

Centre International de Myriapodologie [CIM]
International Society for Myriapodology

Newsletter (March 2016)



Edited by Stylianos Simaiakis

The present CIM Council and Board 2014-2017

The present Council 2014-2017 comprises 10 members:

Greg Edgecombe (UK) **(President)**

Bruce Snyder (USA) **(Vice-President)**

Nesrine Akkari (Austria)

Julian Bueno-Villegas (Mexico)

Megan Short (Australia)

Stylios Simaiakis (Greece)

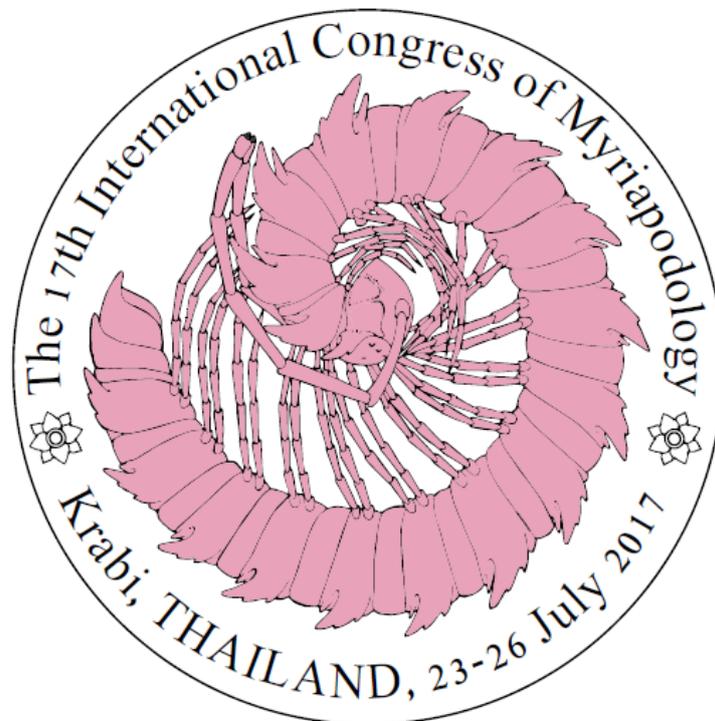
Pavel Stoev (Bulgaria)

Ivan Tuf (Czech Republic)

Karin Voigtländer (Germany)

Thomas Wesener (Germany)

Please note that The CIM Council and Board will be replaced in 2017 during the 17th ICM at Krabi (Thailand).



By Gregory D. Edgecombe, President of the CIM

Life of the CIM in 2016 will be dominated by planning for the 17th International Congress of Myriapodology in Thailand. Somsak Panha and his team in Bangkok have graciously invited us to Krabi in southern Thailand in July 2017 for our first Congress in Asia. This reflects the international membership of the CIM as well as the emergence of a thriving myriapod research group in Thailand over recent years. We are hopeful that the record attendance for a Congress reached in Olomouc in 2014 can be reached or exceeded in our tantalisingly tropical venue in 2017. Links to a new circular for 17th ICM will be available very soon.

The General Assembly at 16th ICM made the decision to shift congresses from their traditional three-year cycle to a two-year cycle. This reflects the accelerated pace of science in age of electronic publication, and a strongly held feeling that three years is too long between gatherings that we all enjoy. The future of CIM Congresses is assured because several colleagues from diverse parts of the world have signalled their willingness to host us in 2019 and 2021. Zoltan Korsós' kind offer to host 18th ICM in Hungary will be tabled at the General Assembly in Krabi, and we encourage our colleagues in Mexico, Brazil, the USA, and Taiwan to again signal their willingness to organise a congress. It is vital that we encourage our students and other early career researchers to participate in congresses so that we can link the past, present and future of Myriapodology.

One of the key outputs of the CIM is our congress proceedings volumes; likely every myriapodologist has a shelf on which the proceedings are arranged in chronological order, starting with Paris 1968. Our hosts at 16th ICM in Olomouc, Czech Republic, successfully steered two congress volumes to completion. The first volume, containing 18 research papers presented at Olomouc, was published as *ZooKeys* volume 510 in June 2015, edited by Congress organisers Karel Tajovský and Ivan Tuf. Karel and Ivan edited a second collection of eight papers for *Acta Societatis Zoologicae Bohemicae*, which will constitute its first issue for 2016. On behalf of the

CIM, I thank our colleagues for bringing these volumes to fruition (in as little as a year after the Congress) and allowing us the opportunity to publish our results. We also acknowledge the efforts of Pensoft for publishing our proceedings for a second time.

2015 was a challenging year for the CIM as we worked on the logistics of shifting our base from our traditional home in Paris to a dispersed base with hubs in multiple countries. Our long-serving Secretary, Jean-Jacques Geoffroy, has now formally retired from his post at the MNHN (Paris) but he continues to assist the CIM with connecting what we have done until now and what we can do in the future. I am grateful to our new Secretary, Stelios Simaiakis, and Treasurer, Hans Reip, for their efforts to steer the CIM across uncharted waters, and to Council for their input through the year. This Newsletter – our first wholly electronic version of what was formerly the Bulletin – is our first effort at making a document that serves the needs of our Members while also opening the CIM (and Myriapodology) up to a wider audience that accesses us electronically. We most gratefully accept feedback from Members (or others interested in Myriapoda) on features that would make the Newsletter better.

Message from the Secretary

Dear colleagues,

As you already know the Bulletin 47 was our last hard-copy bulletin. There is a new CIM website, at www.myriapodology.org, that presents an electronic version of the Bulletin, serving the role of keeping us informed about CIM activities and promoting and informing about myriapod science more broadly. The new website is hosted by the Senckenberg Museum in Görlitz. We would like to thank Karin Voigtländer and Peter Decker for their hard work in the content and design of the site.

Cordially,

Stylianos Simaiakis, Secretary of the CIM

**Report on the CIM General Assembly
held on Friday, 25 July 2014 Olomouc, Czech Republic**

By Jean-Jacques Geoffroy, CIM General-Secretary

[This report is the last one to be written and published by Jean-Jacques Geoffroy as General-Secretary. Further reports on CIM-General Assembly will be written and published by the new General-Secretary Stylianos Simaiakis]

Members of the CIM are formally invited to contribute to the General Assembly at Olomouc (Czech Republic) on Friday July 25, 2014 during the 16th International Congress of Myriapodology, in accordance with the agenda below.

