

1. TITLE OF CONSTITUENT BODY and NAME OF REPORTER

Subcommission on Carboniferous Stratigraphy (SCCS)

Prepared by Xiangdong Wang, Chair of SCCS; Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences, No. 39 East Beijing Rd., Nanjing, Jiangsu 210008, China; Tel: 086-025-8328 2188; Email: xdwang@nigpas.ac.cn

And by Barry Richards, former Chair of SCCS

2. OVERALL OBJECTIVES AND FIT WITHIN IUGS SCIENCE POLICY

The SCCS promotes and coordinates international cooperation among various geologic specialists for the purpose of defining standard global chronostratigraphic boundaries within the Carboniferous System. The Carboniferous (from ~358.9 to 298.9 Ma) has been subdivided into two subsystems, the Mississippian and the Pennsylvanian, and contains seven global stages. The GSSP for the Devonian-Carboniferous boundary is located on La Serre Hill in southern France (Paproth & Streel, 1984; Paproth *et al.*, 1991), the Carboniferous-Permian boundary GSSP at the top has been selected in northern Kazakhstan (Davydov *et al.*, 1998), and the mid-Carboniferous boundary GSSP is preserved in Arrow Canyon, Nevada, U.S.A. (Lane *et al.*, 1999). The immediate SCCS goals are to redefine the Carboniferous-Devonian boundary and select the best stage boundaries within the two Carboniferous subsystems to facilitate global correlation within the system.

3. ORGANISATION - interface with other international projects / groups

3a. Officers for 2016-2020:

Chair: Xiangdong Wang (China)

Vice-Chair: Svetlana Nikolaeva (UK)

Secretary: Wenkun Qie (China)

3b. Interface with other international projects / groups

The SCCS works closely with the subcommissions on Devonian (SDS) and Permian Stratigraphy (SPS) to establish the common boundaries with the Carboniferous. The SCCS expects to cooperate with the NSF-sponsored Chronos initiative, which has a website at www.chronos.org, and with the NSF-sponsored PaleoStrat community digital information system for sedimentary, paleontologic, stratigraphic, geochemical, geochronologic, and related data, hosted at Boise State University, and with a website at www.paleostrat.org. It also has established a more close relationship with the Geobiodiversity Database (GBDB, a large compilation of data about sections) hosted at Nanjing Institute of Geology and Palaeontology.

4. EXTENT OF NATIONAL/REGIONAL/GLOBAL SUPPORT FROM SOURCES OTHER THAN IUGS

5. CHIEF ACCOMPLISHMENTS IN 2016 (including any publications arising from ICS working groups)

- A potential index for the **Viséan-Serpukhovian Boundary** definition, the first evolutionary occurrence of the conodont *Lochriea ziegleri* Nemirovskaya, Perret & Meischner, 1994 in the lineage *Lochriea nodosa* (Bischoff, 1957) – *Lochriea ziegleri*, has been selected, but not voted on by the task group and SCCS for final approval. Work is well advanced at two prime GSSP candidate sections: the Verkhnyaya Kardailovka in the southern Ural Mountains of Russia

and the Naqing (Nashui) section in southern Guizhou Province, China. In the Cantabrian Mountains of northwest Spain, work continued on the Millaró and Vegas de Sotres sections, two other potential candidate sections for the GSSP. *L. ziegleri* appears in the Brigantian Substage of NW Europe somewhat below the current base of the Serpukhovian as defined by its lectostratotype section in the Zaborie quarry near Serpukhov in the Moscow Basin, Russia (Kabanov *et al.*, 2012, 2014a,b). *L. ziegleri* is most abundant in slope and basin carbonate successions and is rare to absent in shallow-shelf carbonates. Stable isotope stratigraphy and various fossil groups including foraminifers, ammonoids and rugose corals are being intensively studied to find auxiliary taxa and events suitable for correlating between shallow and deep-water successions.

