungarian Geological Society, and the Earth Sciences Department of the Hungarian Academy of Sciences considered twenty prominent earth scientists of the 19-20th century. All of them were university professors (nineteen Hungarians and one Austrian). The present book contains 13 papers, written by ten competent authors.

This book deals with the following : J.Cholnoky, L.Eötvös, G Földvári, G.Grasselly, R.W.W. Von Klebsberg zu Thumburg, S . Koch, G. Pantó, S. Papp, G. Prinz, F. Schafarzik, K. Telegdi-Roth, A. Vendl, I. Vitális.

For more information visit www.foldtan.hu, the website of the Hungarian Geological Society.

Geochemistry: Exploration, Environment, Analysis, Special Issue

John Stuart Webb, F R Eng and the history of Applied Geochemistry at Imperial College, London

The death of the English pioneer of applied geochemistry, Emeritus Professor John Stuart Webb in April 2007 marked the end of an era. Under his leadership, the Geochemical Prospecting Research Centre (later the Applied Geochemistry Research Group) established by him in 1954 in the Department of Geology, Royal School of Mines, Imperial College of Science and Technology, London, broadened the science of exploration geochemistry for ore-bodies to embrace: regional geochemistry; applied marine geochemistry (especially the investigation of metalliferous brines and manganese nodules); agricultural, and environmental geochemistry; multi-purpose geochemical mapping; and, in more recent years, urban geochemistry. All have now become fields of great importance. The papers in this volume, all written by former members of the GPRC/AGR, honour the vision for the science which John Webb exemplified, portray the breadth of the ground-breaking work undertaken by the GPRC and AGRG under his guidance, and illustrate aspects of its legacy today

Contents

R.J. Howarth, Introduction; R.J. Howarth, John Stuart Webb, F.R.Eng., and Applied Geochemistry at the Imperial College of Science and Technology, London; G.J.S. Govett, Early years in the Geochemical Prospecting Research Centre, Imperial College of Science and Technology, London: exploration geochemistry in Zambia in the late 1950s, a personal recollection; M. Thompson, Analytical methodology in the Applied Geochemistry Research Group (1950-1988) at the Imperial College of Science and Technology, London; M. Hale, Gas geochemistry and deeply buried mineral deposits: the contribution of the Applied Geochemistry

Research Group, Imperial College of Science and Technology, London; C.R.M. Butt & R.H. Mazzucchelli, The legacy of John Webb and the Applied Geochemistry Research Group, Imperial College of Science and Technology, London, to geochemical exploration in Australia; R.J. Howarth and R.G. Garrett, Statistical Analysis and Data Display at the Geochemical Prospecting Research Centre and Applied Geochemistry Research Group, Imperial College, London; D.S. Cronan, A synthesis of Applied Geochemistry Research Group and consequent research at the Imperial College of Science and Technology, London, into establishing geochemical exploration techniques for marine minerals; I. Thornton, Research in Applied Environmental Geochemistry – with particular reference to geochemistry and health; C.J. Moon, Geochemical exploration in Cornwall and Devon: A review. A Special Order Form can be accessed at: <http://www.geolsoc.org.uk/webdav/site/GSL/shared/pdfs/Publications/GEEA%2010-3%20order%20form.pdf>

COUNTRY REPORTS

Australia

David Branagan although unable to attend the INHIGEO meeting in Canada had a paper entitled ‘Alfred Selwyn: Preparing for Canada’ presented on his behalf by Barry Cooper.

During the year, six presentations were given to historical, scientific and community groups in Sydney and country locations on the life and work of T.W. Edgeworth David, his student T. Griffith Taylor, and an earlier Australian pioneer geologist, William Keene.

Several media interviews concerning the work of the Rev. E. F. Pigot (Australian seismologist and astronomer) were given. Part One of a paper on his life was accepted for publication in *Earth Sciences History*. The second part will be completed early in 2010.

In January David also had a long interview by researcher P. Tyler, discussing the long-term activity of the Royal Society of New South Wales.

In April, a field trip retracing the 1836 journey of Charles Darwin in the Blue Mountains for Geological Society Members was led and an illustrated Guide Booklet was prepared.

In September David attended the Annual Meeting of the Bassett Library of the Australian Academy of Science.

The Fifteenth Conference of the Australasian Mining History Association (including field excursions) at Lithgow, NSW was attended and a paper on the ‘History of Open-cut Coal Mining in the Western Coalfield of NSW, in the 1950s’ was presented.

In November an invited paper on the history of geology in the Blue Mountains was presented at a meeting of the Blue Mountains World Heritage Council, at Wombeyan Caves.

A guest editorial, discussing the Darwin bicentenary, was published in *The Australian Geologist* (of which David was Foundation Editor).

The Clarke Memorial Lecture of December 2007 was delivered (with Professor Roy Macleod), entitled: *The Architect & the Statesman: Archibald Liversidge, Edgeworth David, and the Spirit of Science in Sydney, 1874–1934*. This was completed for publication by the Royal Society of New South Wales in 2010.

A paper on Russian scientists in the Blue Mountains in 1820 was accepted for publication in 2010.

Publications:

‘The Geological Society on the other side of the world’. In: C.L.E. Lewis and S.J. Knell (eds), *The Making of the Geological Society of London*, Geological Society, London, Special Publication No. 317; pp. 341–371.

‘Some nineteenth- and twentieth-century Australian geological clerics’. In: M. Köbl-Ebert (ed.), *Geology and Religion: A History of Harmony and Hostility*, Geological Society, London, Special Publication No. 310, pp. 171–195.

‘Australia’s First Marble Quarry’ *Journal of Australasian Mining History* Vol. 7, September 2009, 1–16.

Obituaries on the geophysicist, Dr L. Drake S.J. (1931–2007), and the chemist Dr Edmund Potter (1923–2005) in *Journal and Proceedings of the Royal Society of New South Wales*, Vol. 141.

‘The Inner Sydney Basin: Geology, Land Surface and Earthquakes Potential geologic sources of seismic hazard in the Sydney Basin’. Proceedings volume of a one-day workshop *Geoscience Australia Record*, 2009/11, edited by Dan Clark.

D. F. Branagan and T. G. Vallance, ‘Some Unpublished Correspondence of the Rev. W. B. Clarke’, *Journal and Proceedings of the Royal Society of New South Wales*, 2008 (issued 2009), 141, pp. 1–31.

Review of Kristin Weidenbach, *Rock Star: The Story of Reg Sprigg, An Outback Legend*. In: *The Australian Geologist*, March 2009.

Review of Patrick Wyse Jackson: *Four Centuries of Geological Travel*. In: *Annals of Science*, 2009, 66, 572–575.

Barry Cooper concluded his current round of work on the history of uranium in South Australia and fully retired from the Geological Survey of South Australia on 30 September 2009. Since then he has continued to hold an adjunct position at the University of South Australia where he has an office and access to support facilities.

A large crowd at the Adelaide-based ‘History of Science, Technology and Ideas Group’ heard Barry speak on the history of uranium in South Australia in February while later in the year a significant part of this work was published as: ‘Bragg, Mawson and Brown and the Early Uranium Discoveries in South Australia’, *Transactions of the Royal Society of South Australia*, 2009, 133, 199–220. Much research remains to be published on the history of uranium in South Australia but it is being deferred at present whilst other projects come to fruition.

During 2009 Barry also completed a paper entitled “Snowball Earth: The Early History from South Australia” This contribution, which deals with a subject of some importance to contemporary geology is scheduled for publication in *Earth Sciences History* in 2010.

For the INHIGEO conference in Calgary in August 2009 Barry presented two papers: ‘The Discovery of the Emu Bay Shale *Lagerstätte*, a Burgess Shale-type Biota from Kangaroo Island, South Australia’ (joint with J. B. Jago); and ‘Arthur Wade and his 1915 Report on the Petroleum Prospectivity in South Australia’. The first of these is currently being worked up for publication. The latter is an ongoing project that has benefited from the subsequent input by several INHIGEO members.

Much interest has resulted from the rediscovery of a paper published in *Nature* in 1948 by the eminent South Australian geologist Reg Sprigg about the initial recognition of the Ediacara fauna. A short note (in collaboration with David Oldroyd, Susan Turner and Pat Vickers-Rich) was prepared and published as ‘Reg Sprigg and the Ediacara Fauna: An Extraordinary Discovery’, *The Australian Geologist* 153: 18 (with David Oldroyd, Susan Turner and Pat Vickers-Rich).

Barry also continues his interest in building stones, especially with development of the ‘Global Heritage Stone Resource’ designation. A paper on this subject has been submitted to *Episodes*.

As Members will appreciate, Barry is currently also INHIGEO Secretary General.

Tom Darragh has finished revising his translation of the five diaries of Ludwig Leichhardt that cover the period April 1842 to July 1844. They record his travels in northern New South Wales and southeast Queensland and include much information on the geology, botany and anthropology of the areas traversed. Tom and his collaborator on the project, Dr Rod Fensham of the Queensland Herbarium, are now working on the explanatory notes and introduction to the diaries. They are hoping that the work will be published in time for Leichhardt bicentenary in 2013.

A paper outlining the life of William Blandowski, the Silesian mining engineer who founded the National Museum of Victoria and was a rather controversial figure in the history of the Museum and the Philosophical Society of Victoria, occupied much of Tom’s time in 2008 and was published as ‘William Blandowski: a frustrated life’, *Proceedings of the Royal Society of Victoria*, 2009, 121: 11–60. The paper is a considerably enlarged version of a contribution to the Society’s Blandowski symposium, held at Mildura in September 2007.

Wolf Mayer contributed a paper to the Geological Society Special Publication 310, in which he reviewed and assessed the geological work of the Reverend Charles Wilton in New South Wales. A second article on Wilton’s early life, and on his geological observations in Sussex, appeared in the *Journal of West Sussex History*. Wolf continued his interest in the scientific discoveries of the French expedition to Australia (1801–1803), led by Nicolas Baudin. He has recently published a comprehensive account of the expedition’s geological work in *Earth Sciences History*.

A second edition of his booklet, *Images in Stone: A Guide to the Building Stones of Parliament House*, appeared last December. He attended the XXIII International Congress of History of Science and Technology in Budapest in July/August and presented a paper on the first geological investigations of Australia’s coastal regions by French and British expeditions (1788–1803) in the context of scientific cooperation between two nations at war.

In September Wolf took part in a colloque, held in Brussels, on the life and work of Nicolas Baudin and gave a paper on ‘L’accueil en Europe des résultats géologiques de l’expédition Baudin en Australie’. During August he spent two weeks at the *Muséum national d’histoire naturelle*, in Paris, where he examined the geological collections brought back to France from Australia by expeditions led by Louis de Freycinet and Dumont d’Urville.

David Oldroyd has continued to be busy with the editing and production of *Earth Sciences History*, which was ISI/Web of Science listed for the first time in 2009. He attended the meeting of the XXIII International Congress of History of Science and presented a paper on the early history of geomapping. This related to a new joint venture with various INHIGEO colleagues from Central/Eastern Europe, with a view to a publication on the early history of mapping in the Eastern Alps, the Bohemian Massif, the Carpathians, and the Holy Cross Mountains. This led to pleasurable visits to Cracow and Prague, to make plans for this project.

David published a co-authored paper with Susan Turner on the history of the establishment of the golden spike marking the boundary between the Precambrian and the Cambrian in South Australia, considering especially the work of the notable Australian geologist Reginald Sprigg. This appeared in a Chicago UP volume *The Paleobiological Revolution* (2009). He also published a chapter on 'Geology and Geochemistry' in the *Cambridge History of Science*, Vol. 6, and two chapters in Martina Koelbl-Ebert's GSL Special Publication, *Geology and Religion*: one on writings about Jean de Luc and one (with Zhang Jiuchen) on glaciological research in China in the Mao period, which considered whether Maoism had any of the characteristics of a religion. In addition, he published four book reviews and two essay reviews. Also a Chinese translation of his old book *The Arch of Knowledge: An Introductory Study of the History of the Philosophy and Methodology of Science* (1986) appeared with The Commercial Press, Beijing.

Susan Turner has since INHIGEO's Eichstätt meeting continued to investigate the history of Professor Friedrich von Huene and his daughter Erika, also a vertebrate palaeontologist but one who is entirely missing from histories of palaeontology in Germany. Sue's paper on von Huene's 'religious style' of geology contrasted with that of one of his correspondents, Heber Longman, former Director of Sue's home institution, was published in Martina Kölbl-Ebert's volume *Geology and Religion*. Work on Erika led to meeting the von Huene family three times in 2009. The von Huene Library at the *Institut für Geowissenschaften* was her base until after the death of her colleague, Wolf-Ernst Reif in June. (See Schoch [2009], for which ST helped with his publication list.) The *Institut* decided to send all the von Huene papers and remaining reprints left to Löwentor Museum (*Staatliches Museum fuer Naturkunde*, Rosenstein 1, D-70191 Stuttgart). Much of Sue's work this year has been on women, including those involved with 'saurians' with co-author Cynthia Burek (UK) for a forthcoming HOGG Geological Society Special Publication on the history of dinosaurs, etc. Erika von Huene will feature in that, alongside others such as the ubiquitous Mary Anning, the Philpots, Mignon Talbot, Tilly Edinger and more recent 'greats' such as Betsy Nicholls, Mary Wade, and Joan Wiffen. Much help has been given by editor Dick Moody (UK), Bob Oudans (Netherlands), and David Spalding and Darren Tanke (Canada).

David Oldroyd and Sue had their chapter 'Reg Sprigg and the Discovery of the Ediacara Fauna in South Australia: Its Approach to the High Table' in David Seposki and Michael Ruse (eds), *The Paleobiological Revolution*. University of Chicago Press, Chicago & London pp. 254–278. The book was originally intended to be about 'high-ranking' palaeontology ('at the High Table') but the publishers changed the title! Later in 2009, following the astonishing discovery by the Sprigg family in their archives at Arkaroola of the 'missing, unpublished' Sprigg *Nature* manuscript, a further short paper on 'Reg Sprigg and the Ediacara fauna: an extraordinary discovery' was made by Barry Cooper with Sue, David and Pat Vickers-Rich (Monash University) *The Australian Geologist*, No. 153, p. 18.

With colleague Vivi Vajda (Lund University), this year Sue edited a large volume of papers about the Jurassic, an outcome of the 33rd IGC in Oslo in August, which included historical references. Her theme at the INHIGEO meeting there on women in the IGCP will be covered more fully during work, begun this year for the 50th anniversary of the IUGS.

Presentations:

At the Calgary meeting (9–14 August) Sue gave talks on the 'Founding Mothers' of the oil industry, with much grateful thanks from Michelle and Mark Aldrich (USA), and on 'Exceptional Fossil Sites Including Lagerstätten in Australia'. She went on to visit Bob Carroll in Montreal (Redpath Museum) and Randall Miller (New Brunswick) for work in Campbellton and St John, learning more of Canadian building stones and Randall's geoheritage projects (see *Newsletter* 41).

Other matters:

A brief visit to the Geological Society Library in September with able assistance from Wendy Cawthorne, allowed her to examine their collection of geological models, which she and the late Bill Dearman studied thirty years ago (watch out for at forthcoming Spanish meeting).

Publications

Schultze, H.-P., Turner, S. and Grigelis, A. 2009. Great Northern Researchers: Discoverers of the Earliest Palaeozoic vertebrates, *Acta Zoologica*, 90 (Suppl. 1): 3–21. doi: 10.1111/j.1463-6395.2008.00387.x

- Turner, S. 2009. Reverent and Exemplary: 'Dinosaur Man' Friedrich von Huene (1875–1969). In: Kölbl-Ebert, M. (ed.), *Geology and Religion: Historical Views of an Intense Relationship between Harmony and Hostility*. The Geological Society, London, 223–242.
- Turner, Susan. 2009b. Huene Bibliography: von Huene reprints in boxes in von Huene Library. An annotated list of the von Huene reprints in boxes in von Huene Library, room 216, upper floor, Institut für Geowissenschaften, Sigwartstrasse 10, Universität Tübingen, 34 pp. Updated, based on the original plus the Reif & Lux versions. Appendix on GSL www (NB. now at Museum Löwentor, Stuttgart).
- Turner, S. 2009. Not so Quiet Persuasion: The Canon of Women in the Geological Sciences. Review of Cynthia V. Burek and Barbara Higgs (eds), *The Role of Women in the History of Geology*. London: The Geological Society, 2007. *Metascience*, 18, 405–404, 2009.
- Vajda, V. and Turner, S., 2009: Editorial. The Jurassic—In the Forefront of Science Outreach. *GFF*, 131, 1–3.

Austria

8th Symposium History of Science 10 years Working Group on History of Earth Sciences in Austria

From 24 to 26 of April 2009 the 10th Meeting of the Working Group for the History of Earth Sciences in Austria was held in the Steiermärkischen Landesmuseum Joanneum in Graz, themed “The beginnings of geological research in Austria”. Reason enough to remember the founding of the Working Group and to celebrate the activities and merits of the past ten years. The conference itself focused on geologic pioneers from the 18th and 19th Century, and presented, among others, the scientific accomplishments of Johann Jakob Scheuchzer, Leopold Johann Nepomuk von Sacher-Masoch and Friedrich Johann Karl Becke. Also the relations between Austria and the international scientific environment were kept in mind: In lectures, the research of Joachim Barrande, Josef Chavanne or Constat Prévost was discussed. The speakers were representative scientists of Austria, Germany, France and Turkey. The field trip “Grazer city and cultural geology” and a matinee as homage to Archduke Johann and Carl Ferdinand Peters framed the scientific program.

Scripta geo-historica

With support from the Geological Survey of Austria a bibliography is presently in progress, which will include those articles that have been written in the bygone decade by members of the Working Group on “History of Earth Sciences in Austria”. This bibliography will be included in the Proceedings for the anniversary celebration in this year. The Proceedings should be published in 2010 as fourth volume of the series “Scripta geo-historica – Grazer writings on the history of earth sciences”. This series of the University publishing house Graz, which was founded in 2009, is managed by the Centre for History of Science of the Karl-Franzens University Graz.

Albert Schedl reports that “My activities in history of sciences research are deeply blocked with other prior ranking works at the survey. So my contributions in the last years were restricted to support other research programmes with materials from my own collections. For example I still support all activities concerning the stay of the Austrian/German geologist Ferdinand von Hochstetter in New Zealand and Australia (1859-1860). Michael Organ and Thomas Darragh already published part of the only surviving field diary of Hochstetter on New Zealand/Australia from my archives. In 2008/2009 two exhibitions and symposia were held in Auckland and Nelson, New Zealand in memory of the 150th anniversary of Hochstetter’s stay in New Zealand. This programme was mainly organized by Sascha Nolden (University of Auckland) in cooperation with the Geological Society of New Zealand (Mike Johnston). Nearly 150 items of the exhibition in Auckland came from my Hochstetter collection. The reception of Ferdinand Hochstetter’s work is definitely higher in New Zealand and Australia than in Austria. In the meanwhile an edition of his field diary from the Nelson area has been prepared by Mike Johnston, Sascha Nolden and Leonore Hoke. So you see, that I am not collecting for self-interest. I prefer to make this rare archive material available for history of science research. One of my newest acquisition are four manuscripts of Carl Gustav Heraeus from 1719 concerning his observations in a famous cave in Styria/Austria (Mixnitz cave) and his early contributions in diluvial research. Although he was in correspondence with Leibnitz and quite famous in his lifetime, he is largely unknown at present also in the geoscientific community. For further use of this material I am in contact with Bernhard Hubmann (also INHIGEO member from the University of Graz). Although I have reduced my personal activities in publishing on the history of earth sciences, I am busy coordinating and delegating necessary works on that topic.

The following was regrettably omitted from the 2009 newsletter.

Report on the 3rd International Conference of the European Society for the History of Science, which took place at the Austrian Academy of Sciences, Vienna, September 10–12, 2008.

The main thematic emphasis of the conference was “Styles of Scientific Thinking in the European Tradition.” Marianne Klemun (Vienna) organised a special session on the History of Earth Sciences for the conference with the title “Geological State Surveys: geological maps as acts of synthesis and as evidence of differing ‘styles of thinking’?” Six speakers presented related papers: Ezio Vaccari (Italy, “The origins of state geological mapping in Italy: internal traditions and external influences in the development of a visual language in the 19th century”), Ana Carneiro and Teresa Salomé Mota (Lisbon, “Tracing geological boundaries: different approaches to fieldwork in the Portuguese Geological Survey, 1857–1974”), Christer Nordlund (Sweden, “Nationalism. Land Elevation and the Swedish Geological Survey”), Bernhard Fritscher (Germany, “Geology serving to build the nation: The political history of the ‘Geological Survey of Alsace–Lorraine’”), Peter Schimkat (Germany, “Is there a specific style of thinking in Geological Surveys? – The case of Germany”) and Marianne Klemun (Austria, “National agreement as style of thinking? The Geological Survey of the Habsburg Empire, 1849–1867”).

A lively discussion revealed that the question as to styles of thinking is worthwhile and that the approach suggested by Ludwik Fleck could be used profitably (Genesis und Development of a Scientific Fact, Ed. Th. J. Trenn and Robert K. Merton; 1979). Fleck’s distinction between ‘completion,’ ‘extension,’ and ‘transformation’ of styles of thinking could be productive for the analysis of collective work in geology, particularly since these styles change during the course of the work.

Belarus

I. Scientific Conferences:

Representatives of Belarus participated in the First (26–31 December 2008; Brazil) and the Second (1–4 September 2009; Norway) International Consultations on working out Special Report of the Intergovernmental Council on the sources of renewable energy and lessening the human influence on the Planet’s climate.

2009 was the 60th anniversary of the discovery of the Starobin potassium salts deposit in Belarus, which is one of the largest salt deposits in the world. At present, extraction of potassium salts reaches 30 million tons; in the produced fertilizers KCl makes 95%, annual production– 4 million tons (in terms of 100 % K₂O), 80% of that is exported.

Belarusian scientists took part in the LV Session of the Paleontology Society of the Russian Academy of Sciences (St Petersburg, 6–10 April 2009).

An International Seminar “Quaternary Geology, Geomorphology, Geoecology of Belarus and the Neighbouring Territories” (25–26 September 2009; Minsk) was devoted to the 80th anniversary of L.N. Voznyaczuk (1929–1981) – an outstanding researcher of the Quaternary deposits on Belarusian territory. Scientists from Belarus, Lithuania, Poland and Russia took part in the Seminar.