To be valid, the General Assembly must comprise a minimum of 20 active members in good standing. Those unable to join the General Assembly can be formally represented by an active member should they provide a written statement confirming this representation.

Were present or represented:

Nesrine Akkari (Austria), Darina Bachvarova (Bulgaria), Lucio Bonato (Italy), Julián Bueno-Villegas (Mexico), Amazonas Chagas-Júnior (Brazil), Hsueh-Wen Chang (Taiwan), Chao-Chun Chen (Taiwan), László Dányi (Hungary), Jean-François David (France), Peter Decker (Germany), Jean-Marie Demange (France, represented by Jean-Jacques Geoffroy), Iurii Diachkov (Russia), Per Djursvoll (Norway), Petr Dolejs (Czech Republic), Greg Edgecombe (UK), Henrik Enghoff (Denmark), Aleksandr Evsiukov (Russia), Jean-Jacques Geoffroy (France), Sergei Illitch Golovatch (Russia), Joe Hannibal (USA), Cuong Huynh (Australia), Barbara Jäschke (Germany), Grzegorz Antoni Kania (Poland), Richard Desmond Kime (France, represented by Jean-Jacques Geoffroy), Markus Koch (Germany), Pavel Kocourek (Czech Republic), Mzia Kokhia (Georgia), Ana Komericki (Croatia), Zoltán Korsós (Hungary), Ivan Kos (Slovenia), Christian Kronmüller (Germany), Michalina Kszuk-Jendrysik (Poland), John Gordon Elkan Lewis (UK), Norman Lindner (Germany), Natdanai Likhitrakarn (Thailand), Oliver Macek (Austria), Jean-Paul Mauriès (France, represented by Jean-Jacques Geoffroy), Bjarne Meidell (Norway), Robert Mesibov (Australia, represented by Megan Short), Helena Valentinovna Mikhaljova (Russia), Andrej Mock (Slovakia), Carsten Müller (Germany), Pavel Nefediev (Russia), Julia Nefedieva (Russia), Monique Nguyen Duy - Jacquemin (France, represented by Jean-Jacques Geoffroy), Jan Philip Oeyen (Germany), Somsak Panha (Thailand), Piyatida Pimvichai (Thailand), Hans Reip (Germany), Jörg Rosenberg (Germany), Hilke Ruhberg (Germany), Megan Short (Australia), Stylianos Simaiakis (Greece), Bruce A. Snyder (USA), Andy Sombke

(Germany), Pavel Stoev (Bulgaria), Vladimir Sustr (Czech Republic), Nikolaus U. Szucsich (Austria), Karel Tajovsky (Czech Republic), Ivan H. Tuf (Czech Republic), Eivind Andreas Baste Undheim (Australia), Boyan Vagalinski (Bulgaria), Varpu Vahtera (Finland), Karin Voigtländer (Germany), Warut Siriwut (Thailand), Thomas Wesener (Germany), Nattarin Wongthamwanich (Thailand), Jolanta Wytwer (Poland), Willi Xylander (Germany), Roghaieh Zarei (Iran), Irina Zenkova (Russia).

In accordance with the rules of the CIM Society, the number of members contributing to the General Assembly is large enough to make it valid.

The assembly is opened by the President Greg Edgecombe according to the proposed agenda.

1 Opening Words and moral report by the President Greg Edgecombe during the CIM General assembly

Thank you for attending this Assembly and, in doing so, for your participation in the life of the CIM. As you've read in Bulletin 47, which you hopefully received a few weeks ago, a lot of changes are happening in the life of our Centre. Much of our discussion this afternoon involves some proposals for how best to deal with these changes.

The fact that 84 myriapodologists found time this summer to come to this charming city and devote five days to discussion about our animals is proof that there is still a place for the CIM in our scientific lives. The Centre had 157 members at the time of our last census (in Bulletin 47) and 17 new members will be proposed this afternoon from attendees at this Congress. Thus, a majority of CIM members are here with us in Olomouc. Over the past five days we have heard presentations and discussed posters that demonstrate the breadth of myriapodological research. We have seen that myriapodologists are at the coalface of new approaches to tackling questions in evolutionary biology, all the while respecting and building on our traditional strengths.

The level of participation in this Congress sends a clear, positive sign for our future. We have scheduled a discussion about the venue for the 17th ICM for later in this Assembly. Our colleagues in Thailand will offer to host us in 2017, and we will invite discussion about possible venues for the 18th ICM and even beyond. Fortunately, we have received expressions of interest from several countries that span the globe and reflect the diversity of countries that are now active participants in the life of the CIM.

Shortly, our General-Secretary, Jean-Jacques Geoffroy, will report on changes to the CIM Executive, which will lead us to discuss a succession plan for the roles of General-Secretary and Treasurer. Again, we are delighted to be able to report that two members have stepped forward and indicated their willingness to work for the CIM in these important roles.

Our Council had a large turnover in 2011 and most of the Councillors appointed for 2011-2014 are able to stand for reappointment for the next three years. The nine Councillors from the past Council have all agreed to continue in this role and a new nominee for Council will also accept the role if that is met with approval in the Assembly.

Bulletin 47 was our last ever hard-copy bulletin. Hopefully you've had a chance to road-test the new CIM website at www.myriapodology.org. We see the website being the natural host to an electronic version of the Bulletin, serving the role of keeping us informed about CIM activities and promoting and informing about myriapod science more broadly. We need thank Willi Xylander for kindly facilitating us being hosted by the Senckenberg Museum in Görlitz, and to Karin Voigtländer and Peter Decker for their hard work in the content and design of the site. We will propose that the role of Webmaster be formally recognised, and will inform you of a most qualified CIM member who has agreed to help us with this job. Bruce Snyder will tell us about developments from the web committee.

We all appreciate that the CIM would not have thrived for the past 46 years without the support we have received from our colleagues at the Muséum National d'Histoire Naturelle (Paris). Jean-Jacques Geoffroy and Monique Nguyen Duy-Jacquemin have served the CIM most admirably as General-Secretary and Treasurer, respectively, over many years. As Jean-Jacques will explain in a moment he and Monique will assist a new executive through a transition period over the coming year. Those attending the conference dinner this night should use the occasion to toast Jean-Jacques for the immense effort he has made to keep the CIM rolling.

