

Editor's Note

Galina Kotlyar indicated in an email dated Oct 29, 2009 that "Drs. Chuvashov and Chernykh would like to continue the investigation in Mechetlino to receive the additional correlation tools". In a subsequent email I indicated that the SPS decision does not preclude additional work at the Mechetlino section, but that new work will go ahead at Rockland and Cassia Mountains. I further indicated that I may impose deadlines for the completion of the base-Kungurian. Galina Kotlyar agreed also on Oct 29, 2009 that it "will be right if you will impose deadlines for production of proposals for the base of Kungurian". She also indicated in an email Oct 30 that I could make public these communications in the next issue of Permophiles.

The end result of this excellent exchange is that we will revise the base-Sakmarian proposal to highlight the Usolka section and compare to the Kondurovsky section (the Russian committee may wish to name the latter as a parastratotype, but this is not necessary for ICS). The base-Artinskian proposal will be updated, but will proceed as initially proposed. The base-Kungurian is under reconsideration.

Charles Henderson

REPORTS

SUBCOMMISSION ON PERMIAN STRATIGRAPHY

ANNUAL REPORT 2009

1. TITLE OF CONSTITUENT BODY and NAME OF REPORTER

International Subcommittee on Permian Stratigraphy (SPS)

SUBMITTED BY:

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2. OVERALL OBJECTIVES, AND FIT WITHIN IUGS SCIENCE POLICY

Subcommission Objectives: The Subcommission's primary objective is to define the series and stages of the Permian, by means of internationally agreed GSSPs, and to provide the international forum for scientific discussion and interchange on all aspects of the Permian, but specifically on refined regional correlations.

Fit within IUGS Science Policy: The objectives of the Subcommission involve two main aspects of IUGS policy:

1. The development of an internationally agreed chronostratigraphic scale with units defined by GSSPs where appropriate, and related to a hierarchy of units to maximize relative time resolution within the Permian System; and

2. Establishment of frameworks and systems to encourage international collaboration in understanding the evolution of the Earth during the Permian Period.

3. ORGANIZATION

The Subcommittee has an Executive consisting of a Chairman, a Vice-Chairman, and a Secretary; all three are Voting Members of the Subcommittee. There are sixteen total Voting Members representing most regions of the world where Permian rocks are exposed. The objectives of the Subcommittee are pursued by both stratigraphic and thematic Working Groups that are retired upon completion of their directed task. For example, the Working Groups on the Carboniferous-Permian Boundary, on the Guadalupian stages (Middle Permian), on the base-Lopingian boundary (base-Wuchiapingian Stage), and on base-Changhsingian have been retired upon the successful establishment of their defining GSSPs and ratification by IUGS. The current working groups include the following: 1. Cisuralian stages, 2. Continental Permian, 3. Transitional biotas as gateways for global correlation, 4. Neotethys, Paleotethys, and S. China Correlations, and 5. International Lopingian Working Group.

3a. Officers for 2008-2012:

Chair: Professor Charles M. Henderson, University of Calgary

Vice-Chair: Dr. Vladimir Davydov, Boise State University

Secretary: Dr. Shuzhong Shen, Nanjing Institute of Geology and Palaeontology

The SPS website is located at <http://159.226.74.3:7006/web/index.asp>. This site includes all back issues of *Permophiles* in downloadable PDF format (#1 in 1978 to #53 June 2009). A link to *Permophiles*/Permian research has also been established at www.ucalgary.ca/conodont/sp.

4. INTERFACES WITH OTHER INTERNATIONAL PROJECTS

The SPS interacts with many international projects on formal and informal levels. The SPS has taken an active role on the development of integrated chronostratigraphic databases by participating with CHRONOS and PALEOSTRAT (now GeoStratSys), which are NSF funded initiatives. Vladimir Davydov and Walter Snyder are concentrating on developing their system to include improved taxonomic dictionaries, database sharing and manipulation with PALEOSTRAT. The SPS is also involved in a NSFC supported study comparing the Proterozoic-Cambrian transition with the Permian-Triassic transition.