- International workshop of the working group on the Bashkrian-Moscovian boundary was held in Saint Petersburg, Russia, during September 5-10, 2016. It was held in the Geological Research Institute, Ministry of Natural Resources and Environment of the Russian Federation. Totally 10 participants attended the workshop, including: Alexander Alexseev, Guel Sungatullina, Olga Kossovaya, Tatjana Isakova, and Svetlana Remizova from Russia; Xiangdong Wang and Yuping Qi from China; Tamara Nemyrovska from Ukraine; Alexadra Dzhenchuraeva from Kyrgyzstan; and Olga Ozlov-Lobkovsky from Israel. Participants discussed the index fossils for the boundary. Two conodonts taxa, *Declinognathodus donetianus* and *Diplognathodus ellesmerensis* are potentially index taxa. The advantages of *D. donetianus* for defining the boundary are clear lineage and easy identification, its disadvantage is not widely distribution, it is not yet discovered in South China and Midcontinent of US. *D. ellesmerensis* has advantage in widely distribution and easily recognized, its disadvantage is unclear ancestor. Fusulinids can be used as an auxiliary fossil group to define the boundary. *Depratinaprisca* is a first choice, and *Aljutovella aljutovica* is the second. The Basu section in Ural Mts and the Naqing Section in Guizhou, South China are two potential section for the boundary and the Gas Section in Kyrgyzstan is the another section worthy to pay more attention in defining the boundary.

- The Devonian-Carboniferous boundary redefinition task group held a workshop in Montpellier, France, September 20-22, 2016. Seven group members and about 20 other specialists working on the DCB attended this meeting and discussed the positive and negative aspects of five possible options for a redefined Devonian-Carboniferous boundary level, including the base of the Hangenberg black shale (main Hangenberg extinction event), glacial/or regressive peak (top of the Hangenberg sandstone), base of the *Protognathodus kockeli* Zone, first entry of *Siphonodella sulcata*, and the FAD of *Siphonodella bransoni* and their equivalents. Although no consensus about the DCB criterion has been made during this workshop, most participants agreed that the DCB index events should be lowered down below the current definition, i.e. the FAD of *Siphonodella sulcata* and above the base of the Hangenberg black shale (the main phase of Hangenberg extinction event). High-resolution and multiproxy stratigraphic analysis of the Devonian-Carboniferous boundary intervals around the world should be completed before the vote on the new DCB definition by the task group and SCCS.

6. SUMMARY OF EXPENDITURE IN 2016

Prepared by Barry Richards, former Chairman SCCS (Accounts maintained in Canadian currency)

| | |
|---|----------|
| a. | \$500.00 |
| ravel and conference registration support for SCCS Chairman to attend 35 th IGC in Cape Town (August 27–September 4, 2016) | |

| | | |
|--------------------------|--|-------------------|
| b. | | \$2,798. |
| | upport for D/C boundary workshop in Montpellier, France (Sept. 20-22, 2016)1,820.00 EU = \$2,798.13 Canadian | 13 |
| c. | | \$25.00 |
| | ank Charges: Bank of Montreal (wire transfer to M. Aretz for workshop) | |
| TOTAL EXPENDITURE | | \$3,323.13 |

7. SUMMARY OF INCOME IN 2016:

Prepared by Barry Richards, former Chairman SCCS (Accounts maintained in Canadian currency)

| | | |
|---------------------|--|-------------------|
| a. | | \$1,460. |
| | arryover (CREDIT balance at end Nov. 1, 2014-Oct. 31 2015 fiscal year) | 43 |
| b. | | \$4,088. |
| | UGS-ICS Grant-August 10, 2016: \$3,200.00 US = \$4,088.00 Canadian | 00 |
| c. | | \$0.00 |
| | onations from Members; November 1, 2015 - October 31, 2016 | |
| d. | | \$0.00 |
| | nterest Bank of Montreal; November 1, 2015 - October 31, 2016 | |
| TOTAL INCOME | | \$5,548.43 |

8. BUDGET FROM ICS IN 2016

PROJECTED EXPENSES

Support for voting members, executive, and students to participate in August 15th - 21th, 2017 SCCS conference and field meeting in Bolshoi Karatau Range, Kazakhstan

| | |
|--|-------------------|
| TOTAL PROJECTED EXPENSES | \$3,000.00 |
| INCOME | |
| Carryover (from CREDIT balance at end Nov. 1, 2015 - Oct. 31 2016 fiscal year) | \$2,225.30 |
| Estimated donations | \$00.00 |
| TOTAL PROJECTED INCOME | \$2,225.30 |
| BALANCE | |
| Estimated (deficit) /credit from above | -\$774.70 |
| BUDGET REQUEST FROM ICS for 2017 | \$800.00 |

9. WORK PLAN, CRITICAL MILESTONES, ANTICIPATED RESULTS AND COMMUNICATIONS TO BE ACHIEVED NEXT YEAR:

- A final report in Episodes needs to be published for the chosen GSSP of the Tournaisian-Viséan boundary in the Pengchong section, southern China, following its approval by the SCCS in late 2007 and its ratification by the ICS and IUGS.
- An index for the Viséan-Serpukhovian boundary needs to be voted on by the task group and SCCS in the next year.
- A joint workshop/field excursion will be organized by Prof. M. Sh. Omirserikov from the Academician Kazakh Academy of Natural Sciences in Bolshoi Karatau Range, Kazakhstan, August 15-21.