One more team must of course be thanked for their contribution to the CIM. Our colleagues in Olomouc have provided us with a superbly organised meeting. When a conference runs so smoothly that it looks effortless it is in fact because somebody planned carefully and was working hard behind the scenes. Karel and Ivan and the team who kept us fed, caffeinated and Powerpointed all week have delivered the stimulating and friendly Congress that we anticipated.

The general assembly formally vote on this report

Against = 0

Abstention = 0

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The President's moral report is unanimously adopted.

The report will be sent to members by the General-Secretary. It would be of great interest to have the report on the General Assembly published in the future CIM Newsletter or website.

2 Introduction and activity report by the General Secretary

J.-J. Geoffroy

The Secretary Jean-Jacques Geoffroy introduces the General Assembly by reviewing the present situation and important decisions we have to consider or take.

This does not need any formal vote. The Secretary comments on the present and future of the CIM.

One main point is to think about the succession and the future of the Secretary position after Jean-Jacques Geoffroy. There being a candidate to serve as Secretary in the near future, the proposal is the following: we name and appoint Stylianos Simaiakis as General-Secretary while Jean-Jacques Geoffroy becomes Associate-Secretary until the end of 2015, in order to have a transition period. Stylianos Simaiakis confirms he is a candidate to the General-Secretary position.

A second main point is the succession and the future of the Treasurer position after Monique Nguyen Duy - Jacquemin. Hans Reip being a candidate to serve as Treasurer in the near future, the proposal could be the following: we name and appoint Hans Reip as General-Treasurer while Monique Nguyen Duy - Jacquemin becomes Associate-Treasurer until the end of 2015, in order to have a transition period. This point will be discussed and decided as point 4 of the General Assembly.

During an open discussion, it is also proposed to change the usual frequency between two successive ICMs and CIM General Assemblies, from a three-year period to a two-year period.

3 Renewal of the Council

This is one of the main points of the meeting.

The present Council 2011-2014 comprises 10 members (in alphabetical order)

Julian Bueno-Villegas (Mexico)	elected2011	reeligible2014	reeligible2017	NONreeligible 2020
Gregory D. Edgecombe (UK) P	elected2011	reeligible2014	reeligible2017	NONreeligible 2020
Robert Mesibov (Australia) VP	elected2005	reelected2008	reelected2011	NONreeligible 2014
Megan Short (Australia)	elected2008	reelected2011	reeligible2014	NONreeligible 2017
Stylios Simaiakis (Greece)	elected2011	reeligible2014	reeligible2017	NONreeligible 2020
Bruce A. Snyder (USA)	elected2011	reeligible2014	reeligible2017	NONreeligible 2020
Pavel Stoev (Bulgaria)	elected2011	reeligible2014	reeligible2017	NONreeligible 2020
Ivan H. Tuf (Czech Republic)	elected2011	reeligible2014	reeligible2017	NONreeligible 2020
Karin Voigtländer (Germany)	elected2011	reeligible2014	reeligible2017	NONreeligible 2020
Thomas Wesener (Germany)	elected2011	reeligible2014	reeligible2017	NONreeligible 2020

ARTICLE II – OFFICERS (edition 2007 of the CIM Constitution and By-Laws)

Section 1: 5 to 10 Council Members shall be elected by a majority of the votes cast by members in good standing in a ballot at the General Assembly.

Section 2: The President serve for three years, or until his successor is elected, and can be re-elected twice; his three-years duty period shall begin with the closure of one International Congress of Myriapodology and cease with the closure of the next International Congress. The President may serve an extra period if necessary.

Section 3: The Council Members shall each serve for three years. Their duties shall begin with the closure of one International Congress of Myriapodology and cease with the closure of the next International Congress. Council Members can be re-elected for one or two times.

Every present or represented members are invited to vote on a list of candidates.

The candidates are presently 10:

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Nesrine Akkari (Austria)	Julian Bueno-Villegas (Mexico)
Gregory D. Edgecombe (UK) P	Megan Short (Australia)
Stylianios Simaiakis (Greece)	Bruce A. Snyder (USA)
Pavel Stoev (Bulgaria)	Ivan H. Tuf (Czech Republic)
Karin Voigtländer (Germany)	Thomas Wesener (Germany)

The General Assembly votes immediately on this list. The ten candidates are unanimously elected as CIM Concillors 2014-2017

In accordance with the decision to move to a two year periodicity between two successive ICMs and meetings, the time-table for renewal of the Council becomes as below (in alphabetical order).

Nesrine Akkari (Austria)	elected2014	reelligible2017	reelligible2019	reelligible2021
Julian Bueno-Villegas (Mexico)	elected2011	reelected2014	reelligible2017	NONreelligible 2019
Gregory D. Edgecombe (UK) P	elected2011	reelected2014	reelligible2017	NONreelligible 2019
Megan Short (Australia)	elected2008	reelected2011	reelected2014	NONreelligible 2017
Stylianios Simaiakis (Greece)	elected2011	reelected2014	reelligible2017	NONreelligible 2019
Bruce A. Snyder (USA)	elected2011	reelected2014	reelligible2017	NONreelligible 2019
Pavel Stoev (Bulgaria)	elected2011	reelected2014	reelligible2017	NONreelligible 2019
Ivan H. Tuf (Czech Republic)	elected2011	reelected2014	reelligible2017	NONreelligible 2019
Karin Voigtländer (Germany)	elected2011	reelected2014	reelligible2017	NONreelligible 2019
Thomas Wesener (Germany)	elected2011	reelected2014	reelligible2017	NONreelligible 2019

4 Financial Report by the Treasurer and amount of the annual subscription

The financial balance 2013 has been prepared by the Treasurer Monique Nguyen Duy-Jacquemin and was published in the CIM Bulletin 47 sent to members. It has been sent to everyone as an attachment in electronic or postal mails. It was also exhibited on the CIM board during the congress.

During the General Assembly, the financial balance is presented by Jean-Jacques Geoffroy.

The general assembly votes on this report.

Against = 0

Abstention = 0

The financial report is unanimously adopted.