5. CHIEF ACCOMPLISHMENTS AND PRODUCTS IN 2009

GSSPs: Progress was made on the three remaining Lower Permian (Cisuralian) stage GSSPs including base-Sakmarian, base-Artinskian, and base-Kungurian. Samples collected during an international field excursion conducted in early July 2007 (reported in *Permophiles* #49; p. 4-6) have been processed for

stable isotope geochemistry, radioisotopic ages and biostratigraphy. These results were discussed at the Calgary business meeting in July 2009 and some decisions were made (see *Permophiles* #53 for fuller explanation). In summary, we have decided to change the section and point for the base-Sakmarian to the Usolka section. The Kondurovsky section failed to reproduce the requisite conodont results, and problems about the evolution of *Sweetognathus merrilli* were discussed during ICOS2009. Fortunately, the Usolka section had been fully worked up as a potential parastratotype and we have excellent carbon isotope, U-Pb isotopic ages and abundant conodonts to define the boundary. It was also decided that the base-Artinskian is ready to prepare a final proposal and vote by the SPS now that conodonts have been reproduced and carbon isotopes have been added to the excellent U-Pb dates as correlation tools. At both of these sections the Sr isotopes of conodonts have also been shown to be an accurate correlation tool. Finally, it was decided that the Mechetlino section in Russia is not satisfactory for a GSSP – samples did not yield conodonts, zircons are all reworked, and the rocks are too deeply weathered to produce meaningful carbon isotopic values. Two sections in the United States, which have already been extensively studied are now being considered as potential GSSPs using the same point (FAD of *N. pnavi*); these include the Cassia Mts in southern Idaho and Rockland sections in northern Nevada. We plan to complete proposals and vote for the base-Sakmarian and base-Artinskian early in 2010. We hope to complete the final GSSP for the base-Kungurian early in 2011.

Publications: The December 2008 issue of *Permophiles* (#52) was produced online during January 2009 and distributed as a .pdf document to a mailing list of 280. The June 2009 issue (#53) was produced in July 2009 during a conodont symposium at the University of Calgary. *Permophiles* #53 has three parts including: 1) the regular issue with an edited version of the field guide on Argentine Late Paleozoic, 2) the abstract volume for ICOS2009, and 3) the fieldtrip guidebook for ICOS 2009 on the geology of the southern Canadian Rocky Mts. We have a complete series of *Permophiles* on our website (1978 to 2009).

Meetings: The SPS conducted two business meetings including 1) at the end of a field expedition (Feb 16 to March 2, 2009) to Patagonia, Argentina at the Museo Paleontologico Egidio Feruglio in Trelew, Argentina and 2) during the International Conodont Symposium (ICOS) at the University of Calgary on July 14, 2009. These were reported in *Permophiles* #53.

Membership: There was one addition to the membership in 2009. During the business meeting in Argentina it was decided that the SPS should have more representation from countries where the Gondwanan succession is exposed. Dr. Nestor R. Cuneo from Argentina has agreed to become a voting member. We therefore now have 17 voting members representing Argentina (1), Australia (2), Canada (1), China (3), France (1), Germany (1), Italy (1), Japan (1), Russia (3), and United States (3). We also have five honorary Members.

6. CHIEF PROBLEMS ENCOUNTERED IN 2009

There were no major problems in 2009, but decisions to reject one of our potential GSSP sites will delay the completion of the SPS's GSSP activity.

7. SUMMARY OF EXPENDITURES IN 2009:

INCOME

University of Calgary (1): \$5,900.00

NIGPAS (2): \$2,100.00

Donations and ICS (3): \$ 2,000.00

TOTAL: \$10,000.00 (quoted in US\$ using 0.90 as the conversion from Canadian\$. (1) University of Calgary support from NSERC grant to Charles Henderson for travel to Argentina and from the Department of Geoscience as a subsidy toward ICOS2009 to support partial costs of some participants and business meeting and dinner. (2) NIGPAS (Nanjing Institute of Geology and Palaeontology) support from NSF-C grant to Shuzhong Shen for travel support to Calgary, printing and website costs. (3) Most of this from ICS with extra support for participants of the SPS Business Meeting at ICOS2009. 1 and 2 do not include costs of sample shipment, conodont processing, and isotope analyses in order to test the GSSPs.