10. OBJECTIVES AND WORK PLAN FOR NEXT 4 YEARS (2016-2020)

- Within the next 4 years, it will be possible to select the defining events for all of the stage boundaries and progress toward selecting candidate sections for the GSSPs. We intend to use high-resolution biostratigraphy and combine it with a multi-discipline approach (use of sedimentology, geochemistry, and geological events) to establish as many of the remaining GSSPs as possible. The realistic objective is to have two GSSPs ratified in the next four years.
- We will encourage and pay more attention to finding volcanic ash beds for radiometric dating, in order to establish a more precise Carboniferous time scale and facilitate the correlation of important Carboniferous events at global scale.
- Using multi-discipline methods including palynological studies, U-Pb dating and stable isotope studies, we will further promote marine and non-marine correlation.
- We are going to organize at least one academic activity each year, either a workshop (maybe combined with conferences) or joint workshop/field excursion.
- To establish working groups on dividing the Tournaisian and Viséan stages because both of them represent too much time.
- To strengthen and to vivify the SCCS website, with membership lists revised, tasks and newsletters updated in time, making it a genuine platform to bring Carboniferous specialists together for collaboration and exchange of new ideas and results.
- Integrate the Carboniferous databases from the entire World, combining the Geobiodiversity Database (GBDB, a large compilation of data about sections) at Nanjing Institute of Geology and Palaeontology, the Paleobiology Database (a large compilation of data about fossils) at the University of Wisconsin-Madison, and other major databases, to facilitate the studies on Carboniferous biota and stratigraphy.

APPENDIX (Names and Addresses of Current Officers and Voting Members)

In addition to the three executive voting members, the SCCS has sixteen rank-and-file voting members.

Officers:

Chair: Dr. Xiangdong Wang

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Vice-Chair: Dr. Svetlana Nikolaeva

1. Department of Earth Sciences, the Natural History Museum, London, SW7 5BD UK; 2. UK & Paleontological Institute Russian Academy of Sciences Profsoyuznaya ul., 123, Moscow, 117997 Russia; E-mail: s.nikolaeva@nhm.ac.uk

Secretary: Dr. Wenkun Qie

Key Laboratory of Economic Stratigraphy and Palaeogeography, Nanjing Institute of Geology and Palaeontology, CAS, 39 East Beijing Rd. Nanjing, Jiangsu 210008, China; Tel: 086-025-83284308; E-mail: wkqie@nigpas.ac.cn

List of Regular Voting Members:

Dr. Alexander Alekseev, Geology Faculty, Lomonosov Moscow State University, 119991 Moscow GSP-1 Russia; E-mail: aaleks@geol.msu.ru

Dr. Markus Aretz, Université de Toulouse (UPS), GET (OMP), 14, avenue Edouard Belin 31400 Toulouse, France; Tel: +33 5 61 33 26 74; E-mail: markus.aretz@get.omp.eu

Dr. Ondrej Bábek, Department of Geological Sciences, Masaryk University of Brno, Kotlarska 2, 61137 Brno, Czech Republic; E-mail: babek@sci.muni.cz

Dr. Zhong-Qiang Chen, State Key Laboratory of Biology and Environmental Geology, China University of Geosciences (Wuhan), 388 Lumo Road, Wuhan 430074, China; E-mail: zhong.qiang.chen@cug.edu.cn

Dr. Natalva V. Goreva, Geological Institute, Russian Academy of Sciences, Pyzhevsky per. 7109017 Moscow, Russia; E-mail: goreva@ginras.ru

Dr. Hans-Georg Herbig, Universität Köln, Institut für Geologie und Mineralogie, Zülpicher Strasse 49a, D-50674 Köln, Germany; Tel: +49 221 470-2533; E-mail: herbig.paleont@uni-koeln.de

Dr. Tatiana Isakova, Geological Institute, Russian Academy of Sciences, Pyzhevsky per. 7109017 Moscow, Russia; E-mail: isakova@ginras.ru

Dr. Vera A. Konovalova, Russian Academy of Sciences, Profsoyuznaya 123 117997 Moscow, Russia; E-mail: konovalovavera@mail.ru