Regarding the succession and the future of the Treasurer position after Monique Nguyen Duy – Jacquemin, Hans Reip is named as a candidate to serve as Treasurer in the near future. Accordingly, the proposal could be the following: we name and appoint Hans Reip as General-Treasurer while Monique Nguyen becomes Associate-Treasurer until the end of 2015, in order to have a transition period. Hans Reip introduces himself and his candidacy is registered by the Council. During the transition period, the content of the cash and the savings account will be transferred to the current account, in order to facilitate the opening and transfer of the remaining funds to a new bank account.

An open discussion considers the Subscription for members in the future, according to previous discussions and proposals. It was proposed to cancel the subscription but the point is on the table.

It is proposed by the Treasurer to maintain the annual membership fees as 30 Euros per year.

The proposal is partly accepted but amended.

The amount of the CIM subscription for 2015 and beyond is 30 Euros for professional members being in active positions and 10 Euros for students.

The possibility to pay the subscription via a PayPal account will be explored.

5 Recent active members and new candidates for membership

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Presentation by the Secretary and agreement by the General Assembly.

We have in 2014 seventeen new candidates to CIM Membership:

Dragan Z. Antić (Serbia) [Supported by S. E. Makarov]
Darina Bachvarova (Bulgaria) [Supported by P. Stoev]
Aleksandr Evsiukov (Russia) [Supported by S. I. Golovatch]
Ana Komericki (Croatia) [Supported by P. Stoev]
Christian Kronmüller (Germany) [Supported by G. D. Edgecombe]
Michalina Kszuk-Jendrysik (Poland) [Supported by J. Wytwer]
Oliver Macek (Austria) [Supported by T. Wesener]
Paul Marek (USA) [Supported by W. A. Shear]
Jan Philip Oeyen (Norway/Germany) [Supported by T. Wesener]
Somsak Panha (Thailand) [Supported by H. Enghoff]
Gary Phillips (USA) [Supported by R. M. Shelley]
Warut Siriwut (Thailand) [Supported by C. Huynh]
Nikolaus Szucsick (Austria) [T. Wesener]
Eivind Undheim (Australia) [Supported by Carsten Müller]
Boyan Vagalinski (Bulgaria) [Supported by P. Stoev]
Varpu Vahtera (Finland) [Supported by G. D. Edgecombe]
Roghaieh Zarei (Iran) [Supported by L. Bonato]

The new candidates are presented and adopted by the general assembly as active CIM members.

6 Future Secretariat, Treasurer, Newsletter, Website and Bibliographic Centre

The President and the Secretary give information about these points and an open discussion is followed by formal decisions concerning:

- a new Secretary: Stylianos Simaiakis is definitively proposed as a candidate to the General-Secretary position 2014-2017 while Jean-Jacques Geoffroy becomes Associate-Secretary 2014-2015.
- a new Treasurer: Hans Reip is definitively proposed as a candidate to the General-Treasurer position 2014-2017 while Monique Nguyen Duy - Jacquemin becomes Associate-Treasurer 2014-2015.

– the editor of the electronic newsletter, in replacement of the CIM Bulletin. The General-Secretary will be the Editor of the CIM-Newsletter, to be sent to members and posted on the CIM-Website, in collaboration with the webmaster.

– the manager of the website and coordinator of the documentation and bibliographic center: Peter Decker is proposed as a candidate to the CIM-Webmaster position. He is presented by Greg Edgecombe and strongly supported by the General Assembly and the Web Committee. Bruce Snyder presents the new website and the new tools for communication. A section will be devoted to published papers. The CIM-Newsletter will be posted in the News-Section of the Website. Contacts for website: Peter Decker and Bruce Snyder.

All candidacies above will be formally examined and confirmed by the new council.

The CIM-Archives

Three categories of archives are preserved in the MNHN at Paris and Brunoy:

- Administrative and historical documents such as formal constitutions, letters to and from myriapodologists, items from congresses or meetings, questionnaires and bulletins;
- Financial documents related to bank accounts and financial reports;
- The stock of former CIM Bulletins.

These documents can be stored and preserved in the MNHN in the near future. They will be sorted and important ones will be preserved for the future and CIM Memory. Their definitive storage will be questioned in the future.

Part of the former oldest CIM Bulletins will be sent to Thomas Wesener for scanning. The CIM Bulletin n°1 will be sent to Karin Voigtländer.

7 17th International Congress of Myriapodology, 2017

Proposal for the 17th ICM in 2017 is formally discussed. We received one formal proposal from Thailand.

Professor Somsak Panha from Bangkok is in attendance at the Olomouc meeting and reiterates his group's interest in hosting the 17th ICM in Thailand in 2017. He is invited to present the project for Thailand. He shows a Powerpoint presentation on what they can offer us as a venue to Krabi in July 2017.

The General Assembly votes and decides to accept the proposal.

8 Further International Congresses of Myriapodology

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Proposals and comments for 2020 and 2023 (or 2019, 2021, 2023).

It has been decided to change the frequency of International Congresses and CIM Meetings, moving from a three year period to a two year period. However, we will stick with 3 years until 2017 and the 17th ICM in Thailand, then move to a 2 year frequency (2019-2021-2023,...).

Ideas for the future are emerging for Taiwan (Prof Hsueh-WenChang), USA (Dr Bruce Snyder), Hungary (Dr Zoltán Korsós), Mexico (Dr Julián Bueno-Villegas), Brazil (Dr Amazonas Chagas-Júnior).

Zoltan Korsós gives a formal proposal for Hungary in 2019, for a venue in Budapest or a smaller city in August, under the auspices of the Hungarian Natural History Museum.

Julián Bueno-Villegas gives a proposal for the venue of the 19th ICM in Mexico in 2021 or 2023.

9 Miscellaneous questions

Proposal from Edward Silvestri (USA) for a donation to CIM. The General Assembly is informed and the next CIM-Council will respond to the question. Bruce Snyder is proposed to manage the point in the USA.

Proceedings of the Congress Volume(s)

There are two opportunities for publication

- a special issue of Zookeys in open access with a page fee. Mainly for lectures.
- a special issue of Acta Societas Zoologicae Bohemicae without any page fee. Mainly for posters.

There will be an evaluation of the manuscripts by the reviewing committee.

It is also asked how to make public the former proceedings of former congresses and how to manage the online publications of proceedings.