II. Jubilees.

The Belarusian Geological Society commemorated:

- 80 years since the birthday of Margarita Kichkina – the main author of the pre-quaternary deposits maps on the territory of Belarus.
- 75 years since the birthday of hydrogeologist, Doctor of Geology Anatoly Kudelski – a Belarusian State Prize Winner, corresponding member of the National Academy of Sciences.
- 75 years since the birthday of the main specialist on the pre-Cambrian crystal foundation of Belarus, Doctor of Geology Nina Aksamentova.
- 75 years since the birthday of the leading geologist of the Geophysical expedition Inga Bordon.
- 65 years since the birthday of Doctor of Geology geochemist Maria Anoshko.
- 60 years since the birthday of Doctor of Geology geophysician Valentina Astapenko. She formulated fundamentally new ideas of geoelectrical building of the earth crust and mantle on the territory of Belarus.

III. Memorable dates:

The journal *Lithosphere* (Minsk, 2009) carried a series of articles by V. Ermolenko, devoted to:

- 225 years since the birthday of a prominent Russian paleontologist Yakim Zembnitski (1784–1851);
- 175 years since the birth of an outstanding geologist Vincent Kosinski (1834–1883);
- 100th anniversary of Afanasiy Khodkov (1909–1999) – the pioneer of geotechnology;
- 100th anniversary of a geomorphologist Valentina Filipovich (1909–1942), who died in the Siege of Leningrad, (now St. Petersburg);

- 100th anniversary of the well-known hydrogeologist Konstantin Vollosovich (1909–1973).

IV. Novelties of the geological literature:

Karabanov, A.K., Garetskiy, R.G., Izberg, R.N. Neotectonics and neogeodynamics of the West part of the Eastern European Platform, Minsk, 2009.

Zinovenko G.V., Garetskiy, R.G. Podlassko–Brest Depression: Structure, History of Development and Fossils, Minsk, 2009.

Ermolenko V.A. Belarussians and the Russian North. Minsk, 2009 (Popular science publication).

Valeri Ermolenko, Minsk

Bolivia

I visited three academic institutions of Spain in May, related to the history of mining, under the invitation of my Spanish colleagues José Antonio Espi, Andrés Pacovi and Luis Mansilla. In each institution, seminars were delivered on topics related to the history of mining: On 6 May, at the Superior Technical School of Engineering in Madrid, the seminar was entitled “Potosí, Universal Heritage”, on 7 May in Zaragoza, at the Department of Earth Sciences at the University of Zaragoza, the topic was “Mining in Latin America in the colonial period (1545–1825): Consequences of pollution on health”; and on 12 May, at the Polytechnical University School of Almaden, the talk was “The Rich Mountain of Potosí (Bolivia): World Heritage”.

Thanks to the invitation by Prof. Josep Mata-Perelló, of the Polytechnic University of Catalunya, I also participated, 8–10 May, in the II International Congress on Geology and Environmental Mining for Order and Development, which took place in Utrillas (Mining Bowls, Teruel, Aragon, Spain). Experts from Bolivia, Colombia, Costa Rica, Ecuador, Morocco, Mexico, Peru, Spain and Venezuela participated in the congress. Presentations covered three sessions (Friday to Sunday). Topics considered included coal mining (in Spain and Colombia), gold (Ecuador, Peru and Colombia) and other raw materials (Spain, Bolivia, Venezuela and Portugal). In many presentations, the knowledge and inventory of mining heritage was emphasized. Also the environmental legacy that had been left by the mining activity, strategies of mitigation, the creation of geoparks, the recovery of the mining-industrial heritage, the mineral endowment of the territory, geological tourism and on climate change (a total of 27 presentations). In addition, there were seven posters. A visit to the Mining Museum of Utrillas was also included.

I had the chance to speak on “An Example of Sustained Pollution as the mining activity in Bolivia (silver, tin, complex sulfides, and others) goes back to 1544 and has affected the environment, causing the pollution of the atmosphere, soil, water and noise effects. In order to demonstrate some examples of pollution, examples in glaciers (Illimani/La Paz), in rivers (Pilcomayo, Mamoré, etc.), the last ecological tragedies (Porco) were presented as well as the good examples of mitigation and the practice of clean mining (Oruro and Potosí).

From 13–16 May, the 18th Bolivian Geological Congress took place in Potosí, attended by over 300 people from several countries (Argentina, Bolivia, Brazil, Chile, Germany, Peru and Spain). I presented the paper entitled “The contribution of Alvaro Alonso Barba”. It dealt with biographic information, his contribution to metallurgy and above all, to geosciences and to the scientific work of the priest of Lepe (as he was also known, especially his famous book *The Art of Metals*, published in 1640). Alonso Barba was one of the greatest explorers of the territory of the Royal Audience of Charcas (nowadays Bolivia) in the seventeenth century. He was a prospector of this vast territory, especially of metallic raw materials (deposits of gold, silver, tin, copper, lead, zinc, antimony and iron) and non metallic (construction stones, precious and semiprecious stones, sulfur). This individual can be considered as the major explorer, geologist, and metallurgist of the area. The deposits he described, more than a hundred, include 67 minerals. Many of them are being exploited up to the present time.

In the Journal “De Re Metallica” (Volume 12, pages 31 to 43) my article entitled “A Word Heritage: The Mining City of Potosí (Bolivia)” was published. In the Yearbook of Bolivian Studies, Archives and Bibliographical N° 15, 2009, pages 487-527, my contribution “The Agents of Medicine” was published. In addition, in the Journal of Medical Institute Sucre, N° 134 my paper “Drugs and Food in Colonial Potosí” is due to be published in early 2010. It deals with food and diet in the mining community.

Carlos Serrano, Potosí

Brazil

The rhythm undergone by the history of geological sciences in Brazil in 2010 didn't undergo significant changes. In the post-graduate program on “Education and History of Earth Sciences” at the Institute of Geosciences of the State University of Campinas (UNICAMP), two PhD and one Masters degree dissertations on geohistory were completed and approved. The second symposium on “Education and History of Earth Sciences” was held in São Paulo, at the Institute of Geosciences of the University of São Paulo (IGc-USP), from

the 1–5 November. About 12 papers with an historical focus were presented, plus the opening conference, presented by INHIGEO colleague Pietro Corsi (Italy) on “Charles Darwin, Charles Lyell & evolutionism”. Other articles that were published are listed below:

- FIGUEIRÔA, Silvia F. de M; ‘História e Filosofia das Geociências: relevância para o ensino e formação profissional’, *Terrae Didática*, 2009, 5(1), 63–69, Campinas, SP, Brasil, 2009.
- FIGUEIRÔA, Silvia Fernanda de M; ‘Areias, ventos e secas: ainda assim, um “eldorado” à brasileira’, *In: KURY, Lorelai Brilhante (coord.)*, *Comissão Científica do Império (1859–1861)*, Rio de Janeiro: Andrea Jakobsson Estúdio e Editora, 2009, 269p.
- FIGUEIRÔA, Silvia Fernanda de M; ‘Ciência e Tecnologia’, *in: PINSKI, Carla B. (coord.)*, *Novos temas nas aulas de História*, São Paulo: Contexto, 2009, 221p.
- FIGUEIRÔA, Silvia Fernanda de M; ‘Minerals scrutinized: Alberto Betim Paes Leme (1883–1938) and the application of spectrography’, *XXIII International Congress of History of Science and Technology*, 2009, 1, 397.
- LIMA, Flavia P.; FIGUEIRÔA, Silvia Fernanda de M; ‘Indigenous astronomical traditions as related by the first ethnologists in Brazil’, *in: VASKUNAS, Jonas (coord.)*, *Astronomy and cosmology in folk traditions and cultural heritage*, Vilnius: Academy of Sciences, 2009, 315p.
- LOPES, Maria Margaret; ‘A Comissão Científica de exploração. Uma “expansão para dentro”’, *In: KURY, Lorelai Brilhante (coord.)*, *Comissão Científica do Império (1859–1861)*, Rio de Janeiro: Andrea Jakobsson Estúdio e Editora, 2009, 269p.
- LOPES, Maria Margaret; ‘Por que História nos Museus e Centros de Ciências?’, *in: Museu: lugar do público*, Rio de Janeiro: Fiocruz, 2009, 220p.
- LOPES, Maria Margaret; ‘Por que História nos Museus e Centros de Ciências?’, *in: “Museu: lugar do público”*, Rio de Janeiro: Fiocruz, 2009, 220p.
- MENDOZA V., Hector; FIGUEIRÔA, Silvia Fernanda de M; ‘El mapa geológico de México y Brasil, 1850–1900’, *in: LOIS, Carla; MENDOZA V., Hector (coords.)*, *Historias de la Cartografía de Iberoamérica. Nuevos caminos, viejos problemas*, México: Instituto de Geografía–UNAM: Instituto Nacional de Estadística y Geografía, 2009, 293p.
- SICCA, N.A.L.; GONÇALVES, Pedro Wagner; ‘O Que Fundamenta a Oficina de História da Ciência e da Técnica? História da Técnica: Exploração da Água e Cidade’, *in: História da Ciência e Ensino – Propostas, tendências e construção de interfaces*, São Paulo: Editora Livraria da Física, 2009, 210p.

Silvia Figueirôa, Campinas-SP

Canada

Canadian Earth Science Anniversaries in 2009 (from G.V. Middleton “Timetables of Canadian Geology” with additions from D. Spalding)

150th Anniversaries

- J.W. Salter published ‘Figures and Descriptions of Canadian Organic Remains’, Decade I.
- J.W. Dawson published the first paper in North America on the application of the microscope to the examination of thin sections of rocks.

100th Anniversaries

- Gold discovered at Porcupine Lake, north of Cobalt, Ontario
- First edition of ‘Geology and Economic Minerals of Canada’ published by GSC
- W.H.McNairn appointed to teach geology at McMaster University, Toronto
- British Association for the Advancement of Science met in Winnipeg
- Charles Doolittle Walcott discovers the Burgess Shale near Field, BC.
- Barnum Brown’s preliminary investigation of the Red Deer River deposits—beginning of the Canadian Dinosaur Rush.

50th Anniversaries

- GSC moved to its new building at 601 Booth Street, Ottawa, and established its Marine Geology Group.
- J.A. Jacobs, R.D. Russell & J.T. Wilson published ‘Physics and Geology’.

25th Anniversaries

- Rocky Mountain Parks achieve World Heritage Site Status (incorporating the previously established Burgess Shale site).

Darren Tanke has taken over the editorial responsibilities (INHIGEO/Canada) from David A.E. Spalding. The following reports (reprinted as received) were submitted from Canadian INHIGEO members.

Kenyn Brysse

In 2009 I was (and remain) a Postdoctoral Research Associate in the Program in Science, Technology, and Environmental Policy at Princeton University. My project at Princeton examines the history of science and scientific assessments of ozone depletion, with the aim of distilling lessons that can be applied to ongoing and future environmental assessments, such as those being done by the Intergovernmental Panel on Climate Change (IPCC). In 2009 I presented two papers on this research, at the Annual Meeting of the Society for Social Studies of Science (4S) in Crystal City, Virginia, and at the History of Science Society (HSS) Annual Meeting in Phoenix, Arizona, respectively. I am currently working on two papers, and have a third co-authored paper currently under review, based on this work.

I am also continuing my work in the history of paleontology. For example, I presented a paper at The Burgess Shale 1909–2009: An International Conference on the Cambrian Explosion, held in Banff, Alberta, in August to commemorate the centennial of Charles Doolittle Walcott's discovery of the Burgess Shale. My paper, entitled "What counts as a phylum? Systematics, evolution, and the Burgess Shale," explored the history of the changing classifications of the Burgess fossils, and their implications for paleontology and evolutionary biology. This paper is currently under review for publication in the conference proceedings, which will be put out as a special volume of *Palaeontographica Canadiana*.

I presented a similar paper on "Phyla and the Burgess Shale" at the INHIGEO Annual Meeting in Calgary, Alberta, later in August. I also presented a second talk on the reaction of vertebrate paleontologists to the 1980 Alvarez impact hypothesis. This talk will be submitted as a paper entitled "Impacts and mass extinctions: a beautiful hypothesis unyielding to ugly facts," to the *Proceedings of Fossils and Fuel: 2009 Annual Meeting of the International Commission on the History of Geology (INHIGEO)*, a special volume to be published by the Geological Society of London.

In September 2009, I was invited to give lectures on both my Burgess Shale work and my history of mass extinctions research at the Department of Geosciences at the University of Montana. The mass extinctions lecture was featured in the Geosciences Colloquium series, while the Burgess Shale talk was presented to GEO 311, a third-year paleobiology seminar. I thank geologist George Stanley for his kind invitation and warm hospitality at the University of Montana.

Finally, my review of Jane Davidson's book *A History of Paleontology Illustration* (Bloomington: Indiana University Press, 2008) was published in *Isis* vol. 100, no. 2 (June 2009): 377–378.

Ernie Hamm

I presented several papers, including:

- "Mennonites, Experimental Philosophy and Enlightenment in the Netherlands," for the History Department, Brock University 30 October 2009;
- "Styles in Geology: Eduard Suess and Erudition," 23rd International Congress of the History of Science and Technology, Budapest, 28 July–3 August, 2009;
- "Archaeology and Erudition: Serapis and Suess," at the History of Science Society Annual Meeting, Phoenix, Arizona, 19–22 November 2009.

Randall Miller

New Brunswick's 'history of geoscience' activities in 2009 were related in part to a community application to the Global Geoparks Network (GGN) hoping to create the network's first North American member. The project is currently called the 'Stonehammer Geological Project' while the application is being considered. If the application is successful it would become the 'Stonehammer Geopark'. The name is derived from the 'Steinhammer Club', formed in 1857. It consisted of a group of your amateur geologists who explored the area of the proposed park. In 1862 the club founded the Natural History Society of New Brunswick. It led to the New Brunswick Museum (www.nbm-mnb.ca). The working group has described the project as 'Stonehammer; a billion years of stories', that includes a relatively continuous geologic history from the Late Neoproterozoic to the Neogene, in addition to 175 years of geoscience investigation. The claim to a long history of study in the region was nicely supported by a paper published in *Atlantic Geology* last year that described an early geological field trip to the Bay of Fundy (*Falcon-Lang, H. 2009. The 1835 Williams College expedition to Maine, New Brunswick and Nova Scotia: the first geological field trip by a North American college. Atlantic Geology 45: 95–109*).

Related in part to the Stonehammer project were two conference presentations concerning the Natural History Society library and geology followed by a paper submitted to *Earth Sciences History* on the same topic

(Buhay, D.N. and Miller, R.F. 2009. *The library of the Natural History Society of New Brunswick*. Canadian Library Association Conference, May 29 – June 1, Montreal, Quebec; Buhay, D.N. and Miller, R.F. 2009. “Building a Research Library”: *The Natural History Society of New Brunswick (1862–1932)*. Canadian Science and Technology Historical Association; XVIth Biennial Conference, Science, Society and Heritage, September 25–27, Université Laval, Quebec, p. 8–9).

Rebuilt in Stone. Geology and the Stone Buildings of Saint John, New Brunswick (by Miller, R.F. and Hughes, G.K., New Brunswick Museum, Saint John, 32 p., 2009) was launched with sold-out guided tours that ended at an Uptown wine bar (Happinez), located in the basement of one of the historic buildings. The book and tours received good media coverage and there was great community interest in this aspect of the city’s heritage. Another project completed in 2009 was the revision of the New Brunswick’s Heritage Conservation Act that now includes protection for palaeontological objects and sites in the province and clarifies government ownership of palaeontological resources. More about geological heritage in New Brunswick can be found in one of the last papers in a series about heritage published in *Geoscience Canada* (Miller, R.F. 2009. *Geoheritage 5. Geoscience Heritage in New Brunswick*. *Geoscience Canada* 36: 160–169).

A paper by Howard Falcon-Lang in 2009 (*Earliest history of coal mining and grindstone quarrying at Joggins, Nova Scotia, and its implications for the meaning of the place name “Joggins”*. *Atlantic Geology* 45: 1–20) only added to the significance of the Joggins Fossil Cliffs. Joggins had a great year following the 2008 designation as a UNESCO World Heritage Site. Their web site (<http://jogginsfossilcliffs.net/>) lists the many awards received in 2009 and includes a national communications award; “The Joggins Fossil Institute has been honoured with a Silver Leaf Award for its work in engaging stakeholders and communications. This is one of 30 national awards presented by the International Association of Business Communicators (IABC) to recognize communications professionals for outstanding achievement on projects recently completed. Joggins is one of only two recipients from Atlantic Canada.”; a provincial tourism award “The Central Nova Tourist Association (CNTA) awarded the Fossil Cliffs with “Attraction of the Year” at their awards ceremony on Friday 6 March.”; and recognition by the LA Times “The LA Times has announced what it considers to be the top 29 destinations to visit in 2009 and the Joggins Fossil Cliffs features at a heady number four.” Nearby, the Cumberland Geological Society celebrated its 20th anniversary, and the 16th season of operation of the Fundy Geological Museum (<http://museum.gov.ns.ca/fgm/en/home/default.aspx>). Best known for its early dinosaur record and wealth of minerals, the museum and Parsboro region is another facet in the burgeoning geotourism experience in the Maritimes Region of eastern Canada.

Gerard V. Middleton

As far as I know my article about Adams’ work in petrology and his experimental studies of the physical properties of rocks at high pressures and temperatures is still in press in a special issue of *The Compass*, edited by Dan Merriam.

In cooperation with Nick Eyles, Bob Watson and Nina Chapple, I ran an excursion to the Niagara peninsula for the joint Geological Association of Canada/ American Geophysical Union Meeting in Toronto in May, 2009. The guidebook, *Niagara Rocks, Building Stone, History and Wine* (73 p.) was published in a very limited edition.

At the INHIGEO meeting in Calgary, I delivered a paper on the early history of the connections between Sedimentology and Petroleum Geology. A draft of the MS has been prepared and submitted for comments: so far, it is not clear what the plans are for a publication arising from the meeting.

David Spalding

Presentations

2009 was focused on the Calgary INHIGEO conference. I gave a keynote (“Beat them to the Best Specimens...” The Canadian Dinosaur Rush, 1909–1917), chaired one of the sessions, and also led a five day post conference field trip through Alberta’s dinosaur country and the southern Rockies of Alberta and British Columbia.

Publications

Two reviews were published in *Earth Sciences History* during the year, of *A History of Paleontology Illustration* (Jane P. Davidson); and *Tyrannosaurus rex: The Tyrant King* (Larson & Carpenter, eds). A further review, of “A History of Geoconservation” (Burek & Prosser, eds.), is in press in the same journal.

For INHIGEO, I edited the 2008 Canadian report published during the year in *Newsletter #41*; an abstract of my conference keynote was published in the conference program; and I produced a 31-page *Post Conference Tour Handbook* for the members who came on the excursion.

Sarjeant Literary Executor

I continue my role of Bill Sarjeant's literary executor. With my assistance the University of Alberta produced a pamphlet on the Sarjeant book collections in their Library. Copies of this were available at the INHIGEO conference, and can be mailed on request to anyone interested. My revised version of Sarjeant's chapter in "The Complete Dinosaur" is still in press, with no publication date announced. A forthcoming publication acknowledging Bill's many interests is a centenary edition of Conan Doyle's novel "The Lost World", which is being edited by New Zealander John Lavas. I am preparing part of the extensive introduction, covering the scientific expeditions that may have influenced Doyle and some fictional anticipations of his work. No progress has been made in republishing and extending Sarjeant's major bibliography on the history of Earth Sciences, but I am endeavouring to follow the rapid changes in the availability of out of print materials on the web. In particular, Google's digitizing of published works in many libraries (in and out of copyright) has led to the creation of a massive resource, and also a complex lawsuit in U.S. courts which seems likely to resolve U.S. copyright issues (but will leave authors in other countries in the air). Another initiative is the INHIGEO virtual library

Current Activities

I continue to serve on the editorial board of Earth Sciences History and the board of the History of Earth Sciences Society. Following the INHIGEO conference I have been preparing a publishable version of my keynote paper, as it has been proposed that the conference proceedings will be published. Preparation of the tour required the creation of a chronological and thematic framework for the history of earth sciences in western Canada, as (although there is an extensive specialised literature) there is no general overview available. I am continuing to explore the possibilities that this preliminary research presents as the basis of further publications. As a result of discussions during the conference, I am now collaborating with Darren Tanke on a review of the life and work of vertebrate paleontologist William Edmund Cutler, whose life was discussed in one of Darren's papers presented at the conference.

Darren H. Tanke

I had another busy year relating to earth science history activities.

Conference presentations

At the 13th annual Alberta Palaeontological Society meeting in Calgary, Alberta in 2009 I made an oral presentation on the history of helicopter use on paleontological sites in Alberta, Canada (Tanke, 2009a). This presentation included the first ever symposium presentation of a 6-minute 8 mm color film of the first dinosaur lift of plaster of Paris field jackets anywhere in the world. This event happened at Dry Island Buffalo Jump Provincial Park, Alberta in September 1967. I also had a table display on the upcoming 2010 scow re-enactment (Tanke, 2009b). This summer, this trip will re-enact the mode of transportation used by early dinosaur collectors in Alberta, Canada.

At the INHIGEO annual meetings in Calgary (Aug. 10–14) I made 4 oral presentations on various aspects of Alberta's paleontological history (Tanke, 2009c–f) and co-authored (with Steve Rowland) on another oral presentation (Rowland and Tanke, 2009). I also helped co-lead part of the INHIGEO fieldtrip to the famous Dinosaur Provincial Park fossil locality which has been heavily explored for dinosaur and other fossil vertebrates since 1898. Unfortunately it began to rain heavily just as we arrived and much of the field component of the Park visit could not be done.

The Royal Tyrrell Museum of Paleontology in Drumheller, Alberta hosted a fossil turtle symposium on October 17–18. At that, I had a poster presentation with Patty Ralrick on the successful 1999 relocation of a lost 1914 fossil *Basilemys* turtle quarry (Tanke and Ralrick, 2009). We are working on a lost (then found) *Basilemys* turtle quarry paper for an upcoming book on the turtle conference.

At the 14th annual Alberta Palaeontological Society meeting in Calgary, Alberta I made an oral presentation on the upcoming 2010 scow reenactment (Tanke, 2010), and again had a table display on same with a detailed 1:10 scale model of the scow. Finally, the Tanke and Ralrick 2009 poster on the relocation of the lost 1914 fossil turtle quarry was represented at the request of the conference conveners (Tanke and Ralrick, 2010).