Dr. Lance L. Lambert, Department of Geological Sciences, University of Texas at San Antonio San Antonio, TX 78249; Tel: +1(210) 458-5447; E-mail: lance.lambert@utsa.edu

Dr. Spencer G. Lucas, New Mexico Museum of Natural History and Science, 1801 Mountain Road N. W., Albuquerque, New Mexico 87104-1375 USA; Tel: 505-841-2873; Fax: 505-841-2808; E-mail: spencer.lucas@state.nm.us

Dr. Bernard Mottequin, Royal Belgian Institute of Natural Sciences, O.D. Earth and History of Life, rue Vautier 29, B 1000 Brussels, Belgium; E-mail: bmottequin@naturalsciences.be

Dr. Edouard Poty, Service de Paléontologie animale, Université de Liège, Bât. B18, Sart Tilman, B-4000 Liège, Belgium; E-mail: e.poty@ulg.ac.be

Dr. Yuping Qi, Nanjing Institute of Geology and Paleontology, No. 39 East Beijing Rd. Nanjing, Jiangsu 210008, China; E-mail: ypqi@nigpas.ac.cn

Dr. Javier Sanz-López, Department of Geology, University of Oviedo, Arias de Velasco s/n 33005 Oviedo, Spain; E-mail: jasan@geol.uniovi.es

Dr. Katsumi Ueno, Department of Earth System Science, Fukuoka University, Fukuoka 814-0180 JAPAN; E-mail: katsumi@fukuoka-u.ac.jp

Dr. David M. Work, Maine State Museum, 83 State House Station, Augusta, ME 04333-0083; Tel: (207) 287-6635; Fax: (207) 287-6633; E-mail: david.work@maine.gov

Working group leaders and corresponding members

The SCCS has six current task groups and two exploratory project groups:

The joint Devonian-Carboniferous Boundary GSSP Reappraisal Task Group

Chair: Markus Aretz, Université de Toulouse (UPS), GET (OMP), 14, avenue Edouard Belin 31400 Toulouse, France; Tel: +33 5 61 33 26 74; Email: markus.aretz@get.omp.eu

Vice-Chair: Carlo Corradini, Dipartimento di Scienze Chimiche e Geologiche, Università di Cagliari, via Trentino 51, I-09127 Cagliari, Italy; E-mail: corradin@unica.it

Task Group to establish the Tournaisian-Viséan Boundary

Chair: George Sevastopulo, Department of Geology, Trinity College Dublin, Dublin, Ireland; E-mail: gsvstpul@tcd.ie

Task Group to establish the Viséan-Serpukhovian Boundary

Chair: Barry Richards, Geological Survey of Canada-Calgary, 3303-33rd St. N.W. Calgary, Alberta, Canada T2L 2A7, Tel: 1 (403) 292-7153; Fax: 1 (403) 292-4961; E-mail: barry.richards@canada.ca

Task Group to establish the Bashkirian-Moscovian Boundary

Chair: Alexander Alekseev, Geology Faculty, Lomonosov Moscow State University, 119991 Moscow GSP-1 Russia; E-mail: aaleks@geol.msu.ru

Task Group to establish the Moscovian-Kasimovian Boundary

Chair: Katsumi Ueno, Department of Earth System Science, Fukuoka University, Fukuoka 814-0180 JAPAN; E-mail: katsumi@fukuoka-u.ac.jp

Task Group to establish the Kasimovian-Gzhelian Boundary

Chair: Katsumi Ueno, Department of Earth System Science, Fukuoka University, Fukuoka 814-0180 JAPAN; E-mail: katsumi@fukuoka-u.ac.jp

Project Group on Carboniferous magnetostratigraphy

Chair: Mark W. Hounslow, Department: Lancaster Environment Centre, Lancaster University, Lancaster, United Kingdom LA1 4YQ; Tel: +44 (0)1524 510238; E-mail: m.hounslow@lancaster.ac.uk

Project Group on Carboniferous and Permian Nonmarine and Marine Correlations

Chair: Jörg W. Schneider, TU Bergakademie Freiberg, Geologisches Institut, Bereich Paläontologie/Stratigraphie, Bernhard-von-Cotta-Strasse 2, 09599 Freiberg, Germany; Tel.: +49 (0)3731-39-2856; E-mail: Joerg.Schneider@geo.tu-freiberg.de

Corresponding members

There are approximately 280 corresponding members at present, please check the latest issue of Newsletter on Carboniferous Stratigraphy for contact information.