EXPENDITURES

Printing, Mailing, and Web support *Permophiles*: \$1,100.00

Travel costs to Argentina \$3,400.00

Travel costs for *Permophiles* Production: \$2,100.00

Logistical costs for ICOS2009 SPS activities \$3,400.00

TOTAL: \$10,000.00 (quoted in US\$)

BALANCE: \$0.00

8. WORK PLAN, CRITICAL MILESTONES, ANTICIPATED RESULTS AND COMMUNICATIONS TO BE ACHIEVED NEXT YEAR (2010):

1. Production of *Permophiles* #54 in China during January 2010.
2. Vote on base-Artinskian in February 2010.
3. Vote on base-Sakmarian in April 2010.
4. SPS business meeting during ICS meeting in Prague May 30-June 3, 2010; the SPS executive plans to attend at this time.
5. Production of *Permophiles* #55 in Calgary during July 2010.
6. Completion of new GSSP proposal for base-Kungurian by December 2010 and vote in 2011.

9. BUDGET AND ICS COMPONENT FOR 2010 EXPENDITURES

Travel by Executive (Henderson, Davydov and Shen) to Prague ICS Mtg (1) \$7,500.00

Permophiles and GSSP proposals printing and postage and web \$1,250.00

TOTAL 2009 BUDGET \$8,750.00

Income

Support from University of Calgary (Henderson; NSERC) \$2,500.00

Support from NIGPAS (Shen; NSF-C) \$2,500.00

Support from Boise State (Davydov; NSF) \$500.00

Anticipated donations for *Permophiles* \$ 250.00

Requested ICS contribution (1) \$3,000.00

TOTAL BUDGET REQUEST (ICS) \$3,000.00

Request is for \$1000.00 to cover expenses for printing and postage for *Permophiles*, GSSP proposals, and some correspondence as well as website costs. In addition, SPS requests an extra \$2,000.00 to partially subsidize travel costs for participants to the ICS workshop to be held in Prague during May 30-June 3, 2010 (especially for Davydov).

10. REVIEW CHIEF ACCOMPLISHMENTS OVER PAST FIVE YEARS (2005-2009)

The SPS has approved the general divisions of the Permian and has now had 6 GSSPs ratified by ICS and IUGS (Asselian, Roadian, Wordian, Capitanian, Wuchiapingian, Changhsingian).

Proposals for the latter two stages were published in Episodes in 2006. Support for documentation (fieldwork and publications) of the various chronostratigraphic methods for the establishment of the GSSPs has been the most outstanding and differentiating character of this Subcommittee. Substantial work has been conducted toward producing excellent proposals for the remaining stages. *Permophiles* has become an internationally respected newsletter and bears an ISSN designation (1684-5927) and is deposited in the National Library of Canada; nine issues were published during the five year period. See Accomplishments in 2009 (above) for additional details.

11. OBJECTIVES AND WORK PLAN FOR NEXT 3 YEARS (2009-2012)

The primary objectives are to complete the GSSPs for the last three GSSPs (Sakmarian, Artinskian, and Kungurian); the first two early in 2010 and the latter early in 2011. We will continue to produce two issues of *Permophiles* each year. We anticipate the following schedule:

1. Production of *Permophiles* #54 in China during January 2010.
2. Vote on base-Artinskian in February 2010.
3. Vote on base-Sakmarian in April 2010.
4. SPS business meeting during ICS meeting in Prague May 30-June 3, 2010; the SPS executive plans to attend at this time.
5. Production of *Permophiles* #55 in Calgary during July 2010.
6. Completion of new GSSP proposal for base-Kungurian by December 2010.
7. A vote by SPS on the base-Kungurian proposal by March 2011.
8. Production of *Permophiles* #56 (Dec. 2010), #57 (June 2011), #58 (Dec. 2011), #59 (June 2012) and #60 (Dec 2012).
9. Business meeting at International Congress on Carboniferous and Permian July 2011; Perth Australia.
10. New SPS Chair to take effect at IGC in Brisbane in 2012.

