

Christian Peeters (1956-2020)

A collection of anecdotes from some of the many he influenced

For many researchers in Asia, and indeed the world, Christian Peeters was the inspiration for a graduate degree, a hobby, or research career in myrmecology. He was the guy who suddenly showed up and wanted to talk to you - whoever you were and wherever you were - about ants. Moreover, he did not only talk, but listen, and would listen with interest to anyone with a story to tell. Combined with his prodigious globetrotting, these skills made him a great connector, helping bring many ant researchers and their work to light and together.

Christian was also an editor of Asian Myrmecology in recent years and has long contributed to the journal as a reviewer. In celebration of his life, mentorship and enormous contributions to the globalisation of myrmecology, we include here some anecdotes from various contributors, from Asia and beyond, who had the opportunity to work with him.

Adam Cronin, Benoit Guénard
& Francisco Hita Garcia
Asian Myrmecology editorial core team



Johan Billen & Arthur Matte

As so many others, Christian Peeters as a young student had to find his way in the world of social insect researchers. His first experience at a big international meeting was at the 1982 IUSSI-congress at Boulder, Colorado. It was during one of the coffee breaks when Jacques Pasteels and Christian were having a chat, that Johan Billen joined this small Belgian encounter. Both Christian and Johan were PhD-students at that time (Christian defending his thesis in 1983, Johan in 1984). This first meeting was the start of a long friendship with several collaborative projects that resulted in 15 joint papers. Christian has also been very supportive and encouraging to young students. This is well exemplified by Arthur Matte, who is an ant-loving Bachelor student in Biology at the University of Rennes, France. After Arthur returned from a collecting trip in French Guyana to search for non-claustal founding Ponerinae in 2019, he contacted Christian for advice. Christian immediately accepted to guide Arthur in his exploration of the fascinating ant world, and through many skype and e-mail contacts patiently took the time to show him how to conduct a project and how to study colony foundation, as well as teaching him about the ant's internal anatomy. Arthur visited Christian's lab in Paris in December 2019, where they made arrangements for Arthur to do an internship in Christian's lab during May and June 2020, but the outbreak of the Covid-19 pandemia sadly ruined these plans. However, among the many teachings of Christian, he showed Arthur how to make longitudinal sections through a queen's thorax using a sharp razorblade to look at the flight muscles. With summer approaching, they developed the alternative plan to study the process of flight muscle histolysis in *Lasius niger* queens, as this species forms massive nuptial flights in June and July. To study the process histologically, they contacted Johan to join the project. Arthur collected some hundreds of newly mated queens, and started rearing them both to study the development of the incipient colonies and to prepare material at various time intervals for a histological study. Christian followed the initial stages of the project with great interest when thorax material was embedded, but unfortunately could never see the final result, that

Arthur and Johan proudly dedicate to him and that they are happy to present in this memorial issue of *Asian Myrmecology*.

Roberto A Keller

A characteristic of Christian Peeters' approach to science was the continuous openness to incorporate different areas of research into his own. He was, above all, interested in solving what he saw as mysteries within the world of ants using any means necessary. This meant Christian was constantly in the look for people to collaborate with and, more importantly, to learn from showing a humility often lost among senior academics.

I first met Christian when we both attended the XIV IUSSI-Congress in Sapporo, Japan, in 2002. As I was a graduate student studying ponerine ants, our mutual friend Donat Agosti thought that Christian and I should meet. By then Christian had already devoted a couple of decades studying these otherwise less popular ants, so our shared "niche" interest immediately became (almost another) couple of decades of close collaboration. Unlike Christian, to this day I remain stubborn in my focused interest in morphology. However, thanks to Christian, I came to see how important it is to view morphology within the wider picture of the whole biology of an organism and how crucial it is to help my colleagues understand my rather old fashion topic of study.

An example of Christian's positive influence on his colleagues was his fascination with thoracic morphology, which resulted in several collaboration projects with half a dozen people, some of which are still continuing after his sudden passing. This fascination started when I once showed Christian, causally, my amusement at a figure published in an old paper where the thoracic segments of an ant worker were mislabeled in comparison to that of the queen, pointing out to him that the authors' mistake was probably explained by the fact that the first thoracic segment in queens is tiny relative to the huge second one, but that this is the reverse in workers. What for me was a trivial, obvious anatomical matter, for Christian became a biological puzzle to be solved: if the worker thorax is not just a wingless version of that of queens, what function

does it have which will in turn explain its peculiar form? It was through such constant inquiries about the simplest of facts about organismal form that Christian kept my mind also spinning for answers. I will always fondly miss his need for explanation.