A table display on the 2010 scow trip was presented by Tanke and Patricia Ralrick at an archeological/geological/paleontological workshop for the general public held on 8 May in Red Deer, Alberta.

Current projects

Two lost 1947 dinosaur quarries, which yielded 3 skeletons of the small primitive ceratopsian (horned dinosaur) *Leptoceratops* were relocated by me in the summer of 2009. Hundreds of lost dinosaur (and other biota) quarries are still unaccounted for along hundreds of kilometers of the Red Deer River in Alberta.

Another field project, 7+ years in planning, is a 2010 centennial reenactment of the 1910–1914 expeditions which floated down the Red Deer River on large flat-decked and flat bottomed “scows”. This expedition now has an online blog, visit: <http://2010dinohuntingbyboat.blogspot.com>. The trip will begin in Red Deer, Alberta in late June and end around August 7, 2010 in Dinosaur Provincial Park., Alberta. We hope to update the blog from the field at least every several days, weather, technology, and cell phone coverage permitting. Departing crew members will upload their personal pictures of the trip to this blog.

A paper on the amateur woman paleontologist Irene Vanderloh (1917–2009) was accepted for publication (Tanke, 2010). I have nearly finished two other biographical papers on prominent and elderly amateur fossil collectors in the province. These papers are part of the “Remember Me” series on some of the lesser known personalities involved in Albertan vertebrate paleontology. However, in these two cases, I have taken a proactive approach and am writing their biographies when they are still alive, and I am able to get their life stories and memories.

Another paper, also accepted for publication, involves the history of discovery of the Late Cretaceous carnivorous dinosaur *Albertosaurus* in Alberta, Canada (Tanke and Currie, in press). This will be published in the fall of 2010. Finally, the Canadian Journal of Earth Sciences accepted a paper (Henderson and Tanke, in press) on the past and future dinosaur skull and skeleton resources in Dinosaur Provincial Park, Alberta. This paper heavily utilizes historical records (going back over 100 years) of major dinosaur skeletal finds made and collected in the Park, and then uses the amount of current rock exposure and erosion rates to interpolate what was lost over the past 13,000 years of erosion that created the Park and finally extrapolates how many major dinosaur finds still await discovery within the Park’s political boundaries.

Research on William E. Cutler continues. This “mystery man” collected dinosaurs and other fossils across western Canada off and on during the 1912–1923 period, including some major finds. Yet little is known about him. A paper on one of his finds should be out early this summer (Tanke, in press a). While in London, England in 2009, I was able to access and copy much of Cutler’s personal papers curated at the Natural History Museum archives. I am working on the Cutler biography project with a number of other people, one of which is Canadian INHIGEO member D.A.E. Spalding.

Also while in England, I went to the naval museum in Liverpool and saw a large scale architectural model of the ill-fated SS *Mount Temple*, sunk in 1916 with a large cargo of Canadian dinosaurs and other fossils on board. Then went to the town of Formby north of Liverpool and visited the grave of Captain Sargeant, who captained the *Mount Temple* on that tragic day. During these two trips we were hosted by James and Susan Kay in the small Midlands town of Naseby. James is the great grandson of Captain Sargeant. Plans were made for J. Kay and Tanke to work on an historical book on the sinking of the *Mount Temple* and related nautical/human/paleontology/military histories.

A large (486+ page) history of horned dinosaur collection, research and related activities in Alberta, will appear in CD-ROM format in a book slated for early summer publication (Tanke, in press b).

In the summer of 2009 I participated in the relocation of old and some more modern dinosaur quarries along the Red Deer, Milk, and South Saskatchewan Rivers (some with a high historical significance). This work was done over a 6 day period and each mapped in with survey-grade GPS, thus ensuring their relocation by future researchers for a variety of multidisciplinary studies. This was a joint project between the Royal Tyrrell Museum and Paleontology Department of the University of Alberta (Edmonton). This critical project, an update of previous mapping projects begun just over 10 years ago, was financially supported by Bill Spencer of Calgary, Alberta.

The Facebook (www.facebook.com) social Internet group **Vertebrate Paleontology History**, created by me on 26 February 2008, continues to grow with 391 members as of 3 April 2010. To join the group, join Facebook, then search for the group by name and join the group. Joining Facebook is entirely free and is a great way to network and/or share information and images with other like-minded people. There are a number of other Earth Science groups on Facebook that may be of interest to readers. For example, another group created by me, entitled **Ceratopsian Dinosaurs**, contains many historical images related to early dinosaur collecting in Alberta.

Preliminary plans are underway to eventually create a large rock cairn with commemorative bronze plaque dedicated to the early dinosaur collectors in southern Alberta. Location of the completed cairn is unknown—hopefully somewhere within Dinosaur Provincial Park.

Citations for the above noted Tanke presentations, publications, and in press articles:

- Henderson, D.M. and Tanke, D.H. in press. Estimating past and future dinosaur skeletal abundances in Dinosaur Provincial Park, Alberta, Canada. *Canadian Journal of Earth Sciences*.
- Rowland, S.M. and Tanke, D.H. 2009. Greatness denied: The short, tragic career of Canadian vertebrate paleontologist James E. Thurston. *INHIGEO, Symposium 34 "Fossils and Fuel" Calgary Alberta, August 10–14, 2009:56–57*.
- Tanke, D.H. 2009a. Dinosaurs take flight: A history of helicopters used to collect dinosaurs and other fossils in western Canada. pp. 32–38. In: *Alberta Palaeontological Society, Thirteenth Annual Symposium, Abstracts*. Edited by H. Allen. Mount Royal College, Calgary, Alberta. March 14–15, 2009.
- Tanke, D.H. 2009b. Hunting for dinosaurs by boat on the Red Deer River, Alberta, Canada: A Centennial expedition. pp. 41–43. In: *Alberta Palaeontological Society, Thirteenth Annual Symposium, Abstracts*. Edited by H. Allen. Mount Royal College, Calgary, Alberta. March 14–15, 2009.
- Tanke, D.H. 2009c. Preserving Alberta's paleontological heritage by relocation of lost dinosaur quarries and solving of mystery quarries through historical archaeology techniques. pp. 61–62. *INHIGEO, Symposium 34 "Fossils and Fuel", Calgary Alberta, August 10–14, 2009*.
- Tanke, D.H. 2009d. Dinosaur hunting by boat in Alberta, Canada: A 2010 Centennial expedition. pp. 62–64. *INHIGEO, Symposium 34 "Fossils and Fuel", Calgary Alberta, August 10–14, 2009*.
- Tanke, D.H. 2009e. The 1916 sinking of the SS *Mount Temple* and her dinosaur cargo. pp. 64–65. *INHIGEO, Symposium 34 "Fossils and Fuel", Calgary Alberta, August 10–14, 2009*.
- Tanke, D.H. 2009f. William E. Cutler: A mysterious character in early 20th Century Albertan vertebrate paleontology. pp. 66–67. *INHIGEO, Symposium 34 "Fossils and Fuel", Calgary Alberta, August 10–14, 2009*.
- Tanke, D.H. 2010. Remember me: Irene Vanderloh (1917–2009): Alberta's first woman amateur vertebrate paleontologist. *Bulletin Alberta Paleontological Society*, 25(1):10–18.
- Tanke, D.H. and Ralrick, P.E. 2009. The case of the missing *Basilemys* turtle quarry (Dinosaur Provincial Park, Alberta). p. 177. In: *Gaffney Turtle Symposium, Abstracts and Program*. Compiled by D.R. Braman. Royal Tyrrell Museum of Palaeontology, Drumheller, Alberta, October 17–18, 2009.
- Tanke, D.H. 2010. Reconstruction of a scow used in early Albertan palaeontology expeditions and a commemorative 2010 expedition. pp. 49–54. In: *Alberta Palaeontological Society, 14th Annual Symposium, Abstracts*. Edited by H. Allen. Mount Royal University, Calgary, Alberta. March 13–14, 2010.
- Tanke and Ralrick, P.E. 2010. Successful relocation of a lost 1914 *Basilemys* (Testudines:Nanhsiungchelyidae) quarry in Dinosaur Provincial Park, Alberta. pp. 44–48. In: *Alberta Palaeontological Society, 14th Annual Symposium, Abstracts*. Edited by H. Allen. Mount Royal University, Calgary, Alberta. March 13–14, 2010.
- Tanke, D.H. in press a. Lost in plain sight: Rediscovery of William E. Cutler's missing "Eoceratops". In: *New perspectives on horned dinosaurs*. Edited by Michael J. Ryan, Brenda J. Chinnery-Allgeier, and David A. Eberth. Indiana University Press, Bloomington.
- Tanke, D.H. in press b. Ceratopsian discoveries and work in Alberta, Canada: Historical review and census. In: *New perspectives on horned dinosaurs*. Edited by Michael J. Ryan, Brenda J. Chinnery-Allgeier, and David A. Eberth. Indiana University Press, Bloomington.
- Tanke, D.H. and Currie, P.J. in press. History of *Albertosaurus* discoveries in Alberta, Canada. *Canadian Journal of Earth Sciences*.

Darren H. Tanke,
Drumheller
(with inputs by all Canadian members)

China

1. Huge celebration of the 120th birthday of the late Professor Li Siguang (J.S. Lee) in Beijing

26 October 2009 was the 120th birthday of the famous Chinese scientist, founder of Geo-mechanics in China, Professor Li Siguang. A grand memorial ceremony, together with the award of the 11th Geological Science prize in the honor of Li Siguang was held on 23 October at The Great Hall of the People in Beijing. The ceremony was conducted by the Ministry of Land and Resources of China in combination with the China Association for Science and Technology and Chinese Academy of Sciences. The Deputy Prime Minister of the State Council Mr. Li Keqiang attended the meeting and gave a speech in memory of Professor Li. The chiefs of ministries and commissions of the State Council, the person in charge of the foundation of Li Siguang geological science awards, academicians, and specialists from relevant science and technology circles and representatives from various universities and institutes and students from middle and primary schools totalling more than 700 people attended the ceremony.

2. A forum in memory of the 30th anniversary of the death of Academician Yang Zhongjian (C.C. Young) held in Beijing

15 January 2009 was the 30th anniversary of the death of Academician Yang Zhongjian, the pioneer and founder of the discipline of vertebrate paleontology and paleo-anthropology in China. A forum, jointly conducted by the Institute of Vertebrate Paleontology and Paleoanthropology, affiliated to the Chinese Academy of Sciences, Northwest University and the Beijing Museum of Natural History, was held in memory of his great contribution to scientific research and his high moral character.

Yang Zhongjian was born in 1897 in Shaanxi Province. He graduated from the Geological Department of National Peking University in 1923 and received his doctorate at the Munich University in Germany in 1927. In 1928 he worked for the Cenozoic Research Laboratory of the Geological Survey of China and took charge of the excavation of the Peking Man site at Zhoukoudian. He conducted a series of excavations and studies on many dinosaur sites in China and some 674 papers (including monographs) were published. He is one of the foremost paleontologists with great achievements in Cenozoic stratigraphy and vertebrate paleontology in China.

3. The Institute of Geology and Geophysics, affiliated to the Chinese Academy of Sciences joint with the Chinese Quaternary Science Association held the ceremony of the anniversary of the death of Liu Dongsheng

6 March 2009 was the anniversary of the death of Academician Liu Dongsheng. The Institute of Geology and Geophysics jointly with the Chinese Quaternary Science Association held a prestigious ceremonial assembly. In order to recognize his scientific contribution to mankind the International Asteroid Naming Committee named the asteroid No58605 discovered by Chinese astronomer on 8 October 1997 as “Asteroid Liu Dongsheng “. The naming ceremony was held at this assembly. The certificate of the “Asteroid Liu Dongsheng “ was awarded to Chinese Academy of Sciences at the ceremony by Madam Qian Zhengying, the Vice Chairwoman of the Chinese People’s Political Consultative committee. The ceremony was also the occasion for launching the the memorial collected works of Professor Liu Dongsheng and his posthumous work “Loess and arid environment” was also available at this meeting.

4. The celebration of the 100th anniversary of the establishment of the Geological Department of Beijing University

On the morning of 2 May 2009, the celebration ceremony of the 100th anniversary of the establishment of the Geological Department of Beijing University was held at the Centenary Hall of Beijing University. Academician Zhou Qifeng, the President of Beijing University and others attended and gave their congratulation speeches respectively at the meeting. Representatives of geologists and alumni from all parts of China also attended the ceremony.

5. Famous paleontologist Academician Professor Yang Zunyi died in Beijing

The distinguished geologist, geology educationalist and veteran academician of the Chinese Academy of Sciences, Professor Yang Zunyi passed away in Beijing in September 17th 2009 at the age of 101. Professor Yang is the pioneer and founder of paleontology and stratigraphy in China . He was born on 7 October 1908 in Jieyang, Guangdong province. He graduated from Tsinghua University and received his doctorate from Yale University. He taught successively in many universities in China. In 1952, he took part in the founding of former Beijing College of Geology (now China University of Geosciences) and worked there for all his life. He engaged in geology research and education for 70 years. For his great contribution he is respected by all geological and academic circles in China.

6. The 21th annual meeting of the History of Geology of Geological Society of China(HGGSC)

20–21 October was the 21th Annual Meeting of the HGGSC was held in China University of Geosciences in Beijing. Some 42 papers were received and 38 oral presentations were given at this meeting. Because the year 2009 is both the 100th anniversary of Chinese geology education and the 120th anniversary of the death of the late professors Li Siguang and Weng Wenhao (J.S. Lee and W.H. Wung), the centenary of geological education and the study of geology personals in China were the 2 major topics of the annual meeting.

7. Symposium “Mountain-climbing and scientific investigation in Tibetan Plateau” held by China Commission of History of Geology

On 24 November 2009 the China Commission of History of Geology jointly with The Institute of History of Geology affiliated to China University of Geosciences held a symposium on “Mountain-climbing and scientific investigation in Tibetan Plateau”. 32 people attended the meeting and 22 papers were presented. The symposium aimed to provide a review and summary of research work conducted by the Chinese geologists in Tibet area since 1949.

8. The working plan of The Commission of History of Geology of Geological Society of China (HGGSC) in 2010

- 1) To publish the monograph of “The history of development of geology discipline in China” by Commission of History of Geology in collaboration with the Xu Xiake Society
- 2) To preparing to hold the 22th annual meeting on the topic of “The commission of HGGSC and the research on the History of Geology in China” and endeavoring to compile “The Centenary Records of the History of Geology in China” under the support from the Geological Society of China.

Zhai Yusheng & You Zhendong

Costa Rica

Gerardo J. Soto has served as Vice-President for Latin America since 2004. His duties have included a frequent communication with regional members of INHIGEO. Cooperation with the Board in its business has been active throughout 2009. He has been active with the nomination of new candidates from Latin America for becoming members through the INHIGEO 2010 election.

Soto attended the *Tercera Reunión Internacional Geonaturalia, Proyecto “Geografía e Historia Natural hacia una historia comparada”* [Third Geonaturalia Meeting, Project Geography and Natural History to a comparative history], held in Mexico D.F., Mexico, in August 19–22, where he delivered a talk on the geological and volcanological mapping in Central America up to the World War II.

INHIGEO member Guillermo E. Alvarado published the third edition of his book on Costa Rican volcanoes, where a chapter is dedicated to the history of Volcanology in Costa Rica. Alvarado was also coauthor of a paper dealing with the possible interaction between bisons and humans in Central America in the Holocene. He also participated in a round table on the work of Charles Darwin, entitled “Knowing Charles R. Darwin”, held in the University of Costa Rica on November 25.

Several other papers were published by the community of Costa Rican historians of Geology and Science, dealing with remarkable personages, the role of institutions in 19th century, historiography of geological disasters and social issues derived from volcanic eruptions in history in the region. Their references are listed below.

Finally, as good news, the *Colegio de Geólogos de Costa Rica* [CGCR, Guild of Geologists of Costa Rica] has accepted “History of Geology” as one of the many different professional areas of Geology in Costa Rica, where members can request to be recognized as “specialists”. At the same time, Gerardo J. Soto has been elected as the first specialist of this area into CGCR and Costa Rican geological community.

References

- Alvarado, Guillermo.E., *Los volcanes de Costa Rica: Geología, historia, riqueza natural y su gente*, 3rd edition, Editorial Universidad Estatal a Distancia, Costa Rica, 2009.
- Alvarado, Guillermo E., Lucas, Spencer G. and Gómez, Luis D., ‘Evidencias directas e indirectas sobre la probable coexistencia de bisontes y el ser humano en Centroamérica durante el holoceno’, *Revista Geológica de América Central*, 2009, 39, 53–64.
- Díaz, Ronald E., ‘Estado, comunidades científicas y exploraciones geográficas en Costa Rica: los proyectos cartográficos del Instituto Físico-Geográfico Nacional (1889–1903)’, in Viales, Ronny, Amador, Jorge A. and Solano, Flora J. (eds.), *Concepciones y Representaciones de la Naturaleza y la Ciencia en América Latina*, Universidad de Costa Rica, San José, 2009, 211–219.
- Díaz, Ronald E. and Solano, Flora J., ‘Costa Rica: Desarrollo científico. Una mirada en su historia natural a través de Paul Biolley Matthey (1886–1908)’, in Lértora, Celina (ed.), *Geonaturalia. Geografía e Historia Natural: hacia una historia comparada. Estudio a través de Argentina, México, Costa Rica y Paraguay*, 2008, Ediciones FEPAL, Buenos Aires, 2009, 209–238.
- Peraldo, Giovanni, ‘¿Cómo contar la vulnerabilidad? Sugerencias conceptuales para la historiografía de los desastres asociados a eventos geológicos, ejemplos de la Colonia’, in Chen, Susan, Malavassi, Ana P. and Viales, Ronny (eds.), *Teoría y métodos de los estudios regionales y locales*, Universidad de Costa Rica, San José, 2008, 205–236.
- Peraldo, Giovanni and Mora, Mauricio, ‘Enseñanzas de la actividad histórica de los volcanes Irazú y Turrialba, Costa Rica, América Central’, in García, Virginia (ed.), *Historia y desastres en América Latina, Volumen III*, Publicaciones de la Casa Chata, Mexico D.F., 2008, 115–162.
- Peraldo, Giovanni and Mora, Mauricio, ‘El miedo y su derivación en mitos sociales ante erupciones volcánicas y terremotos ejemplificados en América Latina entre los siglos XVI y XX’, in Lértora, Celina (ed.), *Geonaturalia. Geografía e Historia Natural: hacia una historia comparada. Estudio a través de Argentina, México, Costa Rica y Paraguay*, 2008, Ediciones FEPAL, Buenos Aires, 2009, 347–394.

Peraldo, Giovanni and Mora, Mauricio, 'La Geología y la Geografía desde las microhistorias y la percepción', in Viales, Ronny, Amador, Jorge A. and Solano, Flora J. (eds.), *Concepciones y Representaciones de la Naturaleza y la Ciencia en América Latina*, Universidad de Costa Rica, San José, 2009, 123–134.

Soto, Gerardo J., 'El mapeo geológico y vulcanológico en América Central hasta el inicio de la Segunda Guerra Mundial' *Tercera Reunión Internacional Geonaturalia, Proyecto "Geografía e Historia Natural hacia una historia comparada"*, 19–22 August, Mexico D.F., Programa, 2009, 14.

Gerardo J. Soto, San José

Czech Republic

At the beginning of 2009 INHIGEO members, namely D. Oldroyd (Australia), J. Kozák (Czech Republic) and A. Grigelis (Lithuania) proposed to summarize the skeleton of a common work on the early geological and geognostic mapping in Central Europe to the development of world geological cartography advancement.

A few months later they invited the specialists in the subject from Bohemia, Poland and Austria to participate in the newly formulated project to identify, classify and interpret the early (=prior 1820) geological maps created in the Central Europe. The circle of specialists interested in the project was gradually enlarged to include German and Hungarian colleagues – mostly INHIGEO members.

The first informal meeting of the project initiators with Polish colleagues was held in Krakow, Poland, in August 2009. Immediately afterwards, this meeting continued in Prague. In this prolonged meeting also a specialist from Austria and new co-operating colleagues from the Czech Republic participated. It was decided during both meetings to formulate the project clearly in written form and to apply for project financial support at the VISEGRAD International Fund based in Bratislava, which was established by the governments of the VISEGRAD group countries (i.e., Czech Republic, Slovakia, Poland, and Hungary). Co-operating colleagues specialists from Australia, Austria, Germany and Lithuania were also invited.

The Czech applicants for the VISEGRAD grant, namely A. Čejchanová and Z. Kukul (staff members of the Czech Geological Survey, Prague) were awarded by the VISEGRAD Fund financial support at the end of 2009. The financial support was assigned for the project "Geological mapping in 18th and early 19th centuries in the Central Europe" (term February to July 2010). A. Čejchanová was appointed as a project coordinator.

The objective of this project consists in filling the gap in the knowledge of the early history of geognostic/geological cartography in Central Europe. The main subject of the project is the collection of material for a book about early geological maps of Central Europe (Eastern Alps, the Carpathians and the region of the Bohemian Massif, together with the Holy Cross Mountains in Poland). It involves the preparation of a 'database' for early maps of the study region, the history of 'geo-cartography' of the area in question, and discussion of its significance for the history of science. The participants seek out maps in their own countries and make enquiries from suitable contacts for other areas. The study deals with: the map authors; their affiliations, biographical data; publication details; cartographic, printing and coloring techniques; the topographic background; description of legends and scales; the 'objectives' of the mapping (e.g. mineral deposits, stratigraphic research, geopolitical reasons); the role of patrons and public and private institutions; illustrations attached to map sheets; map decorations etc.; and commentaries and secondary sources pertaining to the maps. Attention should be also given to evaluation of the progress of geosciences (as regards stratigraphy, tectonics, and economical geology). Maps of major importance will be treated in detail. Comparison of the geological situations given in important maps with modern geological knowledge will also be provided. A chapter is also intended on the impact of the social and political situations in the Central Europe on the advancement of geological sciences. Many early maps can be considered pieces of art; they will be discussed as such. The final report on the VISEGRAD project will have appendices (tabulations of the information outlined above), an index, a bibliography, reproductions of the major maps and a DVD-ROM will be prepared providing copies of all the maps investigated.