Once the GSSP process is completed SPS will shift focus toward three directions beginning in 2011:

1. correlations into continental deposits,
2. correlations across provincial boundaries and within the Tethys region,
3. detailed documentation of the geologic evolution of the Earth during the Permian with respect to the established chronostratigraphic framework.

12. WEBSITE STATUS AND ACTIVITIES:

SPS website is located at <http://159.226.74.3:7006/web/index.asp>. This site is updated regularly and includes all back issues of *Permophiles* in downloadable PDF format (#1 in 1978 to #53 June 2009) as well as other information about SPS activities including annual reports, membership.... Shuzhong Shen at Nanjing China maintains the site and Henderson and Shen both have administrator rights.

13. FOUR YEAR SUMMARY OF ACTIVITIES:

GSSPs: The proposal for the base-Lopingian (base-Wuchiapingian) was ratified by ICS and IUGS in 2004. The proposal for the base-Changhsingian was voted and ratified by SPS in 2004. The proposal for the base-Changhsingian was voted and ratified by ICS/IUGS in 2005. The base-Wuchiapingian and base-Changhsingian (Upper Permian or Lopingian Series) GSSPs were published in Episodes (volume 29, No. 3&4) in 2006. Progress was made on the three remaining Lower Permian (Cisuralian) stage GSSPs including base-Sakmarian, base-Artinskian, and base-Kungurian. An international field excursion was conducted in early July 2007 (reported in *Permophiles* #49; p. 4-6) and samples for carbon isotopes, geochronology and biostratigraphy were collected and have now been processed. The geochemical samples will provide further correlation potential for the proposed GSSPs; these materials are being analyzed at Boise State University and the Nanjing Institute of Geology and Palaeontology. The biostratigraphy samples will determine reproducibility of GSSP definitions. Decisions have been made on the basis of this new work and this is described above in section 5.

Publications: The December 2003 issue of *Permophiles* (#43) was produced at Reston, Virginia in February 2004 and distributed to a mailing list of 280 from the University of Calgary later in the year. The June/December 2004 issue of *Permophiles* (#44) was produced at Pend Oreille, Idaho during October 2004 and was distributed in December 2004 from the University of Calgary. The June 2005 issue of *Permophiles* (#45) was produced at Nanjing China during June 2005 and distributed to a mailing list of 280. The December 2005 issue of *Permophiles* (#46) was produced at the University of Calgary during November 2005 and distributed as a .pdf on our website. In addition the remaining back issues of *Permophiles* were scanned and added to our website providing a complete series of communications by *Permophiles* since 1978. The June 2006 issue of *Permophiles* (#47) was produced at Nanjing China during June 2006 and distributed as a .pdf document to a mailing list of 280. The December 2006 issue of *Permophiles* (#48) was produced at the University of Calgary during November 2006 and distributed as a .pdf on our website. The June 2007 issue of *Permophiles* (#49) was produced at Nanjing China during June 2007 and distributed as a .pdf document to a mailing list of 280. The December 2007 issue (#50) was produced in January 2008 after a field excursion to Australia. June 2008 issue (#51) was produced in Calgary in July 2008. December 2008 (#52) was produced online in January 2009 and #53 was produced in July 2009 in Calgary. We now have a complete series of *Permophiles* on our website (1978 to 2009).