Honorary members

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The present list of honorary members is:

Jean-Marie Demange (France), Wolfram Dunger (Germany), Kazimeria Gromysz-Kalkowska (Poland), Richard L. Hoffman (USA), Richard Desmond Kime (France), Otto Kraus (Germany), John G.E. Lewis (UK), Jean-Paul Mauriès (France), Alessandro Minelli (Italy), Stefan Negrea (Romania), Maija Peitsalmi (Finland), Ulf Scheller (Sweden),

Late Gordon Blower (UK),

Late Casimir A. W. Jeekel (The Netherlands).

It is reminded the three minimum conditions needed to be named an honorary member of the CIM : 1- To be alive ; 2- to be completely retired from a teaching, research or curatorial position ; 3- to have given valuable contribution to the CIM Society and/or myriapodology during the active period.

It is proposed to name honorary members of the CIM: Sergei Illitch Golovatch (Russia), Bjarne Meidell (Norway), Robert Mesibov (Australia), Monique Nguyen Duy-Jacquemin (France), Jörg Rosenberg (Germany), Hilke Ruhberg (Germany). The proposal will be presented during the farewell dinner.

Wolfgang Dohle (Germany) is also proposed and named an honorary member by the Executive Committee.

10 Closure of the general assembly

The general assembly ends and the President asks members of the new Council to meet immediately.

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A peer-reviewed open-access journal



ZooKeys

Launched to accelerate biodiversity research

PROCEEDINGS OF
THE 16TH INTERNATIONAL
CONGRESS OF MYRIAPODOLOGY,
OLOMOUC, CZECH REPUBLIC

BY IVAN H. TUF & KAREL TAJOVSKÝ



Scenosaenia linearis (C.L.Koch, 1835)

ZooKeys 510 ♦ 2015
Special Issue

<http://zookeys.pensoft.net>

Introduction for Proceedings volume of 16th International Congress of Myriapodology

Karel Tajovský, Ivan H. Tuf

Editorial

doi: 10.3897/zookeys.510.10176

Type specimens of centipedes (Myriapoda, Chilopoda) in the National Museum, Prague (Czech Republic)

Petr Dolejš

doi: 10.3897/zookeys.510.8636

First results of the German Barcode of Life (GBOL) – Myriapoda project: Cryptic lineages in German *Stenotaenia linearis* (Koch, 1835) (Chilopoda, Geophilomorpha)

Thomas Wesener, Karin Voigtländer, Peter Decker, Jan Philip Oeyen, Jörg Spelda, Norman Lindner

doi: 10.3897/zookeys.510.8852

Molecular-based estimate of species number, phylogenetic relationships and divergence times for the genus *Stenotaenia* (Chilopoda, Geophilomorpha) in the Italian region

Laura Del Latte, Francesca Bortolin, Omar Rota-Stabelli, Giuseppe Fusco, Lucio Bonato

doi: 10.3897/zookeys.510.8808

Steps towards a phylogeny of the pill millipedes: non-monophyly of the family Protoglomeridae, with an integrative redescription of *Eupeyerimhoffia archimedis* (Diplopoda, Glomerida)

Jan Philip Oeyen, Thomas Wesener

doi: 10.3897/zookeys.510.8675

Species limits and phylogeography of *Newportia* (Scolopendromorpha) and implications for widespread morphospecies

Gregory Edgecombe, Varpu Vahtera, Gonzalo Giribet, Pipsa Kaunisto

doi: 10.3897/zookeys.510.8573

Cave Diplopoda of southern China with reference to millipede diversity in Southeast Asia

Sergei Golovatch

doi: 10.3897/zookeys.510.8640

At the end of the rope: *Geophilus hadesi* sp. n. – the world's deepest cave-dwelling centipede (Chilopoda, Geophilomorpha, Geophilidae)

Pavel Stoev, Nesrine Akkari, Ana Komericki, Gregory Edgecombe, Lucio Bonato

doi: 10.3897/zookeys.510.9614

Millipedes faced with drought: the life cycle of a Mediterranean population of *Ommatoiulus sabulosus* (Linnaeus) (Diplopoda, Julida, Julidae)

Jean-Francois David, Mathieu Coulis
doi: 10.3897/zookeys.510.8838

Centipede (Chilopoda) richness and diversity in the Bug River valley (Eastern Poland)

Malgorzata Lesniewska, Piotr Jastrzębski, Marzena Stańska, Izabela Hajdamowicz
doi: 10.3897/zookeys.510.8763

Distribution of millipedes along an altitudinal gradient in the south of Lake Teletskoye, Altai Mts, Russia (Diplopoda)

Julia S. Nefedieva, Pavel S. Nefediev, Miroslava B. Sakhnevich, Yuri V. Dyachkov
doi: 10.3897/zookeys.510.8855

Centipede assemblages along an urbanization gradient in the city of Heraklion, Crete (Greece)

Gabriella Papastefanou, Eleni Panayiotou, Moïssis Mylonas, Stylianos M. Simaiakis
doi: 10.3897/zookeys.510.8414

Distribution of millipedes (Myriapoda, Diplopoda) along a forest interior – forest edge – grassland habitat complex

Dávid Bogyó, Tibor Magura, David D. Nagy, Bela Tothmeresz
doi: 10.3897/zookeys.510.8657

Hay-bait traps are a useful tool for sampling of soil dwelling millipedes and centipedes

Ivan H. Tuf, Vojtěch Chmelík, Igor Dobroruka, Lucie Hábová, Petra Hudcová, Jan Šipoš, Slavomír Stašiov
doi: 10.3897/zookeys.510.9020

New records of *Lophoproctus coecus* Pocock, 1894 (Diplopoda, Polyxenida, Lophoproctidae) extend the range of the genus *Lophoproctus*

Megan Short
doi: 10.3897/zookeys.510.8668

The current knowledge on centipedes (Chilopoda) in Slovenia: faunistic and ecological records from a national database

Blanka Ravnjak, Ivan Kos
doi: 10.3897/zookeys.510.8672

Interaction of the tracheal tubules of *Scutigera coleoptrata* (Chilopoda, Notostigmophora) with glandular structures of the pericardial septum

Gero Hilken, Gregory D. Edgecombe, Carsten H.G. Mueller, Andy Sombke, Christian S. Wirkner, Jörg Rosenberg
doi: 10.3897/zookeys.510.8644

Tentorial mobility in centipedes (Chilopoda) revisited: 3D reconstruction of the mandibulo-tentorial musculature of Geophilomorpha

Markus Koch, Johannes Schulz, Gregory Edgecombe

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On the function of the ultimate legs of some Scolopendridae (Chilopoda, Scolopendromorpha)