From 4–6 March 2010 the first official meeting of the VISEGRAD project was held in Bratislava, Slovakia. Participants from Bohemia, Slovakia, Poland, Hungary and Austria met in the Slovak capital under the auspices of the Slovak Academy of Sciences.

At this meeting the circle of participating colleagues and pertinent countries of Central Europe and two other countries were fixed as follows: A. Čejchanová and Z. Kukul, Czech Geological Survey, Prague, J. Kozák, Geophysical Institute, Academy of Sciences, Prague, K. Pošmourný, Ministry of the Environments, Prague, I. Tunyi, Slovak Academy of Science, Stanisław and Krystyna Wołkowicz, Polish Geological Institute, Warsaw, F. Síkhegyi, Geological Institute of Hungary, Budapest, T. Cernajsek, Geologische Bundesanstalt, Vienna.

The series of maps to be reviewed were selected (approaching 51 items) and a unified way of their description and evaluation was approved.

The second and last meeting of the project-cooperating specialists was scheduled for 10-12 June 2010 in Warsaw in which the results obtained by this time will be summarized and formulated in the final project

report. The possibilities will be examined to publish the series of the evaluated early geological maps from the Central Europe as a representative pertinent publication – atlas of commented maps.

Other reports and publications

J. Kozák continued his studies of rotational components of earthquakes seen from both modern and historical viewpoints: besides his engagement in constructing new kind of ring rotation seismometer he also presented an invited tutorial paper in the special issue of Bulletin of Seismic Society of America. See BSSA, Special Issue on Rotational Seismology, Vol. 99-2B, (2009), pp. 1443–1448, and in BSSA, Vol. 99-2B, pp. 998–1010.

A. Čejchanová reports the following publications

Čejchanová, A. and Cajz, V. (2009): Geologické mapy Českého středohoří Josefa Emanuela Hibsche – Die geologischen Karten des Böhmisches Mittelgebirges von Josef Emanuel Hibsche – Geological maps of the České středohoří Mountains by Josef Emanuel Hibsche. 30 s (A3). Česká geologická služba a Geologický ústav Akademie věd České republiky. Praha. ISBN 978-80-7075-736-9.

Čejchanová, A. and Kozák, J. (2009): Mapové dílo Carta Geologica (1806) S. Staszica (in Czech). In Robert Fencik: Historické mapy. Zborník z vedeckej konferencie, pp. 45–54. Kartografická spoločnosť Slovenskej republiky. Bratislava. ISBN 978-80-89060-14-6.

A. Čejchanová, Prague



VISEGRAD Project members at their first official meeting in Bratislava, Slovakia

Estonia

Dimitri Kaljo reports that his main interests remain in geology, especially palaeontology and stratigraphy, but he is also trying to finish (together with a team of colleagues) a book about history of geology studies in our Institute of Geology, formerly under the Estonian Academy of Sciences now at Tallinn University of Technology. He hopes that next year he can report about a “glorious” finish. He will not take part in person in the Madrid meeting, but he has agreed to contribute to a poster by Susan Turner *et al.* about national participation in the IUGS.

France

As usual the INHIGEO Committee in France held three meetings during the year at which nine contributions were presented. In March 2009, the 100th meeting convened since the Committee had been created by François Ellenberger in June, 1976. On this occasion, three communications were delivered by Philippe Taquet, Philippe Grandchamp and Jean Gaudant.

- Taquet, P., ‘Les rôles respectifs d’Alexandre Brongniart, de Georges Cuvier et de Frédéric Cuvier dans l’élaboration de la carte géognostique des environs de Paris, d’après les manuscrits retrouvés d’Alexandre Brongniart’.
- Grandchamp, P., ‘Des leçons de géologie du Collège de France au *Discours sur les Révolutions de la surface du Globe* : quatre étapes successives du cheminement intellectuel de Cuvier’.
- Gaudant, J., ‘André Brochant de Villiers (1772-1840), concepteur de la *Carte géologique de la France*, dite de Dufrenoy et Élie de Beaumont (1841)’.

During the two other meetings, the participants heard six additional contributions:

- Gohau, G., ‘Darwin géologue: entre Lyell et Humboldt’.
- Médioni, R., ‘Le BRGG (Bureau de Recherches géologiques et géophysiques, 1941–1953), premier ancêtre direct du BRGM’.
- Varet, J., ‘Haroun Tazieff (1914–1998), des années Afar au Secrétariat d’État : la difficile mutation institutionnelle’.
 - Schaer, J.-P., ‘Regard sur l’activité géologique d’une société locale : les publications de la Société des Sciences naturelles de Neuchâtel’.
 - Gaudant, J., ‘Extraits du *Traité sur l’Origine des pierres figurées* (1709) de Karl Nikolaus Lang (1670–1741), dans une traduction de Geneviève Bouillet : une critique de la théorie de la Terre de John Woodward (1695) et des *Doléances et Revendications des Poissons* de Johann Jakob Scheuchzer’.
- Duffaut, P., ‘Le barrage de Malpasset : études géologiques et géotechniques avant et après sa construction et sa rupture (1959)’.

In addition, a new book was published in 2008 by the ‘Presses des Mines’: *L’Essor de la Géologie française – Essais*. It is a selection of recent papers delivered during recent sessions of our INHIGEO Committee, dealing with the history of French geology: stratigraphy, tectonics, and petrology. It included two papers by Philippe Grandchamp and Jean Gaudant, respectively on the genesis of Cuvier’s *Discours sur les Révolutions de la surface du Globe*, and on the leading role of Brochant de Villiers during the elaboration of the *Carte géologique de la France* (see above).

Jean Gaudant, Paris

Germany

Meetings

The German working group on the “History of Earth Sciences” held its annual meeting on 30 September at the Technical University/Bergakademie Freiberg adjoining the 10th International Symposium “Cultural Heritage in Libraries of Geoscience, Mining and Metallurgy”. Organizers of this Congress from 29 September – 2 October were Angela Kiessling, librarian and curator of the manuscript department of the „Georgius-Agricola”-Library at the Technical University Freiberg, together with Dr. Peter Hoheisel, director of the Freiberg Mining Archive. Papers have been presented, amongst others, by Martina Koelbl-Ebert (Eichstaett), Wolfhart Langer (Bonn), Peter Schimkat (Kassel), and Bernhard Fritscher (Munich). Several German INHIGEO members participated in the “International Congress of History of Science and Technology: Ideas and Instruments in Social Context, 28 July–2 August 2009, Budapest (Hungary)”. Bernhard Fritscher, together with Miklos Kazmer (Hungary) organized a section on “Spacing Earth History: Geological and Paleontological Sciences in Cultural Contexts from the Seventeenth to Twentieth Centuries”; among the speaker from six countries were Martina Koelbl-Ebert and Andrea Westermann (Zuerich). Also at the International Congress in Budapest, Cornelia Luedecke convened a session on “Visual Languages (and Representations) of the Sky: Frameworks and Focal Points in Social Context”.

Cornelia Luedecke, from 9–10 November 2009, organized a conference of the History of Meteorology Specialist Group of the German Meteorological Society entitled “Back to the roots: Historical sources on meteorology in archives and libraries” in the German Meteorological Library at the German Weather Service in Offenbach. INHIGEO member Wilfried Schroeder organized a meeting of the German working group for the

History of Geophysics and Cosmic Physics, discussing various problems in the history of geophysics and cosmology. The group also contributed to a meeting on Alexander von Humboldt by lectures and posters.

Finally, Bernhard Fritscher and Austrian INHIGEO member Marianne Klemun (Vienna) participated in a Symposium on “State, Mining, and Mining Academy: Mining experts in 18th and early 19th centuries” at Freiberg Technical University from 20–22 February 2009, organized by the Freiberg Institute for the History of Science and Technology, and the Chair for the History of Science of the University of Regensburg.

Publications

In 2009, again, the German INHIGEO members presented various publications. Martina Koelbl-Ebert, amongst others, finished her volume on *Geology and Religion: A History of Harmony and Hostility*, containing the papers of the 2007 INHIGEO meeting at Eichstaett, published by the Geological Society, as well as a paper on the writings of Martine de Bertereau for *Earth Sciences History*. Furthermore, in 2009, Martina, and also Martin Guntau, contributed papers to the volume on “The Making of the Geological Society of London”, edited by C.L.E. Lewis and S.J. Knell.

Bernhard Fritscher was particularly engaged in the interrelations of mineralogy/geology and German natural philosophy. Among his results are a paper on Kant’s discussion of crystals in his “Opus postumum” as a contribution to a volume on Kant’s philosophy of nature, edited by Ernst-Otto Onnasch and published by De Gruyter, as well as a paper entitled „Archives of the Earth: Codings of Earth History around 1800” to be published in *Archivologie. Theories of the Archive in Philosophy, Media, and the Arts*, edited by Knut Ebeling and Stephan Günzel (Berlin: Kadmos, 2009).

Further Activities

At the Jura-Museum at Eichstaett, Martina Koelbl-Ebert presented a great, interdisciplinary exhibition on the occasion of the Darwin Year, entitled “Creative Evolution: Charles Darwin on his 200th anniversary” from 12 February 2009 to 10 January 2010, enriched by special guidances, readings, and lectures, including several ones on history of science topics, such as Martina Koelbl-Ebert’s popular lecture on the history of the Ries meteoric crater. Bernhard Fritscher, on 3–4 December 2009, participated in a Symposium on G.W.F. Hegel’s philosophy of nature at the University of Jena, presenting a paper entitled “Gaie and geognosy: Hegel’s physiology of the earth” (the publication of the papers is envisaged for 2010).

Also Cornelia Luedecke, like every year, was particularly busy with lectures and talks all over the world. During the conference on “Atmospheres. Weather and Climate: Culture – Knowledge – Aesthetics” in Blaubeuren (17–20 September 2009) she was invited to give an introduction on the history of the investigation of the upper air, and also at the conference of teachers of Romance languages (Romanistentag) taking place in Bonn from 28 September to 1 October 2009, where she gave an introduction to the history of cloud observations in the session on “Reflexes on environmental and climate awareness in fictional texts of the Romania”. At the Antarctic Treaty Summit on the occasion of the 50th anniversary of the Antarctic Treaty in Washington DC (30th November to 3rd December, 2009) Cornelia Luedecke gave the historical plenary talk on “Parallel agendas for the International Geophysical Year”, and organized a workshop on history of Antarctic research under the title “History of International Spaces”. And on the occasion of the centennial of “Georg von Neumayer: His Australian, German, and polar scientific achievements and legacies” in Melbourne, Australia (27–31 May, 2009), held by the Royal Society of Victoria, she represented both the German Meteorological Society, and the German Society for Polar Research, as well as the “Bundesamt für Seeschifffahrt und Hydrographie” in Hamburg.

Furthermore, some University courses were given by German INHIGEO Members: by Cornelia Lüdeke at the University of Hamburg courses on “Climate, Weather and Forecast – Milestones in the history of meteorology”, and on “Small” and “Big Science” – selected programmes of geo-scientific expeditions and experiments”; Bernhard Fritscher gave courses on “Biedermeier Images of the Earth”, and on “The uses of Antiquity in Earth Sciences” at the University of Munich.

Finally, some changes in the German working group on the “History of Earth Sciences” have to be announced. At the “Cultural Heritage” Meeting at Freiberg (see above), Angela Kiessling from the “Georgius Agricola-Library” at Freiberg has been elected as new chairman of the group, following Martina Koelbl-Ebert. The “Nachrichtenblatt zur Geschichte der Geowissenschaften”, edited for several years by Dr Oskar Burghardt, will now be edited by Ulrich Wutzke (Berlin). Also published was a new issue of the “Beiträge zur Geschichte der Geophysik und Kosmosphysik”.

The help of the German members of INHIGEO in the compilation of this report is much appreciated.

Bernhard Fritscher, Munich,
Martina Koelbl-Ebert, Eichstaett

Hungary

In the History of Geology Section (founded in 1970) of the Hungarian Geological Society elections of the Board were held. President Teresa Póka, having duly completed her second three-year term, could not be re-elected. The new President is Álmos Tóth, retired bauxite geologist. The Secretary, Peter Papp, Senior Scientist of the Geological Institute of Hungary was unanimously re-elected.

Á. Tóth's main fields of activity are: history of bauxite exploration and mining in Hungary, development of a comprehensive Repertoire (Bibliography) of Hungarian geological literature, both published and unpublished (manuscripts), and the 150-year history of the Budapest District, Inspectorate of Mines. He represents the History of Geology Section on the Commission on the History of Science and Technology of the Hungarian Association of Engineering and Scientific Societies (MTESZ), and keeps contact with several other organizations as well. He initiated and organized the annual **St. George Day Bauxite Meetings**. In 2009 the fifth meeting took place (including alumina processing) at Székesfehérvár with participation—for the first time—of experts from Slovakia. Twelve lectures were delivered.

International Year of the Planet Earth (2007–2009)

At the Closing Meeting of IYPE held in Lisbon the activities of Hungary were formally acknowledged and ranged into the 16 best. The Proceedings of the Conference held at Sopron (16–18 October 2009) “Earth and Heaven – Geology and Theology” was published in March 2009 (Ed. Z.Unger). It contains papers by 13 scientists as well as 7 Calvinist and Catholic theologians.

International Darwin Year

On 9 May a full-day session was held at the Hungarian Academy of Sciences (12 lectures) including one on Darwin the Geologist (by K.Breznysnyánszky and J. Haas). This was published in a special “Darwin” issue of the popular science journal “Természet Világa” (World of Nature) which appeared in late 2009. Two further papers were published dealing with evolution from a palaeontological point of view (by L.Füköh and L.Kordos, respectively). The rest of the articles concern the biological and cultural aspects of evolution theory.

XXIIIth International Congress on the History of Science and Technology (ICHST)

Budapest (26 July – 2 August 2009)

Without doubt the most, extraordinary event of the year was the ICHST Congress held in Budapest (26 July – 2 August) under the general theme “Ideas and Instruments in Social Context”.

Geology was dealt with in the framework of

- A section entitled : “Pioneering Ideas and Methods in the History of Earth Sciences”, convened and chaired by K. Breznysnyánszky (Hungary) and H.S.Torrens (UK),
- A symposium under the label: “Spacing Earth History: Geological and Palaeontological Sciences in Cultural Context from the 17th to the 20th Centuries”, convened and chaired by B.Fritscher (Germany) and M.Kázmér (Hungary).

There were altogether five presentations by Hungarian participants (see accompanying list of “Selected Publications”). The introductory one was “An ‘organic approach’ to mountains in medieval Europe – safeguarded by German (Saxon) miners in Hungary and documented by F. Marsigli”, by P. Papp.

A guided visit to the Art Nouveau style palace of the Geological Institute (1900) was organized by P. Papp.

Former INHIGEO President Prof. H.S. Torrens was awarded Honorary Membership of the Hungarian Geological Society, in acknowledgement of his merits in the field of long-lasting productive co-operation with Hungarian historians of geology (with special regard to the 18th century British traveller Robert Townson).

An **Exhibition of Geological Maps** was organized by the Geological Institute of Hungary (MÁFI) on the occasion of the 140th anniversary of its foundation with the title “Methods and Maps”. The opening Conference took place on 25 November. For more information please consult www.mafi.hu.

Mike Tóth Celebration was arranged at Kalocsa in honour of M.Tóth S.J, a Jesuit teacher and remarkable polymath. His bust was unveiled and a memorial booklet presented (Ed. J.Hála and I.Romsics).

Presentations abroad

- XIth Conference on Geology, Mining and Metallurgy of the Transylvanian Technical and Scientific Society (EMTE), Sighet / Máramarossziget (Romania), 2–5 April. P.Papp discussed a “forgotten” polemic paper from the Reform Age of Hungary (first half of the 19th century) dealing with the lamentable state of the dissemination of useful, even indispensable geological knowledge.
- Clay Schist – the Black Marble of Central Europe – Conference with international participation,

Marianka / Máriavölgy (Slovakia), 3–4 July. – Hungarian contribution was: “Mining and utilization of clay schists in Hungary until the first half of the 20th century,” by J.Hála and P.Papp.

- XIth Szeklerland Meeting of Geologists at Odorheu Secuiesc / Székelyudvarhely (Romania), 22–25 October. Poster presentation by P. Papp: “New Data from F. Marsigli on the mineral waters and spas in Transylvania”.

Commemoration – 24 March 2009

In Memoriam Gábor Bidló (1924–2008), chemical engineer, rock analyst, Reader at the Budapest Technical University, former Secretary of the History of Geology Section of the Hungarian Geological Society (by E. Dudich).

Anniversary – 8 October 2009

György Vitális is 80 years old. – Hydrogeologist, expert of non-metallic mineral resources and geological documentation, teacher, and historian of geology (*citation* by E. Dudich).

Protected Stones

Eurogeologist and INHIGEO member Irma Dobos has been involved in the international program concerning the “Geological Memorial Stones” and wrote a paper about the results (50 protected geological objects in 10 National Parks) for the journal “European Geologist” .

Selected Publications

- Bartha, A., Dobos, I 2009.** Analytical method of mineral waters developed by Károly Than chemist (1834–1908). – T 40 In. *Pioneering Ideas and Methods in the History of Earth Sciences. XXIII ICHST (International Congress of History of Science and Technology), Budapest, 2009. Book of Abstracts*, pp. 745.
- Breznayánszky, K.-Haas, J. 2009.** Darwin, a geológus. (Darwin the Geologist). - *Természet Világa –Special Darwin Issue*, 7–9, Budapest.
- Dobos, I. 2009.** Magyar ásványvízkutatás 1973–1991 között a Nyugati-Kárpátokban. (Hungarian Water Exploration in the Western Carpathians between 1973 and 1991)– In *VI.Conference on the Mineral and Medicinal Waters of the Carpathian Basin. –University of Miskolc*, 29–38.
- Dobos,I. 2009.** Geohistorical stone landmarks in the Pannonian Basin, Hungary.*European Geologist*, 28. 29–30.
- Dudich, E. et al. 2009.** *A földtudomány nagy tudóseyéniségei* (Ed. by Dudich, E., R. Keményfi – T. Póka). (*Outstanding Scholars of Earth Sciences*). Hungarian Academy of Sciences, - Didakt Kiadó, Budapest-Debrecen, 160 pp.
- Haas, J. 2009.** *Százhatvan éves a Magyarhoni Földtani Társulat.* (The Hungarian Geological Society is 160 years old.) *Természet Világa, IYPE Special issue*, Budapest.
- Hála , J., Romsics I. (eds.) 2009.** *A kalocsai polihisztor: Tóth Mike emlékkönyv* (A Polymath of Kalocsa town, Hungary. Mike Tóth Memorial Booklet) – Kalocsa.
- Kecskeméti, T. 2009.:** Tóth Mike ásványgyűjteményének tudományos és muzeológiai értéke. (The scientific and museological value of Mike Tóth’s mineral collection). In: Hála József – *Romsics imre: (szerk.): A kalocsai polihisztor. Tóth Mike emlékkönyv:* 113–120. Kalocsa.
- Papp. P. 2009.** Une „Approche organique” des montagnes en Europe médiévale sauvegardée par des mineurs allemands en Hongrie et documentée par F. Marsigli. – In: *XXIII. ICHST, S70, Spacing Earth History: Geological and Paleontological Sciences in Cultural Context from 17th to 20th Centuries*, Budapest.
- Póka , T. 2009.** History of the geonomical concept and the Hungarian school of Geonomy in the second half of the XXth century. – T 40. *Pioneering Ideas and Methods in the History of Earth Sciences. XXIII ICHST (International Congress of History of Science and Technology), Budapest, 2009. Book of Abstracts*, pp. 745–746.
- Tóth, Á. 2009.** *150 éves a Budapesti Bányakapitányság.* (The 150 years old district inspectorate of mines of Budapest). Montan-Press Kft, Budapest, 71 pp.
- Unger, Z. (Ed.): 2009:** *Föld és Ég. Tudomány és hit. Geológia és Teológia Konferencia*, (Earth and Heaven. Science and Faith. Geology and Theology Conference.) Sopron, 2008. október 16–18. – 146 pp. - Hantken Kiadó, Budapest.
- Viczián I. 2009.:** Az aktualizmus elvének megjelenése a Prédikátor könyvében (The appearance of the principle of actualism in the Book of Ecclesiastes.)– In Unger Z. (Ed.) 2009: *Föld és Ég. Tudomány és hit. Geológia és Teológia Konferencia* (Earth and Heaven– Science and Faith Geology and Theology Conference.) 109–116, Sopron, 2009.
- Viczián, I. 2009:** Teremtéshit és természettudomány. Rövid bibliográfia a 2007-ig megjelent magyar nyelvű irodalomról. (Creation creed and science. A short bibliography of the pertinent writings published in Hungary until 2007) – In Béres T. (szerk.): *Történet – metafora - párbeszéd. Előadások, írások és*

beszélgetések a tudomány, hit és vallás kapcsolatáról. (History – metaphor – dialogue. Lectures, writings and conversations about the relation of science, faith and religion.), 296-300, Kálvin Kiadó, Budapest.

Viczián, I. 2009: Letters of German naturalists to Domokos Teleki, the first president of The Jena Mineralogical Society, in the end of the 18th century (Abstract). S70, Spacing Earth History: Geological and Paleontological Sciences in Cultural Context from 17th to 20th Centuries, 324. – In: *XXIII ICHST (International Congress of History of Science and Technology), Book of Abstracts, Budapest, 2009*

Teresa Póka

Ireland

The major publication event of the year was the appearance of the massive nine-volume *Dictionary of Irish Biography* published by Cambridge University Press in association with the Royal Irish Academy. This project was commenced in 1988 under the then general editorship of Gordon Herries Davies. Many geologists are included in this work with some of the entries written by Patrick Wyse Jackson.

Patrick Wyse Jackson produced a booklet entitled *Great Irish Geoscientists* published by the Geological Survey of Ireland—a collection of his biannual articles on ‘Irish Rock Stars’ that first appear in the magazine *Earth Sciences Ireland*. The booklet is accompanied by a poster that highlights the work of twelve Irish geoscientists. Copies are available from Patrick.

Publications

P.N. Wyse Jackson, ‘Geochronological hits and misses: various attempts to determine the age of the Earth’, *Open University Geological Society Journal*, 29, 2009, 95–97.

P.N. Wyse Jackson, ‘Erratics, intrusions and graptolites’. In Mary Mulvihill (ed.), *Lab Coats and Lace: the lives and legacies of inspiring Irish women scientists and pioneers*, Dublin, Ireland, Women in Technology and Science, 2009, 48–59; 173–176.