Meetings: The SPS conducted its annual business meet-

ing at the IGC meeting in Florence, Italy on August 23, 2004 with 23 people in attendance. This business meeting was preceded by a session on “The Lower Permian Cisuralian Stages” co-chaired by Boris Chuvashov and Charles Henderson. This was a successful session with six oral presentations and several posters that demonstrated clear progress in the definitions for the Cisuralian stages. Abstracts for these papers appear in *Permophiles* issue #44. The SPS conducted two business meetings in 2005 including at the Triassic Chronostratigraphy and Biotic Recovery meeting in Chaohu, China on May 23, 2005 with 27 in attendance and at the Non-marine Permian Conference at Albuquerque New Mexico on Oct. 23, 2005 with 28 in attendance. This latter conference was organized by Spencer Lucas and was very successful with 68 people in attendance from 12 countries. The SPS conducted one business meeting at the 2nd International Palaeontology Congress in Beijing, China in June 2006. The SPS conducted one business meeting at the XVI International Congress on the Carboniferous and Permian in Nanjing, China in June 2007 and is reported in *Permophiles* #49. Business meetings were held in Sydney Australia (January 2008; *Permophiles* #50) and IGC in Oslo (August 2008). In 2009 business meetings were held in Trelew Argentina and at ICOS2009 in Calgary.

Membership: During 2004 the voting membership of SPS saw considerable renewal. We have a completely new executive and six new voting members. In order to allow this renewal, a few members were asked to retire their voting status. The SPS executive has decided to name a new membership category, Honourary Members, to reflect the significant past and continuing contributions of these retiring voting members. The first Honourary Members are Professors Brian Glenister, Heinz Kozur, and Claude Spinosa. Honourary Members will receive GSSP proposals and be invited to comment on the merits of the proposal, but they will not vote on the proposal. The comments of Honourary Members will be included in subsequent versions of the proposal. Only one change in voting membership occurred in 2005. Professor Giuseppe Cassinis of Italy retired as a voting member and Dr. Marc Durand of Universite de Nancy, France was voted by the executive as a replacement. Two changes were made to voting membership in 2006. Dr. John Utting retired as a voting member and was named by the SPS Executive as a Honourary Member given his long service to the SPS (past Secretary) and distinguished research record in Late Paleozoic palynology. Dr. Lucia Angiolini was nominated by the executive to fill this vacancy. This increased the membership from Europe bringing it more in line with other major regions. Secondly, we sadly lost our distinguished colleague and friend Professor Jin Yugan who died in June 2006 (see *Permophiles* #48 for a tribute). His was a very distinguished career in Late Paleozoic paleontology and service including as a past-Secretary and past- Chairman of SPS. He has been replaced as a voting member by Professor Yue Wang. There were no changes to the membership in 2007, but as noted in the 4 year summary we have made several changes over the past four years. In addition, the current executive will continue for a second term. We currently have 16 voting members representing Australia (2), Canada (1), China (3), France (1), Germany (1), Italy (1), Japan (1), Russia (3), and United States (3). We also have five honourary Members. No changes in 2008. In 2009 we added one

new voting member, Dr. Nestor R. Cuneo from Argentina to add to our complement noted above.

Summary (2004-2009): In 2004 a new SPS executive was named including Charles Henderson as Chair, Vladimir Davydov as Vice-Chair, and Shuzhong Shen as Secretary. In terms of the voting membership, nine of sixteen members were new during the reporting period (56% renewal). SPS also instituted a new membership category, Honourary Member, and five individuals have been so named. SPS conducted five business meetings during the four year period at major international meetings. Two GSSP proposals for the base-Wuchiapingian (also base-Lopingian Series) and base-Changhsingian were prepared, voted, ratified and published in Episodes during the past four years. Significant progress has been made on the last three Cisuralian GSSP proposals for the base-Sakmarian, base-Artinskian, and base-Kungurian stages. An international workshop was conducted in July 2007 to determine reproducibility and accessibility as well as collect new geochemical data. During the reporting period, *Permophiles* #43 to #53 have been produced with #54 to come later this year. In addition, a website was constructed and hosted by the Nanjing Institute of Geology and Palaeontology during the reporting period. Among other items, this website has .pdf versions of all issues of *Permophiles* dating back to #1 in 1978.

APPENDIX

Officers and Voting Members as of November 2009

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