Gordon Yong

Christian and I first made contact in 2016, when he first came to Singapore for a project on *Dinomyrmex gigas*. Back then he had just finished a project about *Melissotarsus* and was interested to study *Rhopalomastix* in Singapore. With some luck I had just discovered a nest a *Rhopalomastix* in Singapore as part of my honours project. With his encouragement and mentorship what started as one observation in 2016 blossomed into a 4 year project across Thailand, Malaysia and Singapore. After a number of joint field sessions in Singapore in 2016 and 2017, we started with the description of the biology of *Rhopalomastix* in Singapore. In Singapore, we realised that *Rhopalomastix* was found in many mango and durian trees. Hence in 2018, Christian invited me to sample in a private mango plantation in Thailand

as we sought to find out more about the biology of this intriguing genus *Rhopalomastix*. He was very hospitable and kindly provided me with accommodation at his place in Bangkok throughout my stay there. The findings from this sampling led to the development of this project and manuscript.

I was very fortunate to have learnt from the very best, Christian's passion and excitement for ant research was evident with every interaction, we frequently exchanged long emails to discuss and share new discoveries about *Rhopalomastix* and many other ants. He was a true foodie and had an adventurous soul. I fondly remember us enjoying a bowl of Laksa and Fish soup in Singapore as well as Thai noodles from the local shop in Thailand and traditional Malay food in Peninsular Malaysia during our many field trips together. Christian was nurturing to younger scientists and selflessly shared his knowledge and passion with many in the Singapore through organized field work and conferences. I was invited to join him in the Anet conference in Thailand in 2019, where he shared about our research on *Rhopalomastix* in the region.

Please find below some pictures of Christian and the many friends that he mentored and shared his experiences with.



Rhopalomastix researchers – Christian, Weeyawat Jaitrong, Wendy Wang, Gordon Yong



Christian (Left), Gordon Yong (Centre), Mark Wong (right) sampling *Dinomyrmex gigas* in Singapore at night



Christian with Asian ant researchers at ANET 2019 conference in Thailand at dinner



Christian with Singapore researchers on a field trip in Peninsular Malaysia



Christian with *Dinomyrmex gigas* in Peninsular Malaysia

Fuminori Ito

The first meeting with Christian was in Sydney in 1989, when I was Ph.D. student and he was post-doc in the laboratory of Prof. Ross Crozier. After that, we frequently met in several places, e.g. the IUSI congress (Bangalore, Paris, Adelaide, Sapporo), my city Takamatsu, Belgium when I was visiting researcher in the laboratory of Prof. Johan Billen, and Bangkok where Christian had a nice apartment in the downtown. Especially during the last 10 years, after he had apartment in Bangkok, I often visited his place before or after my field work in southeast Asia, and he offered me one room in his apartment. Christian also often visited me in Japan, and we discussed many topics of ant biology. I was very impressed with the wide scope and pure curiosity of his “journey to ants”, from the reproductive biology of ponerine ants with gamergates to general natural history, including the functional morphology of ant

workers. Until about 2010, he loved only poneroid ants with gamergates and ergatoid queens, and was not much interested in other ants. He actually once said me “I hate formicines and dolichoderines ants”. However, his interests changed as the years went by. I will never forget the days when we wrote review papers together. Especially during writing the review of “winglessness in workers” (Peeters and Ito, 2015). Discussion with Christian was always stimulating, and I believe this was also the case for him. Actually, after the review paper, he started the investigation into miniaturization in ant workers. During the writing of this review, we promised to write the next review: ovary specializaiton in queens and workers. Just a few days before he died, we exchanged ideas about this review, and it was close to completion. I am now trying to continue and finish this last collaboration with Christian.



Christian and Fuminori at lake Toya in 2002

Adam Cronin

I first met Christian during my PhD when he visited Australia for the IUSSI meeting in Adelaide. At the time I was studying social behaviour in facultatively social bees, and Christian made it his mission to correct me of this folly and convince me to work on ants. In this, he eventually succeeded (at least in part) and, while I find myself still toying with bees, I owe it to him (and Thibaud Monnin) to have opened my eyes to the remarkable diversity of life-history strategies of the ants. This conversion was enjoyably enacted through encounters in sometimes odd places – a field excursion in Australia, a chance meeting in the Malaysian highlands, sharing a masala-dosa in Paris and tempura in Tokyo, ant hunting in southern France, or when I once fixed the window in his Paris flat in exchange for a fish curry. While we only co-authored one paper together (Cronin et al 2013), the long discussions put into this review with Christian and the other co-author remain an inspiration, while the numerous other chats held over beers or meals will always bring a smile.

Benoit Guénard

Back in 2006, I had just completed my Mphil thesis in Montréal, and while I was spending a few months in France before moving to North Carolina for my PhD, I had decided to attend the conference organised by the French section of the IUSSI in Avignon. At that time, I did not know any researchers from France or Belgium as I had left for Canada while still being an undergraduate student. I thus contacted the president of the French IUSSI section to know how I could register. The president was Christian and while I knew and admired his work, naturally he knew nothing of mine, but he kindly proposed to be my sponsor for me to register to the conference.