P.N. Wyse Jackson, ‘Irish Rock Stars: James Robinson Kilroe (1848–1927)’, *Earth Science Ireland*, 5, 2009, 11–12.

P.N. Wyse Jackson, ‘Irish Rock Stars’: Charles Irving Gardiner (1868–1940) & Sidney Hugh Reynolds (1867–1949)’, *Earth Science Ireland*, 6, 2009, 12–13.

P.N. Wyse Jackson, ‘Robert Ball (1802–1857): naturalist’, *Irish Naturalists’ Journal*, 30, (1), 2009, 15–18.

P.N. Wyse Jackson, *Great Irish Geoscientists*, Dublin, Geological Survey of Ireland, 2009, 32pp.

P.N. Wyse Jackson, Apjohn, James, volume 1, pp. 135–136 [with L. Lunney]; ‘Baily, William Helliier’, volume 1, pp. 227–228; ‘Ball, Valentine’, volume 1, pp. 253–254; ‘Cole, Grenville Arthur James’, volume 2, pp. 651–652; ‘Fitton, William Henry’, volume 3, pp. 812–813; ‘Graydon, George’, volume 4, p. 229; ‘Griffith, Sir Richard John’, volume 4, pp. 289–291; ‘Hamilton, William’, volume 4, p. 416; ‘Haughton, Samuel’, volume 4, p. 524–525; ‘Hull, Edward’, volume 4, p. 840; ‘Joly, John’, volume 4, pp. 1021–1022; ‘Kirwan, Richard’, volume 5, pp. 234–235; ‘Knox, George’, volume 5, pp. 246–247; ‘M’Coy, Frederick’, volume 5, p. 875; ‘Mitchell, George Francis’, volume 6, p. 531; ‘Nimmo, Alexander’, volume 6, p. 933; ‘Oldham, Thomas and Oldham, Richard’, volume 7, pp. 630–631; ‘Richardson, William’, volume 8, pp. 487; ‘Sollas, William Johnson’, volume 8, p. 1067, In James McGuire and James Quinn (eds), *Dictionary of Irish Biography from the earliest times to the year 2002*, Cambridge, Cambridge University Press, 2009.

P.N. Wyse Jackson and M.A. Parkes, William Helliier Baly (1819–1888): forever an Acting Palaeontologist with the Geological Survey of Ireland, *The Geological Curator*, 9, (2), 2009, 57–84.

Patrick Wyse Jackson, Dublin

Italy

In April Ezio Vaccari was invited to give a lecture on the ‘theory of mountains and mines’ of Spirito Benedetto Nicolis di Robilant (1724–1801) at the CIBEL – Centre Interdisciplinaire Bordelais d’Etudes des Lumières (Bordeaux, France), while in June he organized and chaired a scientific session with the title “Technical knowledge and technological transfer (17th – early 19th centuries)” at the 12th Annual Mediterranean Studies Congress in Cagliari (Italy). In this session Andrea Candela presented a paper on “Environment and History: mining, natural resources and technical knowledge in the Alps between 18th and 19th century”. Later in June, within the Science Festival *Storie di Scienza* which took place in Varese, Ezio Vaccari discussed with the philosopher of science Telmo Pievani (University of Milan) on the role of Charles Darwin as geologist.

During the summer Vaccari attended the 23rd International Congress of History of Science and Technology “Ideas and Instruments in Social Context”, held in Budapest (28 July – 2 August), presenting the paper “Travelling with Instruments: Italian Geologists in the Field Between the 18th and 19th Centuries” at the session “Seeing and Measuring, Constructing and Judging: Instruments in the History of the Earth Sciences”.

Gian Battista Vai was involved in the organization of the Centennial Celebration of “Diplodocus carnegiei Bologna 1909 – 2009” held in Bologna at the Museo Capellini concurrently with an International Conference on Vertebrate Palaeobiogeography and Continental Bridges across Tethys, Mesogea, and Mediterranean Sea, from 27–30 September 2009, which was attended by more than 110 specialists from 12 countries from all continents. The related first exhibition on Italian Dinosaurs from 6 September 2009 to 31 January 2010 was attended by more than 25.000 visitors. More information at the website: www.museocapellini.org.

In October Pietro Corsi chaired a meeting on Lamarck and Darwin at the University of Insubria (Varese, Italy), where Ezio Vaccari presented a paper on “Lamarck’s theory of the Earth”.

At the end of 2009, Libera Arena, a new Ph.D. student from the University of Insubria, started a three-year project under the guidance of Ezio Vaccari, on the geological travels of Carlo Amoretti (1741–1816) in the Lombardian prealpine region.

Andrea Candela published his book *Alle origini della Terra: i vulcani, le Alpi e la Storia della Natura nell’età del viaggio scientifico* [At the origins of the Earth: the volcanoes, the Alps and the history of nature in the age of scientific travel], Varese, Insubria University Press, 2009. He also published two papers on geological-historical heritage and on mining archaeology in the western Prealps: *Tutela e valorizzazione del patrimonio geologico*. «Nuova Museologia», 20, 2009, 7–11 and *Ricerche di archeologia mineraria nell’area occidentale delle Prealpi Lombarde: scenari di conservazione e riqualificazione del paesaggio culturale*, «Archeologia Postmedievale. Società, Ambiente, Produzione», 12, 2008, 1–23, and the paper *On the Earth’s revolutions: floods and extinct volcanoes in northern Italy at the end of the eighteenth century*, In Koelbl Ebert M. (ed.), *Geology and Religion. A History of Harmony and Hostility*, London, Geological Society of London Special Publication 310, 2009, 89–93. In the same volume also the paper by Francesco Luzzini, *Flood conceptions in Vallisneri’s thought (77–81)* was published.

Pietro Corsi published the paper *La Scuola Geologica Pisana e i suoi rapporti con Pilla e Scarabelli* [The Pisa geological school and its relationships with Pilla and Scarabelli], in G.B. Vai (ed.), *Il Diamante e Scarabelli*, Comitato Promotore per le Celebrazioni Scarabelliane, Imola, 2009, 109–116.

Claudia Principe continued her researches in the history of volcanology and began to organize a series of popular scientific conferences on the geology of Versilia (Tuscany) at Villa Borbone in Viareggio (Pisa).

Ezio Vaccari published two papers: *Geology and Genesis in nineteenth- and twentieth-century Italy: a preliminary assessment*. In Koelbl Ebert M. (ed.), *Geology and Religion. A History of Harmony and Hostility*, London, Geological Society of London Special Publication 310, 2009, 269–275 and *Mining academies as centers of geological research and education in Europe between the 18th and 19th centuries*, “De Re Metallica”, 13, 2009, 35–42.

Gian Battista Vai published *The Scientific Revolution and Nicholas Steno’s twofold conversion*. In Rosenberg G.D. (ed), *The Revolution in Geology from the Renaissance to the Enlightenment*. GSA Memoir 203, 2009, 187–208; *Light and shadow: the status of Italian geology around 1807*. In: Lewis C.L.E. & Knell S.J. (eds) *The Making of the Geological Society of London*. GSL Special Publications 317, 2009, 179–202 and *Storia breve della geologia in Italia*. In: Cavalli Sforza L.L. (dir) *La Cultura Italiana*, Pievani T. (ed) VIII *Scienze e tecnologie*. Torino, Utet, 2009, 305–345. He also edited the book *Il Diamante e Scarabelli*. Comitato Promotore Celebrazioni Scarabelliane, Imola, 2009, 212 p.

The following paper was presented at the Geological Society of London meeting “Dinosaur and other extinct saurians, a historical perspective”, organized by the History of Geology Group, Burlington House, London, on 6 May 2008, and is due to appear soon: Fanti, F.: *Life and ideas of Giovanni Capellini: the palaeontological revolution in Italy*. The Geological Society of London, Special Publication.

Ezio Vaccari, Varese

Japan

The Japanese Association for History of Geological Sciences (JAHIGEO) held three meetings in 2009. The first meeting was held in the Hokutopia, Tokyo, on 20 June; the second at the Okayama University of Science on 5 September; and the third, serving as the annual meeting, at the Hokutopia on 23 December.

The main presentations at the first meeting were “The life and work of Tsuboi Seitaro (1893–1986)” by Kanenori SUWA and “Reading the 1:400,000 preliminary geologic maps of Japan (1886–1895): From Naumann to Harada and Kochibe” by Naotoshi YAMADA. Suwa was one of the students of Professor Tsuboi at the University of Tokyo. Tsuboi was famous for his introduction of Bowen’s fractional crystallization hypothesis to Japan. He also devised a dispersion method for determining plagioclases in cleavage-flakes in 1923, which became known as the ‘Tsuboi method’ and was used all over the world. Yamada considered the first geologic maps covering all Japanese islands excluding Hokkaido, which, being edited by Edmund Naumann (1854–1927), Harada Toyokichi (1860–1894) and Kochibe Tadatsune (1854–1927), were highly respected. The second meeting formed part of the annual meeting of the Geological Society of Japan and just one historical lecture was

given: “Geology of Okayama Prefecture and its historical review” by Shigeyuki SUZUKI. At the third historical meeting again in Tokyo, two lectures were given: “The investigation of Hokkaido and its geological fruits by Jimbo Kotora (1867–1924)” by Yoshiaki MATSUDA and “Exploration and geological contribution by Alexander Humboldt (1769–1859): The influences upon Europeans and Japanese” by Nobuto MAEDA. Jimbo, the Professor of Mineralogy at the University of Tokyo, made geologic maps of Hokkaido in his youth. Matsuda compared the maps with those of Naumann and his students. Maeda was one of the Japanese translators of Humboldt’s biography by Douglas Botting originally published in 1973. As Japanese geographers have been very interested in the contributions of Humboldt, it was a good opportunity to review his geological contribution on the 150th anniversary of his death.

Four meetings on the history of geosciences were conducted by younger members of the Association at the Waseda Service Garden, Tokyo, on 28 March, 6 June, 3 October, and 6 December. In March, Yukio OHASHI spoke on “The history of eastern astronomy from a South-East Asian perspective”. In June, Kenji HAMAZAKI lectured on “The educational wall chart of minerals made by Wada Tsunashiro (1856–1920)” while Yasushi OBI presented on “The rejuvenation of earth sciences in high school education”. In October, Kazuo KURODA spoke on “Fundamental land classification survey and hydrological survey enforced by the National Land Survey Law.” And in December, Yukiko KIYOCHI’s lecture “Zhang Ziping’s experience in Japan as a novelist and geologist” was given, with a short talk about “Luxun and geology” by Toshifumi YATSUMIMI. Zhang Ziping (1893–1959), born in Guangdong Province of China, studied geology at the University of Tokyo 1919–1922. Kiyochi described an interesting story of Zhang who became writer of romance as well as geology textbooks after returning home.

In addition at the annual meeting of the History of Science Society of Japan (HSSJ), held at Kyushu University on 24 May, four lectures related to geosciences history were presented: “The geographical books, referred to by K. Kume, for editing ‘Bei-O Kairan Jikki,’ Part II, the volume on England” by Tomoko FUKAWA, “The Smithsonian meteorological system introduced in Japan in the early Meiji Era” by Kae TAKARABE, “Aspects of the role of microscopes in the history of petrology in Japan” by Michiko YAJIMA, and “Japanese picture scrolls of mines and their importance for the European mining history” by Regine MATHIAS. As 2009 was the Darwin Year, a symposium was organized by Michiko YAJIMA and members of the History of Science Society, which dealt with many aspects of Darwin and Darwinism. Also the Science Council of Japan conducted a larger meeting on 5 December, in which Michiko YAJIMA spoke on Darwin and geology.

A week before the Kyushu session, historians appeared at the Makuhari Messe, Chiba, presenting six lectures in a session at the history and philosophy of geosciences in JpGU (Japan Geoscience Union) meeting. The lectures were “Building stone marbles in Japan: the historic buildings in Japan and the marble localities” by Mutsuko INUI, “The dispute on a big Tokyo earthquake between Dr. Oomori and Dr. Imamura” by Jiro TOMARI, “Galileo Galilei and Johannes Kepler in 1609: Consideration of the International Year of Astronomy 2009” by Hiroo MIZUNO, “Time concepts of geologist Charles Darwin” by Michiko YAJIMA, “Is it possible to describe the history of geophysics?: Geophysics institutionalized in Japanese Universities, 1918–1958” by Toshihiro YAMADA, and “The consequences of the 1939 Erzincan Earthquake, Turkey” by Shuhei KIMURA. The session was exciting because mutual interaction between geoscientists and historians was remarkable.

At the international symposium of INHIGEO in Calgary (10–14 August), Yasumoto SUZUKI gave lecture on “Geological contribution of the Geological Survey of Japan to petroleum industry until the end of the World War II.” Michiko YAJIMA, attending the XXIII International Congress of the History of Science and Technology (ICHST) in Budapest (28 July – 2 August), spoke on “Aspects of the role of microscopes in the history of petrology in Japan” and introduced 2011 Japan INHIGEO Meeting at the small meeting of the INHIGEO.

In 2009, the JAHIGEO issued its *Bulletin*, Numbers 32 and 33 (in Japanese) and the *JAHIGEO Newsletter*, Number 11 (in English). Toshio KUTSUKAKE’s “Kukai (774–835 A.D.): Founder of the Shingon sect of esoteric Buddhism and his reference to geology, mining and alchemy” and Kazuaki MAENAKA’s “Matuyama Motonori” were included in the Newsletter. The special issue of the international journal of the HSSJ, *Historia Scientiarum*, v. 18, no. 2 (2008) edited by Morris Low consisted of the following noteworthy papers about geoscience history: KIM Boumsoung’s “Terrains of Practice: Geophysical Investigations in Japan in the 1880s.” and Takuya MIYAGAWA’s “The Meteorological Observation System and Colonial Meteorology in Early 20th-Century Korea.” Toshihiro YAMADA also wrote on “Hooke–Steno relations reconsidered: Reassessing the roles of Ole Borch and Robert Boyle” in *Revolution in Geology from the Renaissance to the Enlightenment* (Geological Society of America, Memoir 203, 2009) edited by Gary D. Rosenberg.

Georg Agricola’s “De ortu et causis subterraneorum” (1546) has been translated from German edition into Japanese by Toshio KUTSUKAKE, Toshihiro YAMADA, and Michiko YAJIMA on the *JAHIGEO Bulletin* (nos. 21–33, 2003–2009). Martin Rudwick’s *Scenes from Deep Time* was also translated by Satoru SUGAYA and after being beautifully edited was published by Shinhyoron-sha Co., Tokyo, in July.

The Administrative Committee for the INHIGEO 2011 organized by 14 INHIGEO members in Tokyo

continued to discuss and prepare for the conference and excursion in Japan. The theme of symposium will be “Visual images and geological concepts including the history of volcanology, seismology and tectonics.” The meeting with two excursions will be held at Aichi University in Toyohashi City, Aichi Prefecture, central Honshu, on August 2–10, 2011. Please see additional details elsewhere in this newsletter. We are very much welcome INHIGEO members in the world to attend the INHIGEO 2011 in Japan.

Yasumoto SUZUKI, Ichikawa,
Michiko YAJIMA, Tokyo
Toshihiro YAMADA, Chiba

Latvia

1. Meetings

Prof. E. Lukševičs participated in the All-Russian Conference “200 Years of National Palaeontology” held in Moscow, 20–22 October 2009, where the contribution on the dawn of fossil fish research in Russian Empire was presented with co-author Alexander Ivanov (St Petersburg, Russia). Some interesting talks were provided during the annual scientific conference of University of Latvia held in the beginning of February 2009.

2. Presentations at meetings

Ivanov A., Lukševičs E. 2009. Beginning of palaeoichthyological research in Russia—200 Years of National Palaeontology. *Materials of the All-Russian Conference, Moscow, October 20–22, 2009*. Moscow, Russian Academy of Sciences. P. 46. [In Russian]

Meškis S. Paradigmas paleoichnoloģijas vēsturē [Paradigms in the history of palaeoichnology]. *Latvijas Universitātes 67. zinātniskā konference. Ģeogrāfija. Ģeoloģija. Vides zinātne. Referātu tēzes. LU Akadēmiskais apgāds, Rīga*. Pp. 216–218.

Lithuania

The Lithuanian INHIGEO group consists of two members, Prof. Dr. Habil. Algimantas Grigelis and Dr. Gailė Žalūdienė. In 2009, the group has lost an active member in Prof. Dr. Habil. Algirdas Gaigalas, who passed away on June 4 after a serious illness (see his Obituary in this issue). The international *Staszic Project* entitled “The State of Geological and Mineralogical Sciences in Central and Eastern Europe at the Turn of the 18th Century as Documented by the Earliest Geological Cartography” has concluded in 2009. Prof. Algimantas Grigelis, Dr. Leonora Živilė Gelumauskaitė, Dr. Jan Kozák, Prof. Zbigniew Wójcik, and Prof. Wojciech Narębski have compiled an extended paper “Stanisław Staszic – an early surveyor of the geology of Central and Eastern Europe” submitted to a peer-review journal *Annals of Science*, Canada [in press, 2010]. Prof. Grigelis took part in the annual conference SCIENTIA ET HISTORIA held in Vilnius, 3 April 2009, where he presented a key note lecture on Vilnius University mineralogy school and achievements of Roman Symonowicz during his mineralogical travel (1803) to Transylvania. Academician Grigelis, Chairman of the Section on Geosciences of the Lithuanian Academy of Sciences, represents the Academy of Sciences in the National Committee for ‘*The International Year of Planet Earth*’, declared by the United Nations to be held in 2007–2009. Prof. Grigelis is Editor and Publisher of *BALTICA: International Journal on Earth Sciences of the circum-Baltic States* [indexed in THOMSON ISI and WEB OF SCIENCE]. A meeting of the Lithuanian Ignatas Domeika Society, led by Prof. Grigelis, the President of the Society, was held in the Lithuanian UNESCO Commission in Vilnius, 19 March 2009, where Dr. Arvydas Pacevičius (Vilnius University) and Prof. Romualdas Šviedrys (New York University) analyzed newly issued book “*Ignatas Domeika. My travels. Memoirs in exile*”, 2nd Volume, 2008, as a source of history of Chilean culture in the mid of XIX century. Prof. Grigelis participated in the XXIII International Congress of History of Science and Technology, 28 July–2 August 2009, Budapest, Hungary, where he presented report “The trails of Roman Symonowicz’ mineralogical travel (1803) to Transylvania (Ziemia Siedmiogrodzka)”. From 16–27 August 2009, Prof. Grigelis visited the only Hammer Museum in Haines, Alaska U.S., where he was acquainted also with Chilkat Peninsula and Ripinsky Mountains geological structure and historical development.

A bio-bibliographic study on the great northern researchers of the earliest Palaeozoic vertebrates Elga Mark-Kurik (Tallinn) and Valentina Karatajūtė-Talimaa (Vilnius) by Prof. Hans-Peter Schultze, Prof. Grigelis and Dr. Susan Turner was published in *Acta Zoologica*, Stockholm.

Dr. Gailė Žalūdienė, the Secretary of the Lithuanian Ignatas Domeika Society, presented a report entitled “The 180-year anniversary of first expedition on natural sciences in Lithuania”, given at the conference “Paleoclimate”, organized by the Institute of Geology and Geography in Vilnius, 10 November 2009.

In 2009 a substantial volume "Lithuanian geologists: manual of biographies" was published in Vilnius. This is a first attempt to collect the most comprehensive and up-to-date manual of biographies of the Lithuanian geologists. Biographical records cover a period until 2008

Publications

- Augulytė O., Guobytė R., Jurgaitis A., Rasteniėnė V., Žalūdienė G., 2009 (compilers). Lithuanian geologists: manual of biographies (in Lithuanian). Vilnius, 242 pp.
- Baltrūnas, V., Grigelis, A., 2009. Farewell to Professor Algirdas Juozapas Gaigalas (1933–2009). *Baltica* 21 (1), 63–64.
- Baltrūnas, V., Grigelis, A., 2009. In Memoriam. Algirdas Juozapas Gaigalas (1933–2009). *Quaternary perspectives, Volume 17* (2), December 2009, 2–4. [<http://www.inqua.tcd.ie>].
- Grigelis, A. (Ed.). *BALTICA. Vol. 22. An International Journal on Earth Sciences*. Vilnius, 2009, No. 1, June, 1–64 p.; No. 2, December, 65–136.
- Grigelis, A., Wójcik, Z., Narebski, W., Gelumauskaitė, L. Ž., Kozák, J. Stanisław Staszic—an early surveyor of the geology of Central and Eastern Europe. *Annals of Science*, 2010. [In press].
- Grigelis, A., 2009. Outstanding researcher of the Pamir Paleozoic Vytautas Leleshus (25 March 1930–18 August 2007) / Žymus Pamyro paleozojaus tyrinėtojas Vytautas Lelešius (1930 03 25–2007 08 18). *Geologija* 51 (1–2), p. iv–vi. [Engl., Lith.].
- Grigelis, A., Gelumauskaitė, L. Ž., 2010. Development of geological studies in Lithuania: new records on R. Symonowicz's mineralogical travel (1803). *Geologija* No. 1.
- Schultze, H.-P., Turner, S., Grigelis, A., 2009. Great northern researchers: discoverers of the earliest Palaeozoic vertebrates. – *Acta Zoologica (Stockholm), Vol. 90, Supplement 1*, 3–21. [In P. E. Ahlberg, H. Blom, C. A. Boisvert (eds), *Forty Years of Early Vertebrates*, Wiley–Blackwell, 384 pp.].
- Žalūdienė, G. The largest expedition of natural sciences – 180. *Mokslas ir gyvenimas [Science and Life]*, 2009, Nr. 11, 8–9, 12–13. [In Lithuanian].
- Žalūdienė, G.; Satkūnas, J. The geological map by Ignacy Domeyko in the context of the 19th century maps of Central Europe (in Lithuanian). *Geologijos akiračiai, Nr. 1/2*, 27–36.

Algimantas Grigelis, Gailė Žalūdienė, Vilnius

Mexico

Last year Luz F. Azuela continued her efforts to locate Mexican scholars or graduate students working on the history of Geology. As a result, she has contacted Dr. José Lugo, an eminent geomorphologist, who has already published studies on nineteenth century geology. Azuela has been designated member of the tutorial team of the graduate student Luis Sánchez-Graillet, who is currently engaged in his Doctoral Thesis on the history of petroleum geology. Both of them will be proposed as INHIGEO members next year.