Christian Kronmüller, John G.J. Lewis

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A new dimension in documenting new species

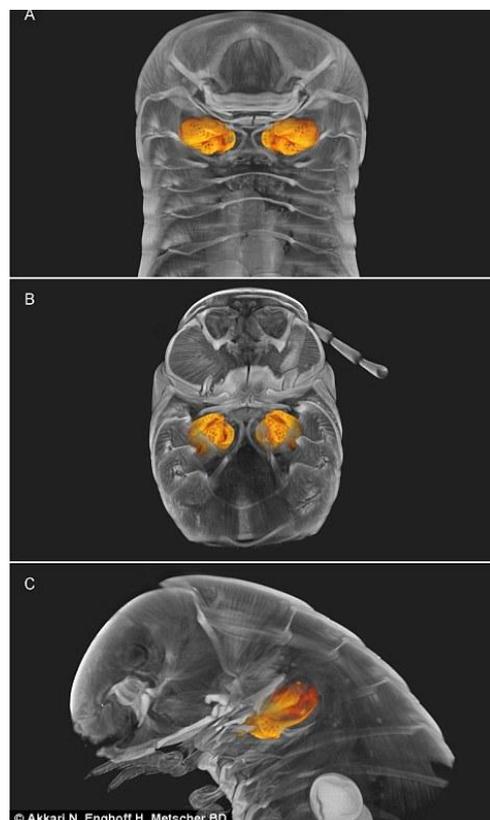
By Nesrine Akkari, CIM Councillor

It is blue, its name is “avatar,” and it’s virtual. The 3D cyber portrayal of a newfound millipede looks like it hopped from the screen of James Cameron’s “Avatar,” with a blue body and alien appearance to boot but it’s not a 10-foot-tall humanoid alien; it’s a new millipede species, and the first to have a “cybertype.” A cybertype represents a digital simulacrum of a physical type specimen: like an avatar in a computer game (or a blockbuster movie). This new millipede was dubbed *Ommatoiulus avatar* in recognition of its digital alter ego and was described with the aid of detailed 3D images of the actual type specimens and to be published with its cybertypes as an open-access resource.

Traditionally, taxonomic descriptions have almost always relied on drawings and photographs to record and distribute anatomical information that distinguishes different species. Modern 3D imaging technology provides not only a third dimension to the pictures, but also the means for sharing the information widely and allows the museum specimen to enter the world of web-based biodiversity research.

The use of virtual specimens demonstrates how much useful scientific data can be obtained without dissecting the original specimen, which is often unavoidable in studying millipede genitalia. At the same time it allows a general overview of the different anatomical structures and their natural position in unprecedented way. This species description is an example of how the practice of taxonomy need no longer be seen as old fashioned, but as a discipline that reflects the ways that knowledge is produced, shared, and used in our modern era.

These avatars or 3D representations will however not replace the actual types but will certainly add great value to natural history museums’ collections, especially of fragile and unique specimens. The published 3D



images have microscopic detail, with resolutions of a few micrometres, and can therefore be studied instead of the actual specimens by anyone in the world. Pictures, movies, and 3D image data of the cybertypes are available free at the Dryad digital repository, while the real holotype and paratype millipedes are safely ensconced in the Natural History Museums of Vienna and Denmark. These cybertypes are highly accurate 3D representations of the anatomy of the physical specimen, and they can be studied and repurposed by anyone.



Professor Henrik Enghoff from the Natural History Museum of Denmark emphasizes the enormity of the task facing taxonomists: "Almost two million species of living organisms have been scientifically described, but several times this number remain unknown to science. Each species has unique traits and plays a unique role in Nature, and if we want to know how Nature functions, we need to know the players in the game – that is, the species. By applying microCT to the taxonomic process of discovering, recognizing, and describing species we can do a much better job than before. The cybertype of our millipede, *Ommatoiulus avatar*, is so far a lone forerunner, but more will surely follow."

"It's particularly infuriating when you're trying to manipulate two or more tiny blobs floating in glycerin and somehow hold them at the same angle for examination and identification," said [Terry Wheeler](#), of McGill University's Lyman Entomological Museum. "A big plus to [3-D microCT] is that you potentially have much finer and

pinpoint control over the angle of view... the ability to scan internally, not to mention the exquisite degree of detail, is very cool.”

“This is a great example of why taxonomy isn’t static; it’s an ever-evolving discipline that changes with every technological advance... Images can be shared worldwide without the need (and inherent dangers and cost) to carry or mail ... rare specimens,” Wheeler added.

Crystal Maier, Insect Collection Manager for the [Field Museum](#), said “the real innovation is recognition that the specimen is not just the bug on the pin. It’s all of the data that goes with it too. We really need to start integrating data care when we are thinking about the care of collections... It is a good way to bring up the

conversation of whether ICZN should govern the deposition of associated data (including images, genomic data, etc.) as it does with type specimens.”

Thomas Wesener, myriapod curator in the Alexander Koenig Zoological Research Museum in Germany, agreed that mCT allows researchers to combine the publication of the species name with the online publication of a dataset, including photographs and scans of virtually all morphological characters that could be studied in the future and noted that there are other imaging techniques that provide even greater detail, including synchrotron micro-CT.



Dr David Yeates, Director of the Australian National Insect Collection,

says microCT techniques are useful in species identification, but are slower than traditional approaches. He says standard taxonomic techniques do not usually require dissection of the holotypes and are the fastest way to catalogue the large numbers of invertebrates that remain to be identified and included in biodiversity estimates. "These 3D images are lovely and are part of the mix that you need, but they're almost like the cherry on the top," he says.

Publication

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Akkari, Nesrine; Enghoff, Henrik; Metscher, Brian D. (2015). "A New Dimension in Documenting New Species: High-Detail Imaging for Myriapod Taxonomy and First 3D Cybertype of a New Millipede Species (Diplopoda, Julida, Julidae)". *PLoS ONE* **10** (8): e0135243. [doi:10.1371/journal.pone.0135243](https://doi.org/10.1371/journal.pone.0135243).