This is how I attended my first IUSSI conference and how I met Christian. He did much more than just offering his name as sponsor; but was also very friendly in welcoming me in the conference. I remember our first discussion during breakfast the first morning of the conference in which he patiently, but also passionately, answered my questions about colony foundations in ants. Christian had this incredible knowledge

about ants but also this way of asking challenging questions that force the interlocutor to think further about established paradigms. Christian also took his role as sponsor seriously and introduced me to some of the other researchers and students present and so started my journey meeting with great ant biologists. Without doubt, he made my first conference much more enjoyable and full of encounters with other researchers.

Later on, I met Christian again in 2010 and 2014 in Copenhagen and Cairns respectively for the IUSSI meetings. Once again, I enjoyed our discussion and the way Christian had to challenge established knowledge and identify detailed but important questions in ant evolution and behaviour. After Cairns, we flew to Borneo for the antcourse where Christian always had the same enthusiasm and curiosity in talking about ants and looking for them in the field.

In 2019, Christian visited the laboratory of Evan Economo in Okinawa, and incidentally I visited for a short while during the same period. One evening we went to an Izakaya famously known for the size of its beers and awamori (a local sake) with Georg Fisher, Cong Liu and Eli Sarnat. We had a great night full of laughter, anecdotes and stories about ants. I feel privileged to had the chance to share these moments with Christian, learn from him and I wish we would have more time for him to visit Hong Kong as we had discussed.

While many miss him, we have this great legacy of work that he published and all the students and researchers that he inspired, introduced to the fantastic world of ants and later supported. For all of those invaluable accomplishments, thank you Christian!

Kazuki Tsuji

‘Pure in heart like a boy’

I first met Christian Peeters at the IUSSI International Conference in Munich in 1986. At the time, I was a PhD student in Nagoya and Christian was a postdoctoral fellow in Ross Croizer’s lab in Sydney. Both of us were working on queenless ants, so we interacted with each other, but it was not until March 1990 - just after I got my PhD

and was accompanying my supervisor, Yosiaki Itô, on a field research trip to Australia for wasps - that we had a long discussion in earnest. Christian was debating on the definition of caste at the time, and our discussion naturally turned in that direction. In the 80’s, Japanese graduate students had very little experience in debating in English, so it was very difficult. This time, however, the debate became heated and both sides were not convinced, and the discussion stalled. I calmly explained my position, rephrasing my words. As a result, we found out that a simple mistake in my English had caused a misunderstanding. I realized the importance of English skills in science.

In the following months, Christian moved to Ito’s lab in Nagoya, Japan, where he became a postdoctoral fellow of the Inoue Foundation for a short period of six months. At the same time, I moved to Okinawa to become a JSPS postdoctoral fellow. However, since we were in Japan, we visited each other repeatedly during these six months. It was at this time that we began our joint research on *Diacamma*. In 1993, I moved to Würzburg, Germany, as a postdoctoral fellow of the Humboldt Foundation in Bert Hölldobler’s lab, and Christian was already a fellow in Würzburg at that time, so we became colleagues. He showed me around the city and gave me various advice on my research and life. I am most grateful to him for gently informing me of my supervisor’s concerns about my initial lack of progress in my research at Würzburg. I heard this story in Paris in the spring of 1994. It’s complicated, but at that time he was a fellow with double appointments in the laboratories of both Würzburg and Pierre Jaisson’s lab. at University Paris 13, and I visited Paris for a seminar. My supervisor probably thought, “This is not the time to go to Paris.” Thanks to Christian’s advice, I was able to rethink my research plan and proceed smoothly with my subsequent research.

There is an anecdote about the seminar in Paris. The aperitif I drank after the seminar made me faint, and the dinner was cancelled. During my stay in Europe, I had been suffering from hay fever in the spring and was taking allergy medication. I also took some additional cold medicine to prevent the symptoms from showing up during the seminar. I think these interacted badly with the alcohol.

I returned to Japan in 1995 and moved on to Toyama and in 2001 Okinawa. It was during this period that Christian became a CNRS professor at the University of Paris VI. In the early 90's, he was a self-proclaimed "ponerine ants geek," joking that "if I find an ant in the field, I will study it if it is primitive, but if it is an advanced one, I will stomp it out." But that was an old story. In reality, he has continued to expand his horizons far beyond this. He deepened his research into the morphological and social evolution of the entire Formicidae. I have the utmost respect for his ambition and his remarkable research in ant biodiversity.

In the process of expanding his scope, he traveled all over the world, mainly in Asia and Africa, and became a hub of communication among researchers. He visited Japan almost every year as well. I feel that it was his curiosity like a boy that made him the hub of people-to-people ties. When he visited Okinawa for the first time, he ignored my warning that it would be dangerous to swim along the coral reefs in sandals, saying, "Don't underestimate me from I'm from Australia!" and got cuts all over his feet. He loved sushi and eel, but hated wasabi, so he always "dissected" sushi to remove it. The last time I saw him in person was in 2019, when I treated him to eel in Naha. Christian, it was fun to live in the same period!

References

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