Continuing in her search of students working in the history of Geology, Azuela has recruited Lizeth Morales, who is presently working on her B.A. thesis regarding the Mineralogy cabinet of the Mining School of Mexico (1794–1829).

Lucero Morelos, has finished her Master thesis, and will initiate her Doctorate next August. She has been proposed as an INHIGEO member by Azuela and Gerardo Soto.

During 2010 some papers related to the History of Geology were read in Scientific Conferences held in Mexico and Cuba:

During the *VI International Meeting on Topics from Jalisco* (20–22 March), Lucero Morelos presented the paper "The geology of Jalisco in the works of Mariano Bárcena".

The 53th International Congress of Americas was held in Mexico City, 23–25 July. Azuela read a paper on "Henri Galeotti's naturalist travel to Mexico in the Nineteenth Century"

During the First Meeting of Students of History and Philosophy of Science in México (12–13 August), Lucero Morelos and Luis Sánchez-Graillet presented their joint work "An Approach to Scientific and Technical Press on Mining, in Mexico and the United States (1870–1904)". Sánchez-Graillet also presented "*Chapopotli*: Methodology for the study of a Mexican prehispanic material in documental and archeological sources".

On 28–30 October, the National Society of Geography and Statistics organized the *Sixth Symposium on Geographical Teaching in Mexico*, in Chihuahua. During two sessions on the History of Geography, Azuela and Sabás read a paper about the diffusion of Geography, Geology and Natural History, for public instruction in nineteenth century magazines. Morelos read a paper concerning popularization of Geography in the works of Mexican naturalist José Joaquín Arriaga.

On 23 November, the Institute of Geography held a Symposium on *Darwin*, organized by José Lugo and Luz Azuela. Participants centered their attention on *The Origin of Species*, with Lugo's study of Darwin's contributions to Geology being outstanding.

Azuela was invited by the Cuban Society for the History of Science and Technology (2 December), where she read a lecture on the subject of “Science in Mexican Culture in the Nineteenth Century”. She was also the guest speaker on the Seminar on the History of Science in the Institute for the Study of the History of the National University and General Education, UNAM, where she spoke about Scientific Societies in Nineteenth Century Mexico, (29 August).

Morelos delivered the manuscript of her first book, which will appear in 2010 in Spanish under a title that could be translated as *Life and works of Antonio del Castillo in the Process of Institutionalization of Earth Sciences in Mexico*.

Sánchez-Graillet has sent two chapters on the history of petroleum geology, for two different books, expected to appear on 2010 (“Notes on the Emergence of the Idea of Petroleum as a National Commodity”; “An Oil Field in the Briefcase: Construction and Exchange of Geological Objects in Early Petroleum Geology in Mexico”).

Azuela is directing a research program on Geography and Natural History in Mexico, which includes geographical and geological surveys in the nineteenth century.

Last October, Azuela was incorporated as a regular member of the Mexican Academy of Sciences.

Recent publications

AZUELA, Luz Fernanda y Claudia Morales Escobar, 2009. “Los proyectos geográficos de la Secretaría de Fomento, del Porfirismo a la Revolución” [Geographical Projects in the Ministry of Public Works (1877–1920)], en Omar Moncada y Patricia Gómez (coords.), *El quehacer geográfico en el México contemporáneo: Instituciones y personajes [Geographical practice in Contemporary México: Institutions and Scientific Figures]*, Instituto de Geografía, UNAM, pp. 33–48. (ISBN 978-607-02-0948-2)

AZUELA Luz Fernanda y Ana Lilia Sabás, 2009. “Naturaleza y territorio en las publicaciones mexicanas del siglo XIX” [Nature and Territory in Mexican Periodicals of the Nineteenth Century], en Celina Lértora (coord.), *Geografía e Historia Natural: Hacia una historia comparada. Estudio desde Argentina, México, Costa Rica y Paraguay [Geography and Natural History: Towards a Cross Cultural History. Studies from Argentina, México, Costa Rica and Paraguay]*, volumen 2, Ediciones FEPAL, Buenos Aires, pp. 79–100. (ISBN 978-950-9262-43-0)

AZUELA Luz Fernanda, Rodrigo Vega y Ortega Baez y Raúl C. Nieto García, 2009. “Un edificio científico para el Imperio de Maximiliano: El Museo Público de Historia Natural, Arqueología e Historia” [A Scientific Building for Maximilian’s Empire: The Public Museum of Natural History, Archeology and History], en Celina Lértora (coord.), *Geografía e Historia Natural: Hacia una historia comparada. Estudio desde Argentina, México, Costa Rica y Paraguay [Geography and Natural History: Towards a Cross Cultural History. Studies from Argentina, México, Costa Rica and Paraguay]*, volumen 2, Ediciones FEPAL, Buenos Aires, pp. 101–124. (ISBN 978-950-9262-43-0)

AZUELA, Luz Fernanda, 2009. “Geografía e Historia Natural en la exploración del territorio mexicano en el siglo XIX: Tres bocetos hacia una caracterización” [Geography and Natural History in Mexican Surveys of the Nineteenth Century], en Ronny Viales, Jorge Amador y Flora Solano (coordinadores), *Concepciones y representaciones de la Naturaleza y la Ciencia en América Latina*, Universidad de Costa Rica, p. 63-79. (ISBN 978-9977-15-195-3)

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New Zealand

The year has seen research into the history of earth sciences becoming increasingly more diverse, which in part reflects that the more recent disciplines have now been in existence sufficiently long to become of interest to historians of geology. The increasing digitisation of archival material and its ever increasing accessibility by way of the internet is also encouraging research. In New Zealand the main venue for publication for shorter articles remains the Geological Society of New Zealand’s Journal of the Historical Studies Group with one issue published during the year. This year has seen a change of editor after five years with Tony Hocken stepping down from that role. His replacement is Heather Nicholson of Auckland who several years ago completed a PhD thesis on what could be regarded as this country’s national rock, the New Zealand greywackes and continues researching this and related topics. She would welcome any articles or notes that INHIGEO members may like to submit to the journal. She can be contacted at docroc3@gmail.com Another change in the group is that Mike Johnston has handed over the role of convenor of the group to Simon Nathan. Yet another change is likely to occur in 2010 when the Geological and Geophysical societies merge to form the Earth Sciences Society of New Zealand.

New Zealand members of INHIGEO continue to be active in historical research. **Simon Nathan** has completed a book on little known photographer Joseph Divis who has left an amazing record of exceptional photographs of mining towns and their inhabitants in the early 20th century. He is also completing a biography of the geological achievements of Sir James Hector (1834-1907) who became noticed after his involvement as geologist and doctor to the 1857-1860 Palliser Expedition to western Canada, where he was nearly fatally injured at Kicking Horse Pass, and after three years as Otago Provincial Geologist in New Zealand became Director of the newly founded New Zealand Geological Survey in 1865. Another book nearing completion is by **Mike Johnston**, with co-authors Sascha Nolden and Leonore Hoke, on the work of Ferdinand von Hochstetter in New Zealand in 1858-1859. This work earned Hochstetter the title of “Father of New Zealand Geology”. **Rodney Grapes** maintains his interest in New Zealand’s major earthquakes with a paper in the *New Zealand Journal of Geology and Geophysics* on the self taught geologist Alexander McKay (1841-1917) and his work on the Awatere Fault in the northeast of the South Island, which ruptured along a 100 km length in 1848. A further paper, with Gaye Downes and published in the *Journal of the Geological Society* concerns Charles Lyell and the even larger Wairarapa Earthquake of 1855. **Alan Mason**, New Zealand’s foremost historian of geology, has completed his biography of Rev. Richard Taylor (1805-1873) who made some of the earliest geological observations in this country, and is now working on New Zealand and Krakatoa. **Bruce Waterhouse** continues to research paleontology and stratigraphy.

Mike Johnston, Nelson

Poland

The most important event in Poland in 2009 was the preliminary meeting in Cracow (4–5 August 2009) of international working group on the problem “Early geo-maps of Central Europe and the development of geological cartography on the turn of 18th and 19th century” with the participation of historians of geosciences from Australia (David Oldroyd), Czech Republic (Alena Čejchanova, Jan Kozak), Lithuania (L.T. Gelumbauskaitė, A. Grigelis) and Poland (Stanisław Czarniecki, Piotr Krzywiec, Wojciech Narebski, Zbigniew Wójcik). The Board of the Polish Academy of Arts and Sciences, which was the organizer and host of this meeting, was represented by Andrzej Kobos, who informed the participants about the history and activity of this scientific corporation, formed in 1872 from the Cracovian Scientific Society, existing since 1815. The basic point of meeting was very interesting lecture of David Oldroyd “Early geological maps”. Besides, Algimantas Grigelis delivered the lecture “Geology and mineralogy in the Central and Eastern Europe on the turn of the 18th century as recorded by the earliest geological cartography” and Piotr Krzywiec presented “An overview of geological maps of Polish territories and their surroundings till mid-XIXth century”. The latter lecture, prepared in co-operation with Stanisław Wołkowicz, was the effect of important exhibition “Geological cartography of Polish territories till 1919” organized by him and Krystyna Wołkowicz in the Polish Geological Institute in Warsaw. The catalogue of this exhibition was prepared in co-operation with Jerzy B. Miecznik.

During the discussion on the problem in question it was decided that in further studies of this international working group Poland will be represented mainly just by these younger historians of geosciences from Polish Geological Institute, whereas those of old generation will play the role of their advisers and experts.

During the stay in Cracow the participants have visited the historical Salt Mine at Wieliczka and its underground Museum, paying particular attention to the collection of historical geological maps and cross-sections.

The discussion on preliminary stages of the project was continued during the meeting of this working group, organized immediately afterwards by our colleagues from the Czech Geological Survey, held in 12–13 August in Prague. Poland was represented at this meeting by Wojciech Narebski. It was decided to invite to participate in this project the historians of geological cartography from Austria, Hungary, Slovakia, Romania, Ukraine and South-east Germany (Saxony and Bavaria). Moreover the problem of financing of this project from the Visegrad funds was discussed.

Radosław Tarkowski and Piotr Daszkiewicz from the Museum of Natural History in Paris were continuing their studies on French–Polish scientific connection in 18th and 19th centuries. They have published several books and papers on this problem, among them a monograph “Stay and studies of Jean-Etienne Guettard in the Republic of Two Nations, 1760–1762”, containing the translation of his treatise on the nature of Polish territories and the minerals found in them. Another paper, entitled “La bibliotheque de Jean-Etienne Guettard (1715–1786) – analyse de ses sources bibliographiques sur la Pologne” was published in *Organon*, vol. 37 (40). Several papers of these authors are devoted to the Polish pupils of Alexandre Brongniart (1770–1847). They have also participated in a scientific session in Paris devoted to the activity of the former French geologist, delivering a lecture “Recherches geologiques, mineralogiques et meteorologiques de J.-E. Guettard en Republique des Deux Nations”. Other papers of these authors are devoted to unknown facts from the life of Jan Jaskiewicz (1749–1809), Professor of Natural History and Chemistry of the Cracow University.

Very interesting was the exhibition “Polish explorers of Siberia”, being the result of co-operation of the Archive of the Polish Academy of Sciences in Warsaw and the Archive of the Russian Academy of Sciences. It was revealed in Moscow and in several Siberian academic centers, presenting, among other things, the scientific achievements of several Polish political exiles (e.g. Aleksander Czekanowski and Jan Czerski) and geologists – mining engineers (Leonard Jaczewski, Karol Bohdanowicz and others).

The Annual Session in the Stanislaw Staszic Museum in Pila was devoted mainly to the promotion of Stanislaw Czarniecki’s book “Poklosie Staszicowskie” (Staszic’s heirdom), containing a collection of his papers on scientific and social activity of this outstanding “father of Polish geology”. Moreover, Zbigniew Wojcik delivered a lecture on Staszic’s big geological collection (about 20 thousand specimens), stolen by Russians after the collapse of the anti-tsar insurrection.

In 1918, Poland, after more than 100 years of slavery, has regained its independence. One year later the Polish Geological Institute was organized in Warsaw and in Cracow – the Mining Academy. Both important institutions celebrated their ninetieth anniversary with dedicated scientific sessions. Moreover, the Editorial Section of the Cracovian Mining and Metallurgical University (renamed recently University of Science and Technology) has published two books: Collective work entitled “Chair of Mineralogy, Petrography and Geochemistry of the Mining and Metallurgical Academy in Cracow 1919–2009” and “Walery Goetel. Rector of difficult years of the Academy of Mining and Metallurgy”, written by Zbigniew Wojcik. W. Goetel was the rector of a secretly active group within Cracow technical university during the German occupation 1939–1945. Moreover, he has formulated the methodological basis for specialists in the protection of nature and their mineral resources, called by him sozology.

Andrzej J. Wojcik has continued his studies on the history of mining geology in Polish territory at the beginning of the 19th century. The results of his studies were presented in a dozen publications, as articles in periodicals and abstracts on the internet. They were also delivered as lectures at numerous home and international conferences dealing with such problems as early geological and geognostic maps of coal basin in the Polish Kingdom, historical aspects of drainage in hard coal mines and organization of mining in 19th century.

Stefan W. Alexandrowicz has published several papers on the role of Polish geologists in the constituting the International Union for Quaternary Research and on the activity and achievements of Geological Section of the Physiographic Commission of the Cracow Academic Society and of the Academy of Arts and Sciences. Moreover, he has elaborated a detailed biographic paper on the life and scientific achievements of Jan Sarnicki, Karol Wojtyla’s teacher of geography in the Wadowice secondary school. Worth emphasizing are also S.W. Alexandrowicz’s presentations of biographies of important Polish geoscientists in the Cracow radio.

Janusz Skoczylas has published several papers on the early stages of geology in independent Poland geological cartography in the interwar period and the history of geological collections in Greater Poland.

Wojciech Narebski, as the fellow of the Polish Academy of Arts and Sciences, apart from organizing international meeting of historians of geological cartography and playing the role of a coordinator in the international team working on this problem, has studied the problem of the significance of geology and geomorphology of the battlefields in the Italian campaign of his 2nd Polish Corps .

Three institutions in Poland are collecting archival historical materials on geological sciences. The Museum of the Earth of the Polish Academy of Sciences in Warsaw is editing successively the catalogues of its collections. The Archive of the Academy of Arts and Sciences in Cracow is collecting mainly the heritage of Cracovian geologists. The archive of the Polish Academy of Sciences in Warsaw is gathering the heritages of eminent scientists, among them of geologists. The elaborated materials are available to interested persons, partly also in internet.

Wojciech Narebski (Cracow) & Zbigniew Wojcik (Warsaw)

Portugal

Chapter in books

Carneiro, Ana.; Leitão, Vanda, ‘Engineers, the Geological Survey of Portugal (1857–1908), and the Professionalization of Geologists,’ in: Ana Cardoso de Matos; Maria P. Diogo; I. Gouzevitch; A. Grelon (eds.), *Jogos de Identidade Profissional: os Engenheiros entre a Formação e a Acção / The Quest for a Professional Identity: Engineers between Training and Action*, Colibri, Lisbon, 2009, 277–310.

Pinto, Manuel S.; Amador, Filomena, ‘Discussing the Age of the Earth in 1779 in Portugal’, in: Martina Koelbl-Ebert (ed.), *Geology and Religio: A History of Harmony and Hostility*, Geological Society, London, 2009, Special Publications, 310, 83 – 87.

Simões, Ana; Carneiro, Ana; Diogo, Maria P., 'What Can News about Earthquakes, Volcanoes and Eclipses Tell Us? Science in the Portuguese Press at the Beginning of the 20th Century,' in Arne Schirrmacher (ed.), *Communicating Science in 20th Century Europe. A Survey on Research and Comparative Perspectives*, Preprints Collection (Preprint 385), Max-Planck-Institut für Wissenschaftsgeschichte, Berlin, 2009, 27–45.

Soares de Andrade, António; Marques, Luís, 'Placas, Plumas e Vulcões: uma Perspectiva Histórica com Implicações Didáticas', in: J. Bonito (ed.), *Ensino, Qualidade e Formação de Professores. Livro de Homenagem ao Professor Vítor Manuel Trindade*, Universidade de Évora, Portugal, 2009, 61–75.

Papers in periodicals

Amador, Filomena, As Controvérsias Científicas na História da Ciência, *Revista de Estudos Universitários*, 2009, 55, 17–31.

Mota, Teresa S., 'Os olhos da Geologia, o Discurso dos Engenheiros e o Saber dos Geólogos: o Início da Utilização de Métodos Geofísicos na Prospecção de Recursos Minerais em Portugal', *Comunicações Geológicas*, 2009, 96, 129–142.

Soares de Andrade, António, Cape Verde and its Rocks: a Historical Perspective, *Geochemica Brasiliensis*, 2009, 23, 291–302.

Papers in proceedings

Carneiro, Ana, 'Nery Delgado (1835–1908): Diplomacia e Geologia', in: Carlos A. Filgueiras (ed.), Livro de Anais do *Congresso Scientiarum Historia II / Encontro Luso-Brasileiro de História da Ciência*, Universidade Federal do Rio de Janeiro, Rio de Janeiro, 2009, 337–343.

Mota, Teresa S., 'Afinal, Quem Fez Rebentar os Limites do Tempo? Reflexões à Volta do Papel da História das Ciências no Ensino da Geologia' in: A. Almeida; O. Strecht-Ribeiro (org.), *Livro de Actas do XXIX Curso de Actualização de Professores em Geociências*, Escola Superior de Educação de Lisboa, Lisboa, 2009.

Pinto, Manuel S. & Soares de Andrade, A., Passeios Instrutivos de História Natural em Portugal nas Vésperas das Invasões Francesas- Os Metais, in: Carlos A. Filgueiras (ed.), *Actas ou livro do Congresso Scientiarum Historia II – Encontro Luso-Brasileiro de História da Ciência*, Universidade Federal do Rio de Janeiro, Rio de Janeiro, 2009, 483–489.

Marques, Adílio J.; Pinto, Manuel S.; Filgueiras, Carlos A., **Aditamentos ou Notas à Memória Geognóstica**, de Alexandre Antonio Vandelli: um Marco na Paleontologia Portuguesa in: Carlos A. Filgueiras (ed.), Livro de Anais do *Congresso Scientiarum Historia II – Encontro Luso-Brasileiro de História da Ciência*, Universidade Federal do Rio de Janeiro, Rio de Janeiro, 2009, 497–503.

Pita, João R.; Pereira, Ana L.; Pinto, Manuel S., Charles Lepierre (1867–1945), Hidrologia e Saúde Pública, in: Carlos A. Filgueiras (ed.), Livro de Anais do *Congresso Scientiarum Historia II – Encontro Luso-Brasileiro de História da Ciência*, Universidade Federal do Rio de Janeiro, Rio de Janeiro, 2009, 689–694.

Organization of symposia and seminars

M. Telles Antunes coordinated a session on Darwin held in the Lisbon Academy of Sciences, in February, 2009.

João L. Cardoso co-organized of the "Seminário Comemorativo dos 150 Anos da Publicação de *A Origem das Espécies*", held in Oeiras, Portugal, in November, 2009.

Manuel S. Pinto co-organized of the "Congresso *Scientiarum Historia II – Encontro Luso-Brasileiro de História da Ciência*", held in Rio de Janeiro, Brazil, in October, 2009.

Marianne Klemun and Ana Carneiro organized the INHIGEO Symposium "Seeing and Measuring, Constructing and Judging: Instruments in the History of the Earth Sciences", in the context of the *XXIII International Congress of History of Science and Technology, Ideas and Instruments in Social Context*, held Budapest, Hungary, in August, 2009. <http://www.conferences.hu/icgs09/index.htm>.

Miscellaneous (News, short abstracts, talks, lectures, presentations, etc.)

Biological and Mineralogical Evolution: Correlation and Twinning oral presentation by L. Aires-Barros at the colloquium "200 anos do Nascimento de Charles Darwin / 150 Anos da Publicação de *A Origem das Espécies*", held at the Câmara Municipal de Oeiras, Portugal.

Rocha Peixoto and his Studies in Earth Sciences, oral presentation by L. Aires-Barros at a seminar commemorating 100 years after the death of A. A. Rocha Peixoto, naturalist, ethnologist and archaeologist, held at the University of Oporto, Portugal.

As Geociências – Passado e Futuro. Os Desafios do Novo Milénio, talk delivered by Filomena Amador at the "Conferência de Geociências nos Países de Língua Portuguesa De um Passado Comum para um Futuro de Integração" held in Rio de Janeiro, Brazil.

As Representações do Tempo em Ciências da Terra: uma Abordagem Histórico-Cognitiva Tendo em Vista a Transposição Didáctica, talk delivered by Filomena Amador at the "III Encuentro Iberoamericano en Investigación en Enseñanza de las Ciencias", held at the University of Burgos; Spain.

Some Data on Search and Collecting of Vertebrate Fossils in Portugal until ca. 1980, Lecture delivered by M. Telles Antunes at the University of Coimbra, Portugal.

Pesquisa em Portugal de Vertebrados do Miocénico até ca. de 1980, oral presentation by M. Telles Antunes at the international conference “*Coleções e Museus de Geociências: Missão e Gestão*” held in Coimbra, Portugal; in: *Journal of Paleontological Techniques*, Special Volume, 6, 8.

M. Telles Antunes had a meeting in Paris with Philippe Taquet on scientific cooperation between France and Portugal since the 18th century.

A Investigação Oitocentista Portuguesa em Busca da Antiguidade da Espécie Humana, talk delivered by João L. Cardoso at the colloquium “200 anos do Nascimento de Charles Darwin / 150 Anos da Publicação de *A Origem das Espécies*” held at the Câmara Municipal de Oeiras, Portugal.

Under the Spell of the Photographic Camera: a Case-study of the Use of Photography in Nineteenth-century Palaeontology, oral presentation by Ana Carneiro at the “XXIII International Congress of History of Science and Technology. Ideas and Instruments in Social Context”, in: Book of Abstracts and List of Participants, IUHPS/DHST, Budapest, Hungary, 400.

‘As Relações entre Geólogos Portugueses e Espanhóis e a Carta Geológica da Europa (1896)’ oral presentation by Ana Carneiro at the “HoST Seminar”, held at the ICS, Lisbon, Portugal.