Links

<http://www.dailymail.co.uk/sciencetech/article-3214606/Inside-ALIEN-Incredible-3D-scans-reveal-new-species-millipede-stunning-detail.html>

<http://clapway.com/2015/08/30/researchers-have-created-a-3d-millipede-avatar/>

<http://www.livescience.com/51987-3d-millipede-avatar.html>

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<http://www.wired.com/2015/08/millipedes-now-3-d/>

<http://www.theverge.com/2015/8/26/9211555/millipede-3d-avatar-new-species-cybertype>

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https://en.wikipedia.org/wiki/Ommatoiulus_avatar

A centipede from hell

By Pavel Stoev, CIM Councillor

An international team of scientists has discovered the deepest underground dwelling centipede. The animal was found by members of the Croatian Biospeleological Society in three caves in Velebit Mts, Croatia. Recorded as deep as -1100 m the new species was named *Geophilus hadesi*, after Hades, the God of the Underworld in the Greek Mythology. Lurking in the dark vaults of some of the world's deepest caves,



the Hades centipede has had its name picked to pair another underground-dwelling relative named after Persephone, the queen of the underworld. Like most cave-dwellers, the newly discovered geophilomorph centipede shows

unusual traits, some of which commonly found in cave-dwelling arthropods, including much elongated antennae, trunk segments and leg claws. Equipped with powerful jaws bearing poison glands and long curved claws allowing to grasp and tightly hold its prey, the Hades centipede is among the top predators crawling in the darkness of the cave. The new species is yet another addition to the astonishing cave critters that live in the Velebit, a mountain that stretches over 145 km in the Croatian Dinaric Karst, which is as a whole considered a hot spot of subterranean diversity. The deepest record comes from the Lukina jama – Trojama cave system, which is 1431 meters deep and is currently ranked the 15th deepest cave in the world.

Publication

Stoev P, Akkari N, Komerički A, Edgecombe GD, Bonato L (2015) At the end of the rope: *Geophilus hadesi* sp. n. – the world's deepest cave-dwelling centipede (Chilopoda, Geophilomorpha, Geophilidae). In: Tuf IH, Tajovský K (Eds) Proceedings of the 16th International Congress of Myriapodology, Olomouc, Czech Republic. ZooKeys 510: 95–114. doi: [10.3897/zookeys.510.9614](https://doi.org/10.3897/zookeys.510.9614)

Photo credit: J. Bedek

Studying Millipedes in Tambopata, Peru

Please follow the video published on 2 Feb, 2016 in YouTube

<https://www.youtube.com/watch?v=MOJWEKjvAmU&feature=youtu.be>



Dr. Zoltán Korsós, Director of the Hungarian Natural History Museum, talks about millipedes around the Tambopata Research Center. Follow the website of the Hungarian Natural History Museum to see the announcement of an exhibition about Tambopata: <http://www.nhmus.hu>.

EDITOR'S NOTE: Here follows the first in what we plan to become a regular series of profiles and tributes to Honorary Members of the CIM, written by their close colleagues. Jörg Rosenberg became an Honorary Member at 16ICM in 2014. His friends and collaborators Carsten Müller and Gero Hilken share a well-deserved tribute to Jörg.

DR. JÖRG ROSENBERG, HONORARY MEMBER OF THE CIM

By C.H.G. Müller, Ernst-Moritz-Arndt University of Greifswald, Germany; Gero Hilken, Central Animal Laboratory, University Hospital Essen, Germany

Two grateful academic disciples are glad to have the opportunity to give thanks to one of our most important scientific advisors and mentors, Dr. Jörg Rosenberg. Both of us had the pleasure to meet him in the mid (G.H.) and late (C.H.G.M.) 1990s. Since then, we have been collaborating on various topics, however, not surprisingly, mainly circling around the ultrastructural organization of sensory and glandular systems in chilopods, explored with the aid of transmission electron microscopy. From the very beginning, there was no exact master plan behind our common research. On the contrary, it started based on a motivation that includes (1) the inspiration a morphologist gets from simply observing what animals do in the field or even in the lab (asking the biological role of structures, organs or entire body parts), (2) the curiosity and passion to solve hitherto persisting problems as posed by old, often ambiguous morphology-related literature, (3) the commitment to analytical thoroughness, imaging excellence and interdisciplinary thinking, and, probably most importantly these days, (4) the courage to conduct research on animals other than commonly accepted model organisms. In other words, working with Jörg resulted and still results in entering areas where truly no man has gone before. This is as intriguing as it is catchy. It caught us in full and we loved it. Many of our ultrastructural studies still await their publication but despite there still being much in the pipeline we have managed to launch no fewer than 70 publications since 2001. Our careers also took great benefit from this fruitful cooperation as we achieved two habilitations and up to now one professorship. These achievements would not have been possible without the constant, ongoing advisory and senior guidance of Jörg. What is more, we can proudly admit that without his support,

enthusiasm and great knowledge we never would have specialized in myriapodology in general and ultrastructure research in particular. And the story continues! This successful network of chilopod “ultramorphologists” has become bigger, new candidates were attracted, and it became international. We name only a few of his collaborators in the field of Myriapodology: e.g. G. Edgecombe (The Natural History Museum, London), A. Ernst (Friedrich-Schiller-University of Jena), H. Greven (Heinrich Heine University of Düsseldorf), G. Hilken (University Hospital of Essen), M. Koch (University of Bonn), C.H.G. Müller (Ernst-Moritz-Arndt University of Greifswald), W. Peters (†, Heinrich Heine University of Düsseldorf), G. Seifert (†, Justus-Liebig-University of Gießen), A. Sombke (Ernst-Moritz-Arndt University of Greifswald), and Ch. Wirkner (University of Rostock). To understand how Jörg was able to establish this kind of working group without having a powerful lab home base and third party funds it appears revealing to review some of his personal career stages:

Jörg Rosenberg was born on 25.1.42 in Soest, Germany. He studied Biology and Chemistry at the Georg-August-Universität Göttingen, at Köln University, and at Justus-Liebig-University Gießen. In Gießen, he met his doctorate supervisor Prof. Gerhard Seifert, who inspired him to carry out electron microscopic studies on his later favorite centipede, *Scutigera coleoptrata*. He obtained his Ph.D in 1974. His thesis was entitled: „Die endokrinen Drüsen im Kopf von *Scutigera coleoptrata* L. (Chilopoda, Notostigmophora).“ This was the origin of his pronounced interest in excretory systems – and transport epithelia in particular – as well as glandular structures. In the following years he became one of the leading scientists in the field of electron microscopy, functional morphology and Myriapodology worldwide, in spite of having to change his position several times. At a time when classical zoologist hardly found permanent positions in Germany, the credit belongs to him that he never lost sight of his favorite topics! He worked from 1975 – 1983 and from 1990 – 1991 as a scientific employee at the Zoological Institute of the University of Köln. In between (1983 – 1989) he finished the education as a student teacher. From 1991 – 2003 he worked again as a scientific employee, this time at the Ruhr-University Bochum, in the Department of Animal Physiology. After his retirement, G. H. hired him from 2005 – 2010 as a scientific freelancer at the University Hospital Essen, University Duisburg-Essen. By his talent, efforts and reputation, Jörg Rosenberg would have certainly deserved a professor position at any university. The fact that he did not get one but even survived a smaller period when he was deprived from working at a university in the late 1980s rather does not tell anything about Jörg’s merits as a scientist but reflects cruel impacts that economization and job cuts had on German universities at that time. Jörg stayed loyal to his scientific interests and TEM and, most importantly, he never lost his contagious sense of humor.

His lifetime publication record is enormous! He has published approximately 170 scientific papers, many of them placed in well-respected journals dealing with zoomorphology and evolution. Many of them found entry in proceedings of various CIM Congresses. 126 of them dealt with Myriapoda and Onychophora: Chilopoda (113), Diplopoda (9), Onychophora (4). The focus of his research has often involved endocrine and exocrine glands, nephridial- coxal- , and anal organs. However, he also contributed new data on the ultrastructural organization of sense organs (e.g. cuticular sensilla, eyes) as well as on components of the digestive tract (such as the pharynx apparatus in *Scutigera coleoptrata* and so-called liver cells in Diplopoda), the nervous system (dorsal heart nerve, myelin sheath), and tracheal and vascular structures. With the perivascular cells, he discovered a new cell type present in centipedes.

Of great value for all myriapodologists for sure is his masterpiece, the monographic "Die Hundertfüßer - Chilopoda" which was published in 2009 (524 pages, Westarp Wissenschaften, ISBN 978 3 89432 712 5). Since we first met him, he already collected thousands of reprints with the main focus on Chilopoda from the period 1651 to 2011. In November 2011, he donated this reprint collection to the Senckenberg Museum for Natural History in Görlitz. The impressive and accurately categorized reprint collection includes more than 4,000 titles from 1945 authors. More than 500 keywords are available in a complementary database. Thus, Jörg enabled future myriapodologists to conduct in-depth literature research in Görlitz, by having the pleasure to inspect originals! This inheritance probably marks Jörg's greatest trait, as he always argued that scientists, besides delivering papers and knowledge with flawless contents and well-comprehensible structure, should always mind their service to colleagues and public good. In his opinion, scientific offspring deserved a basis they can rely on without losing too much time in looking for proper literature. He certainly kept his promise and will inspire others to do the same.

Jörg Rosenberg visited, together with his lovely wife Barbara, nearly all CIM Congresses since 1978, gave inspiring talks, and has always been a very knowledgeable and supportive participant in discussions. As long as we have known him, there was not a single colleague we became aware of who did not appreciate or, as with us, got caught by his passion, competence and social skills. As outlined above, to us he represents a role model about how a professor should be - inspiring, careful, unpretentious and never arrogant, with an international focus, acting as a mediator between different cultures. So, the reader may have noticed, we are fans of a man to whom we owe so much. But to continue would contradict a further rule Jörg suggested to respect in life, namely staying modest and... never exaggerate! So, we are delighted that Jörg has received the merited Honorary Membership of the CIM.

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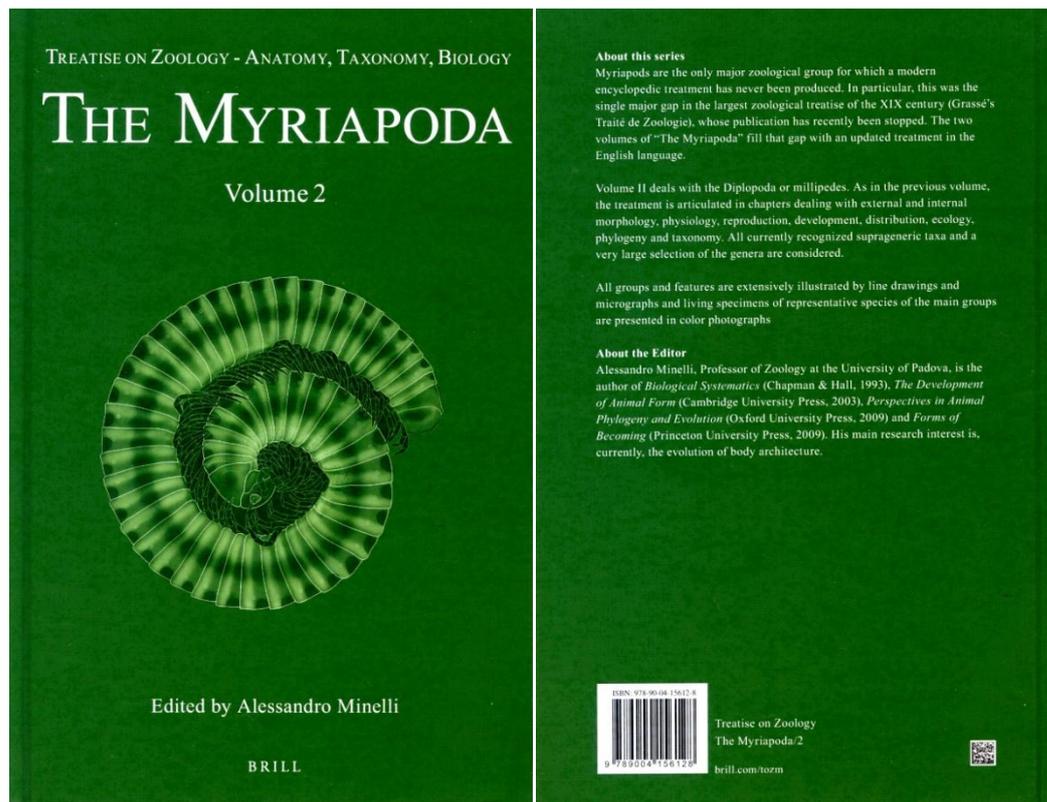
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