‘Nery Delgado (1835-1908), Geólogo do Reino’, oral presentation by Ana Carneiro (Centro Interuniversitário de História da Ciência e da Tecnologia) at the Museu Geológico, Lisbon, Portugal.

Searching for Modernization – Instruments in the Development of Geological Sciences in Portugal (18th Century), by Isabel Malaquias and Manuel S. Pinto, oral presentation by Isabel Malaquias at the XXIII International Congress of History of Science and Technology. Ideas and Instruments in Social Context”, in: Book of Abstracts and List of Participants, IUHPS/DHST, Budapest, Hungary, 2009, 395–396.

A Bursting Landscape in the Middle of Portugal: Theories and Experiments by George Zbyszewski, oral presentation by Teresa S. Mota at the “XXIII International Congress of History of Science and Technology. Ideas and Instruments in Social Context”, in: Book of Abstracts and List of Participants, IUHPS/DHST, Budapest, Hungary, 2009, 399.

‘Modelos Cristalográficos’, oral presentation by Teresa S. Mota at the Museu de Ciência, University of Lisbon, Portugal.

Russia

1 .Meetings

1.1. International meetings

The International Conference ‘Modern Geology: history, theory, practice’ on the 250th anniversary of the Vernadsky State Geological Museum of the Russian Academy of Sciences (RAS) was held in Moscow (14–16 October 2009). N.P. Yushkin and I.G. Malakhova were included in the Organizing Committee. I. Malakhova (as a contributor and an editor) and Z. Bessudnova (a contributor) were involved in publishing the new guide book. There was also a presentation on ‘History of Geology in the Geological Museum’ by I. Malakhova on the panel session. 15 papers on the history of sciences were also read during the section meeting with INHIGEO members Z. Bessudnova, E. Minina, G. Trifonov being among the speakers. The new hall and exhibition ‘The Pages of the Museum’s History’ (Z. Bessudnova, G. Khomizuri, I. Malakhova) was also opened. At the panel meeting the outstanding Russian geologist and historian of geosciences the late Victor E. Khain presented one of his last lectures (See figure below and obituary elsewhere in this volume)

The Museum jubilee was the topic of the paper ‘The 250th Anniversary of the First Museum of Natural History in Moscow’ presented by I. Malakhova at the INHIGEO meeting ‘Fossils and Fuel’ held in Calgary, Alberta, Canada 10–14 August 2009.



The late Victor E. Khain speaking at the International Conference 'Modern Geology: history, theory, practice' on the 250th anniversary of the Vernadsky State Geological Museum held in Moscow, October 2009)

1.2. Country meetings

N. Yushkin was a member of the organizing committee for the annual meeting of the Russian Mineralogical Society on the occasion of 100th anniversary of the Russian mineralogist D. Grigoryev and the XXII Chernov's Conference on the occasion of 90th birthday of the geologist M.V. Fishman.

T. Ivanova has participated in the Festival of Sciences (Moscow, October, 2009) with the exhibition 'Nature Art in a Stone' and the public lecture 'History of Mineralogy and Minerogenesis'.

Papers by Z. Bessudnova and I. Malakhova were also included in the program of the 2009 Conference of the Institute for Science and Technology of the Russian Academy of Sciences.

2. Publications

Galkin A.I. Academician Ivan Michailovich Gubkin: Myths and Reality. Ukhta: Memorial, 2009. 256 p.

Targeting. Nickolay Grigorievich Chochia. Memoirs. Essays. Smolensk: Madzhenta, 2009. 254 p.

Parallels and Meridians. In Memory of Grigory Ivanovich Lazukov. Memoirs. Essays. Selected Works. Smolensk: Madzhenta, 2009. 384 p.

Samsonov R.O., Dzhafarov K.I. History of Gas Industry: Review on the History and Techniques. Moscow: GazpromVNIIGAZ, 2009. 200 p.

Five volumes of the journal *History of the Earth Sciences* were also issued in 2009 with G. Khomizuri, A. Lapo and I. Malakhova as contributors. Please see http://www.ifz.ru/journals/hes/english_version/index.htm

3. Other activities

About 250 publications (including original works in French and German) are now available in the section 'Geology' of the Virtual Library *Scientific Heritage of Russia*. The Department for the History of Geology of the Vernadsky State Geological Museum is a member of this program of the Russian Academy of Sciences. <http://nasledie.enip.ras.ru/index.html>

Irena G. Malakhova, Moscow

Spain

During the year 2009 there were two major events within the Spanish INHIGEO group. The first major event: the centennial of Darwin has been the occasion for lectures, symposia, conferences and a congress focusing on the person and geological works of Charles Darwin. Second, INHIGEO celebrated the 20th anniversary of the Commission for History of Geology in Spain, within the Spanish Geological Society. Over the past 20 years, Dr. JAIME TRUYOLS (Oviedo University) has developed the function of President of the Commission for the

History of Geology. However now a new President Ph. D. Miss ISABEL RÁBANO has been elected who is also member of INHIGEO. Isabel is also the Director of the Geomining Museum, in the Geological Survey of Spain. Welcome, Isabel.

Ph. D. LUIS-FELIPE MAZADIEGO MARTÍNEZ & OCTAVIO PUCHE (Mining School, Universidad Politécnica de Madrid) are members of a research project named “Documento metodológico para la elaboración del inventario español de Lugares de Interés Geológico (IELIG)”, supported by Geological Survey of Spain from 2009 to 2018, directed by GARCÍA CORTÉS, A. and CARCAVILLA URQUÍ, L.

LUIS-FELIPE MAZADIEGO is the main research chairman in the Project “Monitoring of gases in the geosequestration of CO₂”, sponsored by CIUDEN. Also, MAZADIEGO is Editor and Director of the historical review *De Re Metallica* about Geological and Mining Heritage. The Editor is ISABEL RÁBANO.

Others news: Ph. D. J. I. CATALÁ GORGUES, was the scientific referee of the Spanish translation of the books by Janet Browne (2008) titled *Charles Darwin. Viajes* (Valencia, Publicacions de la Universitat de València) and Janet Browne (2009), *Charles Darwin. El poder del lugar* (Valencia, Publicacions de la Universitat de València). He also presented an invited lecture “Los jesuitas españoles ante el evolucionismo durante el período restauracionista (1875–1922)” en el IV Coloquio Internacional sobre Darwinismo en Europa e Iberoamérica (Ciudad de México, 23–27 February 2009), and he has presented a communication: “Contra Haeckel: antievolucionismo en la España de la Restauración (1875–1922)” in the Second Congress of the Spanish Society of Evolutionary Biology (SESBE) (Valencia, 29 November – 2 December 2009).

CATALÁ has been also Chairman in the Exposition *Darwin: el seu temps, la seua obra, la seua influència* (Darwin: his time, his work, his influence, Valencia, 20 February to 20 September 2009; and Barcelona, 1 October – 6 November 2009), organized by the Universitat de València (Valencia University) and the Institut d’Estudis Catalans (Catalans Studies Institute).

OCTAVIO PUCHE (Universidad Politécnica de Madrid) works on the research project: *El patrimonio histórico minero de Andalucía (Historic mining heritage of Andalusia)*, sponsored by the Consejería de Innovación, Ciencia y Empresa de la Junta de Andalucía (Programa proyectos de excelencia en equipos de investigación; Proyecto P06-HUM-02159). The Director of Project is Ph. D. VÍCTOR MANUEL HURTADO PÉREZ.

Other research projects of OCTAVIO are: “Rutas minerales de Iberoamérica y Ecuador y ordenamiento territorial: un factor integral para el desarrollo sostenible de la sociedad” [Proyecto Rumys: rutas mineras y sostenibilidad]. (P306AC0579). Sponsored by CYTED (Proyectos en Acciones Concertadas de CYTED-Área 3, Promoción industrial), directed by PAUL CÉSAR CARRIÓN MERO. <http://www.rumys.espol.edu.ec/rutas.asp?pais=Peru>

A third research project is: “Análisis de la integridad del colágeno en mamíferos fósiles (INCOMA): Aplicación a la fiabilidad de su estudio isotópico-paleoambiental a la preservación de ADN fósil y a la datación numérica”. (CGL2007-65572-C02-02/BTE). Sponsored by Ministry of Education and Science [CICYT-Plan Nacional I+D]. Chairman: ORTIZ MENÉNDEZ, JOSÉ EUGENIO.

OCTAVIO presented a communication to the Scientific Meeting: “Ejemplares mineralógicos escandinavos recibidos en la Escuela de Ingenieros Minas de Madrid hacia 1850/ Scandinavian mineralogical units received in the School of Mining Engineers of Madrid towards 1850”. In: Conferencia Internacional Coleções e museus de Geociências; missao e gestão, Coimbra, Portugal, 2009 (5–6 June).

Besides, OCTAVIO was also the Supervisor of a Doctoral Thesis: “La minería de los metales en la Comunidad de Madrid: Patrimonio minero y puesta en valor del espacio subterráneo”, presented by LUIS JORDÁ BORDEHORE, in the Universidad Politécnica de Madrid (Escuela Técnica Superior Ingenieros de Minas).

OCTAVIO PUCHE and ISABEL RÁBANO were also members of the Scientific Committee of the International Conference about “Coleções de Geociências: missão e gestão”, in the Museo da Ciência, Universidade de Coimbra, Portugal, 5–6 June 2009. Member of the Scientific Committee in the X Congreso Internacional sobre Patrimonio Geológico y Minero (Coria, Cáceres, 24–27 September 2009).

Professor JOSÉ LUIS BARRERA-MORANTE (Universidad Complutense de Madrid and Professional College of Geologists), during the 2009 year has been Co-director of the Meeting *Darwin y la evolución. 200 años de polémica*. Palacio de la Magdalena. Universidad Internacional Menéndez Pelayo (UIMP) de Santander (24–26 June 2009). He presented the lecture *La importancia de la Geología en el pensamiento de Darwin*. Also, BARRERA presented the inaugural lecture (13 May) in the XVIII Bienal de la Real Sociedad Española de Historia Natural, held in Puertollano (Ciudad Real), about *Hervideros y Fuentes agrías*.

The 12 December meeting about *200 años de Darwin biólogo y geólogo*. Into the IX week of Science in Madrid. On 19 November the lecture was entitled *100 años de la última erupción volcánica en Tenerife: el volcán Chinyero*. Into the IX week of Science in Madrid.

The cultural diffusion of the History of Geology promoted by Dr. LEANDRO SEQUEIROS was: 17 January, Granada, Lecture on “Creer después de Atapuerca. El misterio de la Evolución humana”. 5 February, Sevilla, Lecture into the cultural meeting “Darwin, 150 años de la teoría de la evolución de las especies”:

“Darwin y la geología. Del fijismo al evolucionismo”. 24 February, Lecture in the course sponsored by the Sciences Park of Granada and Spanish Society of Evolutionary Biology, on “Darwin y la Selección Natural”. (see in www.slideshare.net/sequeros)

6 March, Lecture in the Faculty of Sciences in Granada University about “Darwin, Humboldt y la Geología”. 10 March, Deusto University, San Sebastian, Barque Country, Lecture: “Los científicos y Dios”. 11 March, Comillas University (Madrid), lecture “Me llamo Charles Darwin y creo en la Evolución de las Especies”.

12 March, in Granada, Inaugural lecture in the Congress of the Hesperides Society about “Darwin, geólogo”. 17 March, Lecture promoted by the journal “Ideal” at Granada, about “La peligrosa idea de Darwin”.

In summer, 28 July at Burgo de Osma, an historical city of Castilian, two lectures in the *XXII Curso Universitario de Verano, Universidad de Santa Catalina, Burgo de Osma*, “Darwin después de Darwin” and “La evolución en la actualidad de la biología evolucionista en el contexto de la Ciencia Actual”.

Publications

BARRERA, J. L. (2009). En el aniversario de Darwin. Revista *Profesiones*, 121 (sep–oct),46. Edita: Unión Profesional, Madrid.

BARRERA, J. L. (2009). Biografía del geólogo José Macpherson y Hemas (1839–1902). *Diccionario Biográfico Español de la Real Academia de la Historia*. Madrid.

BARRERA, J. L. (2009). Biografía del geólogo Lucas Fernández Navarro (1869–1930). *Diccionario Biográfico Español de la Real Academia de la Historia*. Madrid.

BARRERA, J. L. (2009). El centenario de la erupción del volcán Chinyero, en Tenerife. *Tierra y Tecnología*, 35 (1er semestre), 3–23. Ilustre Colegio Oficial de Geólogos. Madrid.

CALVO REBOLLAR, M., (2009) *Minerales y Minas de España. Óxidos e Hidróxidos*. Fundación Gómez Pardo/Escuela de Ingenieros de Minas de Madrid, 751 págs.ISBN: 9 788495 063991

CATALÁ GORGUES, J. I. (2007, 2009), “Ligados pela Natureza: os Inícios da Colaboração Científica entre Nery Delgado e os Geólogos Espanhóis, em 1872”, *Comunicações Geológicas*, 94, 161–174.

CATALÁ GORGUES, J. I. (2008, 2009), “El primer viatge de l’enginyer portuguès Nery Delgado a Espanya (1872) i l’establiment de relacions entre els serveis geològics ibèrics”, *Actes d’Història de la Ciència i de la Tècnica*, 1 (1), 421–428.

CATALÁ GORGUES, J. I. (2009), “Cuatro décadas de historiografía del evolucionismo en España”, *Asclepio*, 61 (2), 9–66.

CATALÁ GORGUES, J.I., PERETÓ, J. (2009), “El Darwin indigesto. Repercusiones políticas, sociales y religiosas del darwinismo”, en: C. LÓPEZ-FANJUL (coord.), *El alcance del darwinismo. A los 150 años de la publicación de “El origen de las especies”*, Madrid, Colegio Libre de Eméritos, 208–231.

http://www.colegiodeemeritos.es/DocumentosDelColegio/seccion=32&idioma=es_ES&activo=7&id=2009032613040001.do

GARCÍA MARTÍN, E. MARTÍN ESCORZA, C. (2009): Evolución de la plantilla del Museo Nacional de Ciencias Naturales (1982–2006) En: *Notas para la historia reciente del Museo Nacional de Ciencias Naturales. Homenaje a María Dolores Soria Mayor*. Javier Lobón-Cerviá y Jorge Morales (comps). Monografías 24. 27–32. CSIC, Madrid.

GARCÍA CRUZ, C.M. (2009). *El origen de las Islas Canarias. Evolución histórica de los conceptos sobre la génesis del archipiélago, desde la antigüedad clásica hasta finales del s. XX*. Ediciones Baile del Sol, Tenerife, 166 pp.

GUTIÉRREZ CLAVEROL, M. Y J. ORDAZ GARGALLO (2009). “La enseñanza de las ciencias naturales en el distrito universitario de Oviedo”. En: *50 años de Geología en la Universidad de Oviedo* (F. Javier Álvarez Pulgar y Jorge Ordaz Gargallo, eds.), Universidad de Oviedo, 2009, pp. 54–77.

MARTÍN ESCORZA, C. (2009). La Expedición Científica a Ifni en 1934. En: *Notas para la historia reciente del Museo Nacional de Ciencias Naturales. Homenaje a María Dolores Soria Mayor*. Javier Lobón-Cerviá y Jorge Morales (comps). Monografías 24. 93–108. CSIC, Madrid.

MARTÍN ESCORZA, C. (2009). Breve historia de las instituciones geológicas en España. En: *La profesión de geólogo*. 11–27. Ilustre Colegio Oficial de Geólogos. Madrid

MARTÍN ESCORZA, C. (2009). Prólogo. En: *El naturalista en su siglo: homenaje a Mariano de la Paz Graells en el CC Aniversario de su nacimiento*. Emilio Cervantes (coord). Instituto de Estudios Riojanos. 11–13 pp.

MAZADIEGO MARTÍNEZ, L. F.; PUCHE RIART, O.; HERVÁS, A. M^a. (2009). Water and Inca Religion: myths, geology and engineering in the Peruvian Andes. In: *Geology and Religion: A history of Harmony and Hostility* (Ed. by M. Kölblt-Ebert). Geological Society of London. Special Publication 310, pp.17– 24

ORDAZ, J.; ARAGONÉS, E. Y MARTÍN ESCORZA, C. (2009): Luces del Norte: percepción e interpretación de la auroras boreales observadas en la península ibérica a finales del siglo XVIII. En: *La época de*

- Carlos IV (1788–1808). Actas del Congreso Internacional de la Sociedad Española de Estudios del Siglo XVIII.* Elena de Lorenzo Álvarez (coord). 857–872. Oviedo
- PELAYO, F. (2009). “El Naturalista Geòleg. Els estudis geològics de Darwin”. *Mètode*, 60, 73–78, 2008/ 2009
- PELAYO, F. (2009). “El naturalista geólogo. Los estudios geológicos de Darwin”. *Mètode*. Anuario 2009, 209–213, 2009
- PELAYO, F. (2009) *El origen de los continentes y océanos de Alfred Wegener* [Introducción] Barcelona, Crítica.
- PELAYO, F. (2009). “Hombre Terciario” o Precursor humano? Sílex, Transformismo y los orígenes de la Humanidad. En: *Darwinismo, Meio Ambiente, Sociedade Sao Paulo / Río de Janeiro, Via Lettera / MAST*, págs. 161–176
- PEREJÓN, A. (2009). *Rafael Cabanás Pareja (1913–1989). Naturalista, docente y maestro de geólogos y geógrafos.* Servicio de Publicaciones Universidad de Córdoba y Ayuntamiento de Córdoba Delegación de Cultura, 268 pp. Imprenta San Pablo, Córdoba.
- PEREJÓN, A. (2009). Don José Macpherson y Hemas (1839–1902), un científico y tres Instituciones: Sociedad Española de Historia Natural, Institución Libre de Enseñanza y Sociedad Geográfica de Madrid. *Boletín de la Real Sociedad Española de Historia Natural. Sección Geológica*, 103(1–4): 81–95.
- PUCHE RIART, O. (2009) Ejemplares mineralógicos escandinavos recibidos en la Escuela de Ingenieros Minas de Madrid hacia 1850/ Scandinavian mineralogical units received in the School of Mining Engineers of Madrid towards 1850. *Journal of Paleontological Techniques*, Special Volume, 6, 11–12. Lourinhã, Portugal (May 2009).
- PUCHE RIART, O.; MAZADIEGO MARTÍNEZ, L. F.; KINDELÁN ECHEVARRÍA, P.; ORCHE GARCÍA, E. (2009). *The Historical mines of Almadén.* CIM Magazine, Quebec, Canadá (September/October 2009).
- PUCHE RIART, O. y BOIXEREU, E (2009). Reseña de Libros: Claude Domergue, 2008: Les Mines Antiques. La production des métaux aux époques grecque et romaine. *DE RE METALLICA*, 12 (enero–junio 2009).
- PUCHE RIART, O. (2009). Gálvez-Cañero Alzota, Augusto de. Diccionario Histórico de la Arqueología en España (siglos XV–XX), DÍAZ ANDREU, C.; MORA, G. y CORTADELLA, J. (Eds.). Ed. Marcial Pons. 784 pág. Madrid. Págs. 290–291 (2009) ISBN:13:978-84-96467-45-3
- PUCHE RIART, O. (2009). Instituto Geológico y Minero de España. Diccionario Histórico de la Arqueología en España. Ed. Marcial DÍAZ ANDREU, C.; MORA, G. y CORTADELLA, J. (Eds.). Ed. Marcial Pons. 784 págs. Madrid. Págs. 349–350 (2009). ISBN:13:978-84-96467-45-3
- PUCHE RIART, O. (2009). Vidal y Carreras, Luis Mariano. Diccionario Histórico de la Arqueología en España. Ed. Marcial DÍAZ ANDREU, C.; MORA, G. y CORTADELLA, J. (Eds.). Ed. Marcial Pons. 784 págs. Madrid. Págs. 690–691 (2009). ISBN:13:978-84-96467-45-3
- SEQUEIROS, L. (2009) Cuando hablamos de “evolución biológica”, ¿de qué evolución estamos hablando? Implicaciones teológicas. *e-Volución*, Sociedad Española de Biología Evolutiva, 4(1) 43–54. www.sesbe.org
- SEQUEIROS, L. (editor) (2009) Boletín de la Comisión de Historia de la Geología Española (SGE), 33, 24 pág. www.aepect.org
- SEQUEIROS, L. (2009) Juan Carandell Pericay (1893–1937): geólogo y geógrafo andaluz. *Enseñanza de las Ciencias de la Tierra*, AEPECT, 16 (2), 190–192.
- SEQUEIROS, L. (2009) Una nueva obra descubre el itinerario científico y espiritual de Georges Lemaître. http://www.tendencias21.net/Una-nueva-obra-descubre-el-itinerario-cientifico-y-espiritual-de-Georges-Lemaitre_a3146.html
- SEQUEIROS, L. (2009) *Granada y el darwinismo. Discurso de Rafael García Álvarez (1872) y la censura sinodal.* Editorial Universidad de Granada, colección Archivum, 77 + 64 páginas
- SEQUEIROS, L. (2009) *Puede un cristiano ser evolucionista?* PPC, Madrid, Colección Cruce, 212 pág.
- SEQUEIROS, L. (2009) La Tortuga de Darwin en Zaragoza. *Naturaleza Aragonesa*, 22 (julio–diciembre) 62–70.
- SEQUEIROS, L. (2009) Juan Carandell Pericay (1893–1937): un geólogo y geógrafo catalana–andaluz. *Naturaleza Aragonesa*, Zaragoza, 22 (julio–diciembre) 71–73.
- SEQUEIROS, L. (2009) Presentation of De Curiositate Naturali, de Olaus Söderberg–Carolus Linnaeus. En: O. Söderberg y Carl Linneo, *De Curiositate Naturali. Texto original latino y traducción a interlingua y castellano.* Séneca editorial, Córdoba, 143 pág.
- SEQUEIROS, L. (2009) Los “Viajes por América Meridional” (1809) del aragonés Félix de Azara (1742–181), dos siglos después. *Naturaleza Aragonesa*, Zaragoza, 23, 101–104.
- SEQUEIROS, L. (2009) La explicación darwinista de la moral y la ética queda incompleta http://www.tendencias21.net/La-explicacion-darwinista-de-la-moral-y-la-etica-queda-incompleta_a3999.html

Switzerland

Nazario Pavoni reports that although his interests into the history of geology remain as great as ever, his growing age reduces his activity. He is still actively involved in scientific research, particularly in global tectonics. The idea of a fundamental, Pacific/anti-Pacific hemispherical symmetry or bipolarity inherent in global tectonics has occupied his mind since 1960. For more than 50 years he has been involved in a never ending, fascinating dialogue with Earth!

An important event regarding the geology and the history of geological research in Switzerland has been the inscription of the “Swiss Tectonic Arena Sardona” into the UNESCO World Heritage List (Ref. 1179). The area presents an exceptional and dramatic display of mountain building through continental collision. It includes the Glarus Overthrust, a key site for geological sciences since the 18th century. At this site Hans Conrad Escher observed in 1807 the overlay of older rocks on younger rocks, but could not find an explanation.

Nazario would like to mention especially the death of INHIGEO member Rudolf Trümpy who passed away on January 31, 2009. Please see an obituary elsewhere in this volume

A Symposium in honour of Rudolf Trümpy was held at the ETH Zürich on October 2, 2009: “Alpengeologie im 21. Jahrhundert”.

Recent obituaries of Rudolf Trümpy include the following:

Lehner, P. (2009): Rudolf Trümpy (1921–2009). *Swiss Bulletin for Applied Geology*, 14/1+2, 2009, 191–193.

Milnes, A. G. (2009a): Editorial. Rudolf Trümpy (1921–2009). *Swiss Journal of Geosciences*, 102 (2009), 1–2.

Milnes, A. G. (2009b): “De la nécessité de rêver”. Impressions from the Symposium in honour of Rudolf Trümpy held at the ETH Zürich on 2 October 2009: “Alpengeologie im 21. Jahrhundert”. *Swiss Journal of Geosciences*, 102 (2009), 383–386.

Schmid, S. M. (2009): Rudolf Trümpy (1921–2009): scientific achievements of an outstanding personality with a life-long commitment to teaching and research in geology. With a list of publications and other works by Rudolf Trümpy. *Swiss Journal of Geosciences*, 102 (2009), 375–382.

United Kingdom

Individual Reports

Martin Rudwick (University of Cambridge), with Adrian Palmer (Royal Holloway, University of London), led a historical field trip to the Lochaber region of the Scottish Highlands in June 2009, to mark the bicentenary of the birth of Charles Darwin. The party of 24 historians and geologists studied the famous “Parallel Roads of Glen Roy” in the field, in the light of Darwin’s field notes (1838) and correspondence, his first substantial scientific paper (1839) – which he eventually repudiated as “one long gigantic blunder” – and earlier and later studies of the enigmatic terraces by other 19th-century geologists. The *Field Guide* produced for this event, revised to make it useable by anyone wishing to follow the same itinerary, will be published on the website of the Darwin Correspondence Project based at the University Library in Cambridge.

Hugh Miller Museum and Birthplace Cottage (Church Street, Cromarty, Scotland). Currently, the Hugh Miller Museum is one of eleven properties managed by National Trust for Scotland (NTS) whose long-term future is in doubt as a result of a need to reduce overall NTS costs. In August 2009, the Property Manager’s post ceased, after 17 years and there is no immediate prospect of the Trust reinstating a full-time salaried post. As a consequence, the property’s opening times have been reduced from 7 days a week to 4 (April to October). For further information, see http://HMwww.hemy.me.uk/NewsletterAutumn09_A4Press.pdf

Michael Taylor and **Ralph O’Connor** (University of Aberdeen) are currently editing a new annotated edition of Hugh Miller’s literary masterpiece *The Old Red Sandstone*.

Publications

Ford, Trevor D. 2009. ‘Lead Mining in the Peak, vol. 2, Millers Dale to Alport and Dovedale’ by J.H. Rieuwerts, Landmark Publishing, Ashbourne’ [Book review], *Peak District Mines Historical Society*, 2009, 120, 6.

Ford, Trevor D. & O’Connor, Bernard. A Vanished Industry – Coprolite Mining. *Mercian Geologist*, 2009, 17, 93–100.

Ford, Trevor D. The Geological Setting of the lead Mines in the Lathkill and Wye Valleys area, Derbyshire. *Mining History*, 2009, 17, 11–46.

Howarth, Richard J. 2009. Making the invisible visible: early data display in the geological sciences. *Open University Geological Society Journal*, 2009, 29, 70–80.

- Lewis, Cherry L. E. & Knell, Simon J. (eds), *The Making of the Geological Society of London*, Special Publication 317, Geological Society, London, 2009.
- Lewis, Cherry L.E. 2009. 'Doctoring geology: the medical origins of the Geological Society,' in: Cherry L.E. Lewis, and Simon J. Knell, (eds), *The Making of the Geological Society of London*, Special Publication 317, Geological Society, London, 2009, 49–92.
- Rudwick, Martin J. S., 'Biblical Flood and geological deluge: the amicable dissociation of geology and Genesis,' in: Martina Kölbl-Ebert (ed.), *Geology and Religion: A History of Harmony and Hostility*, Special Publication 310, Geological Society, London, 103–110, 2009.
- Rudwick, Martin J. S., 'The early Geological Society in its international context,' in: Cherry L.E. Lewis, and Simon J. Knell, (eds), *The Making of the Geological Society of London*, Geological Society of London, Special Publication 317, 2009, 145–153, 2009.
- Rudwick, Martin J. S., 'Walk with the Founding Fathers [Field Guide for the historical field trip to the Isle of Wight in November 2007, to mark the bicentenary of the Geological Society],' in: Cherry L.E. Lewis, and Simon J. Knell, (eds), *The Making of the Geological Society of London*, Geological Society of London, Special Publication 317, 2009, 417–438, 2009.
- Secord, James A. (ed.) Charles Darwin. *Evolutionary writings: including the Autobiographies*, Oxford University Press, Oxford, 2008 (not included in 2009 list)
- Secord, James A., 'Focus: Darwin as a cultural icon,' *Isis*, 2009, 100, 537–541.
- Torrens, Hugh, 'James Buckman (1814–1884): the scientific career of an English Darwinian thwarted by religious prejudice,' in: Martina Kölbl-Ebert (ed.), *Geology and Religion: A History of Harmony and Hostility*, Special Publication 310, Geological Society, London, 2009, 245–258.
- Torrens, Hugh, 'Dissenting Science: the Quakers among the Founding Fathers,' in: Cherry L.E. Lewis, and Simon J. Knell, (eds), *The Making of the Geological Society of London*, Special Publication 317, Geological Society, London, 2009, 129–144.
- Torrens, Hugh, *A Picnic in Siluria*. DVD, Woolhope Naturalists' Field Club, 2009. [Produced, under the auspices of the Club, by Field of Vision, it is a re-enactment of a circa 1855 field excursion led by Murchison (featuring Hugh and Shirley Torrens as Sir. Roderick and Lady Murchison); copies may be purchased (£12.00) from Paul Olver, Secretary of the Geology Section of the Club, email: paulolver@hotmail.com].

Richard J. Howarth

United States

Sally Newcomb reports that: The History of Geology Division of the Geological Society of America sponsored or co-sponsored: (1) Two sessions on lithospheric delamination, continental magmatism, and crustal uplift in mountain evolution, (2) Geoheritages, geoantiquities, and geomorphosites, (3) Darwin, geology and evolution, impact of Darwinian views on scientific theory-making, (4) Pacific rim influence on geological thought and history, and (5) the general discipline session on the history of geology. Davis Young was the recipient of the Mary C. Rabbitt award for his sterling writing on the history of igneous petrology, as well as his long engagement writing excellent science addressing the creationist fallacies.

Vic Baker served as Chair of the History of Geology Division of the Geological Society of America, and also as Book Review Editor for the journal *Earth Sciences History*. He continued with his long-standing research on the 19th-century American geophysicist, Charles S. Peirce. He is currently revising his "Rock Star" contribution to *GSA Today*, which will celebrate J Harlen Bretz. Some of his recent publications with history of geology content include the following:

- "Charles S. Peirce and the "Light of Nature," in Rosenberg, G.D., editor, *Scientific Revolution in Geology from the Renaissance to the Enlightenment*, Geological Society of America Memoir 203, p. 259–266.
- Review of *A Passion for Mars* by Andrew Chaikin: *Times Literary Supplement*, no. 5526 (July 17, 2009), p. 32.
- Review of *Bretz's Flood: The Remarkable Story of a Rebel Geologist and the World's Greatest Flood* by John Soennichsen, *Earth Sciences History*, v. 28, p. 335–337.

Kennard B. Bork continued on the INHIGEO Board in 2009, as Past-Secretary-General with ex officio status. He also served on the "Rock Star" Committee of the Geological Society of America and as a member of the editorial board of *Earth Sciences History*. His chapter on natural theology in the eighteenth century appeared in the Geological Society of London's Special Publication 310, *Geology and Religion: A History of Harmony and Hostility*, 2009, edited by Martina Kölbl-Ebert. Ken acknowledged the significant efforts of one of the founders of the History of the Earth Sciences Society (HESS), and the Founding Editor of *Earth Sciences History*, in

“Gerald M. Friedman: An Appreciation” (*Earth Sciences History*, 28, 158–160). In April, Ken gave an invited lecture at Appalachian State University on “Paleontology, Scopes, and Politics,” as part of the university’s Darwin Bicentennial Celebration. Two weeks in Paris did not involve rigorous research, but did include a delightful evening with INHIGEO Past-President Philippe Taquet and Geneviève. Throughout the year, reviewing papers and books on the history of geology for various publications was both enjoyable and informative.

Robert H. Dott, Jr. formally nominated the Point of Rocks road cut in the Baraboo Hills of Wisconsin, USA, for listing on the Wisconsin State Register of Historic Places. The nomination was accepted by the Wisconsin State Historical Society in February and was then forwarded to the United States National Register of Historic Places. Acceptance for national listing is regarded as virtually assured. This nomination was motivated by a threat to remove the entire outcrop for widening of a highway, but our action led to a re-design of the highway project in order to save the rocks. This locality has exceptionally well exposed sedimentary, metamorphic and structural features, which are important to the understanding of the classic geology of the entire Baraboo District. Moreover, this, as well as other key localities in the area, are of historic importance because Charles R. Van Hise and his late 19th Century colleagues developed several fundamental principles of structural geology in this and other Wisconsin areas of Precambrian rocks. Those principles included the use of cross bedding and symmetric ripple marks for distinguishing the “way up” in vertical and overturned strata as well as the interpretation of larger structures from meso-scale features seen in outcrops such as slaty cleavage and dragfolds. Van Hise Rock in the Baraboo Hills already has National Landmark Status and the hope is that with these precedents, more exceptional geological features can achieve a protected status like that already provided legally for exceptional archeological and ecological sites in the USA.

Dott presented an invited talk in a symposium about Charles Darwin’s contributions to geology, which occurred at the annual Geological Society of America meetings in Portland, Oregon in October, 2009, on the occasion of the 200th anniversary of Darwin’s birth. The talk was a joint effort of Dott and Ian W. D. Dalziel of the University of Texas Geophysics Institute. Dott and Dalziel are working on a full manuscript based upon their oral paper, “Charles Darwin in Southern South America.”

Greg Good became a Fellow of the Geological Society of America in 2009. He kicked off the Darwin Festival at West Virginia University with a talk entitled “Darwin in Full,” a look at the broad sweep of his scientific researches. Greg presented papers to the International Commission on History and Philosophy of Science (Measuring the Inaccessible Earth), International Association of Geomagnetism and Aeronomy (Humboldt’s Roles in Encouraging Geomagnetic Research), and the Potomac Geophysical Society (Heresy at Cambridge: Paleomagnetism before Plate Tectonics). He served as INHIGEO vice president for North America and was elected president of the History of the Earth Sciences Society for 2011–2012. Greg served also on the Steering Committee of the Earth and Environmental Sciences Forum of the History of Science Society. Greg continues on the editorial board of *Earth Sciences History* and has joined the editorial board of *History of Geophysics and Space Science*, a new journal started by members of the International Union of Geodesy and Geophysics.

Léo F. Laporte made a web site presentation entitled “Discovering Darwin,” to the American Association for the Advancement of Science (Pacific Division), San Francisco meeting, August, 2009. He also presented a paper “G.G. Simpson, Paleontology and the Neo-Darwinian Revolution,” at the same meeting. Lastly, he published a review of the book *The Young Charles Darwin*, by Keith Thomson, in the *Report* of the National Center for Science Education [in press].

Ursula Marvin sends a personal note to her old friends in INHIGEO:

“I have no publications to report this year but I would like to list my new home address: Newbury Court #335, 80 Deaconess Road, Concord MA 01742. My e-mail address remains the same, but I will receive postal mail more quickly and reliably if it is sent to the above address. I still have an office at the Observatory but I don’t get into Cambridge every week. I stopped driving years ago so I get there by taking a very pleasant, half-hour train ride, each way. To do so, however, I have to find a day when I am free of other events or appointments. I am working on two manuscripts with great hopes that I will complete at least one of them for publication this year. Meanwhile, I would like to extend my greetings to all my friends and colleagues in INHIGEO. I have fallen far, far behind in my correspondence but I think of you often and enjoy happy memories of our annual meetings and excursions.”

Clifford M. Nelson completed the ten narrative-analysis chapters for the fourth volume (1939–1961) of the history of the U.S. Geological Survey. He also continued work on the volume’s endnotes and its bibliography, separating the latter’s entries from the project’s working compilation. Cliff’s article about “The Sixteenth International Geological Congress, Washington, 1933” appeared in *Episodes*, 2009, 32: 33–40.

Sally Newcomb published her long effort to show that laboratory work was a strong influence on geological theory in the early days of the science. It is:

- *The World in a Crucible: Laboratory Practice and Geological Theory at the Beginning of Geology*. The Geological Society of America, Special Paper 449, 204 pp.

She also presented oral papers:

- “Richard Kirwan and his geology.” INHIGEO, Calgary, Alberta, Canada. In the process of writing it, this paper turned into an exploration to see if there was any congruence between the religious affiliations of Kirwan and his contemporaries and their views on different matters of geology, including the age of the earth. Most interestingly, in the sample I was able to investigate, religion could not be used as a predictor for age of the earth, the theory espoused (Plutonist/Neptunist), or a number of other positions.
- “Instrumentation for an early geologist.” GSA, Portland USA. This concerned instrumentation used by Richard Kirwan in his investigations.

She was very pleased to be citationist for Davis Young’s Mary Rabbitt award at the GSA meeting.

John A. Norris is involved in the Rudolphine Alchemy Project of the Czech Academy of Sciences, which is to launch an exhibit in autumn 2010 on various matters connected to alchemy during the reign of the emperor Rudolph II (1576–1611). A book by an international team of authors will also be issued around the time of the exhibit as part of the project. John was asked to contribute an article on the relations between mining, alchemy, and mineral theories in sixteenth-century Bohemia. To that end, he applied for, and was awarded, a Mellon Travel Fellowship to study at the History of Science Special Collections at Oklahoma University in Norman, Oklahoma, where he made use of the Collections’ excellent holdings of sixteenth-century mineralogical and alchemical books.

Steve Rowland published a chapter titled “Thomas Jefferson, extinction, and the evolving view of Earth history in the late eighteenth and early nineteenth centuries” in Geological Society of America Memoir 203: *The Revolution in Geology from the Renaissance to the Enlightenment*, edited by Gary Rosenberg. At the INHIGEO meeting in Calgary, he presented a talk (co-authored by Darren Tanke) titled “Greatness denied: The short, tragic career of Canadian vertebrate paleontologist James E. Thurston.” He also completed his four-year rotation as an officer in the History of Geology Division of the Geological Society of America.

Kenneth L. Taylor inaugurated the University of Oklahoma’s year-long series of events commemorating the 200th anniversary of Charles Darwin’s birth and the 150th anniversary of publication of *The Origin of Species*, in January, with a public lecture “Volcanology before Darwin: From Burning Mountains to Igneous Global Dynamics.” He published a translation with historical analysis and commentary of Nicolas Desmarest’s “Determination of some epochs of nature through volcanic products” (1775/1779), in the ‘classic papers’ series in *Episodes: Journal of International Geoscience*, 2009, 32, 114–124. Among other reviews, he produced “The Establishment of Geohistory,” an essay review of Martin Rudwick’s *Worlds Before Adam*, in *Isis*, 2009, 100, 872–880.

Davis A. Young, most notably, received the Mary C. Rabbitt Award of the History of Geology Division of the Geological Society of America in 2009. He also published:

- The reception of geology in the Dutch Reformed tradition: The case of Herman Bavinck (1854–1921), in M. Kölbl-Ebert, ed., *Geology and Religion: A History of Harmony and Hostility*, Geological Society Special Publication 310, 289–300.
- The historical reconstruction of geohistorical reconstruction, *Perspectives on Science and Christian Faith*, 61, 116–125. (Essay review of Rudwick’s *Worlds Before Adam*).
- Origin of the American quantitative igneous rock classification: part 2, *Earth Sciences History* 28, 175–203.

Uzbekistan

The largest event during 2009 in the history of geology in Uzbekistan was the celebration recognizing the 50th-anniversary of Institute of Geology and its investigations of oil and gas deposits—one of the oldest and recognized agencies amongst the scientific communities of Central Asia specializing in scientific maintenance of geological prospecting data and research on oil and gas. In this connection the following monograph was published “To the 50th-anniversary of a centre of science on oil-and-gas geology of Uzbekistan (1959-2009)” Edited by Doctor of Geological-Mineralogical sciences G.S. Abdullaev, Director of the Institute, Tashkent, (2009) 268 pp. In addition was published, the abstracts of International Scientific - Practical conference: “Theoretical and practical aspects of oil-and-gas geology of the Central Asia and a way of the decision of actual

problems of the branch” (12 October 2009), Tashkent, 2009, 166 pp. No. 3 issue of the “Uzbek Journal of Oil and Gas” was also devoted to this event.

In these papers, the history of development and achievements of the basic scientific directions of oil-and-gas geology was covered: paleontological, stratigraphical, lithological, tectonical, geodynamical, geophysical, hydro-geological, geochemical, space geological, geocological researches and drilling investigations in the institute, laboratories and in separate regions (Fergana Basin, Ustyurt, Bukhara-Khiva, etc.) .The contribution of 185 scientists was involved, and their scientific biographies were given. Development of the theory of an origin of oil and gas, opinions about high prospectivity of organogenic constructions in Jurassic sediments of the Western Uzbekistan were presented detailing the prospectivity of Paleozoic rocks of the basement etc. From materials was traced a history of opening of separate petroleum fields, including unique – oil – gas condensate Kok - Dumalak etc. The activity of the institute, NHC “Uzbekneftegas” promoted development of the deposits: 5-8 per one year, to achieve of global parameter of factor confirmation of prepared structures to search drilling (0,7 and more), double increase of a world parameter of efficiency of explorative wells. Interest represents the history of creation of the Consortium of Investors in the structure of five large oil-and-gas companies of Uzbekistan, Korea, Chinese People’s Republic, Russia and Malaysia in relation to the unit of production of the Uzbek part of Aral Sea.

Much historical data is contained in the abstracts of the conference: in particular on the history of opening and investigation of deposits, creation of maps of oil and gas as well as on the development of the major scientific problems, personnels, discoveries, introduction of normative documents, orders etc. In V.N. Melihova’s report and V.I. Vyalova (VSEGEI) materials on creation of maps of scale 1 : 2 500 000 for territories of socialistic countries of Europe (1981) are presented; USSR (1988); Russia and the CIS; Central Asia (China, Russia, Kazakhstan, Mongolia, Korea) (2008); and under preparation at a scale of 1 : 5 000 000 the map of Central and Northern Eurasia with scope of new oil-and-gas basins of Northern, Norwegian, Barents seas, Northern China (Tarim etc.) . A. Gonchar has drawn attention to the historical aspect of the problem of Paleozoic oil: I.M. Gubkin, 1934; N.B.Vassoevich, 1948; N.P.Tuaev, 1948, 1950; R.N.Khaimov, 1963; A.M. Akramhodzhaev etc., 1968; M.A. Akhmedzhanov, O.M. Borisov, 1977. T.L. Babadzhanov’s report is devoted to development of geophysical researches in oil-and-gas geology in years since 1961. L.D.Shpora *et al*, noted A.S. Uklonsky’s role in forecasting the prospectivity of Gajdy (Gazli) in 1920s and in the subsequent 60-70 years paragenic oil minerals on the basis of the mineralogical data.

L.N.Lordkinanidze’s article was devoted to a history of studying of faults of the Chatkal–Kurama microplate in “Geology and mineral resources”-2009 - No. 6 - pp. 11–17. In the field of personnel in publications of journal “Geology and mineral resources” are marked: the 100th anniversary of correspondent member of Academy I.M. Isamuhamedov - the founder of petrography school of Uzbekistan, 90th anniversary of academician H.N. Boymuhamedov - outstanding scientist in metallogeny; 90th anniversary of outstanding geochemist S.T. Badalov, who created the table of isotopes of elements, was the founder of deposits (Almalyk) and was engaged in the geochemistry of bone and live matter (Institute of geology and geophysics); 60th anniversary of the outstanding expert in area paleontological - stratigraphical researches of oil and gas deposits of Bukhara–Khiva region S.T. Khusanov (Uzbek Journal of Oil and Gas, № 3, 2009, p. 71).

The deaths occurred of outstanding paleo-volcanologist, V.N.Tkachev, and also specialist in remote sensing methods of researches in geology and metallogeny, Sh.E. Ergashev.

Lora Lordkipanidze, Tashkent

HONORARY SENIOR MEMBERS

April 2010

Addresses are provided in the ‘INHIGEO Members’ listing, along with an asterisk (*) before the last name and the designation ‘HonSrMbr.’

Professor David F. Branagan, Australia
 Professor Albert Carozzi, USA
 Professor Gordon Craig, United Kingdom
 Dr. Stanislaw S. Czarniecki, Poland
 Professor Robert H. Dott, Jr., USA
 Professor Endre Dudich, Hungary
 Professor Michel Durand-Delga, France
 Professor Gordon Herries Davies, Ireland
 Professor Wolfhart Langer, Germany

Professor Eugenij Milanovsky, Russia
 Dr Ursula B. Marvin, USA
 Alan Mason, New Zealand
 Professor Alexander Ospovat, USA
 Professor Cecil Schneer, USA
 Professor Kanemori Suwa, Japan
 Professor Emile den Tex, Netherlands
 Professor Hong-Zhen Wang, China
 Professor Dan Yaalon, Israel

INHIGEO MEMBERSHIP
(Current as April 2010)

Country of domicile is listed on upper line.

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