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Michener Centenary: Memories

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Abstract. In celebration of the centenary of Charles D. Michener's birth, the *Journal of Melittology* offers a sampling of memories from colleagues and former students.

INTRODUCTION

Today marks the 100th anniversary of the birth of Charles D. Michener (Fig. 1), easily the world's greatest melittologist of any generation. Mich, as he was known to all, was a remarkable scientist and humanitarian, and his beneficent influence was granted to anyone who encountered him, as well as to many who he never met in person. His scholarly work was extensive and encompassed virtually every subject regarding bees, as well as many other intellectual endeavors. Nonetheless, Mich's greatest contribution could not be scored by any academic metric. His greatest legacy resides in the numerous students he mentored and colleagues he encouraged, and the many kindnesses he distributed over the course of his long life.

The present contribution is not meant to be a panegyric or biography, and accounts of Mich's life and scholarly work have been published elsewhere in recent years (Banaszak, 2016; Breed, 2016; Engel, 2015, 2016a, 2016b, 2017; West-Eberhard & Engel, 2017). Instead, we offer here a selection of memories contributed by colleagues and former students of Mich, reflecting the multivarious ways in which he graced their lives. They are presented in alphabetical order by author and with only subtle editing where necessary.

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MEMORIES

Isabel Alves dos Santos, Brazil

I had the pleasure, or rather, the honor to meet Prof. Michener personally in 1999 when I went to spend a season in Lawrence, KS. The first time I met him was unforgettable. I, of course, was nervous because I was going to meet my great idol. He was kind, polite, and interested in meeting me. What an honor!

I believe that I have never spent time with a person with so many good qualities as Prof. Michener: very intelligent, but always humble to learn more, particularly with new students. Very generous, caring, willing to share all his knowledge and experience. Very human and worried about the well-being and health of everyone around him. In every way, Mich was a 10!

An exciting moment for me was to witness a meeting between Mich and Padre Moure after 30 years without seeing each other. This happened in Brazil at Encontro sobre Abelhas de Ribeirão Preto in 2000. Perhaps it was Mich's last international trip. They were both very anxious, and after the greetings, they did not stop talking! The admiration that existed between them was enormous.

Back in 1999, one of the gifts I took for Mich was a CD with music of Chiquinha Gonzaga performed by pianist Clara Sverner. He looked at it, admired it, and thanked me politely as always. One day, I went to have dinner at his home and met Mary Michener (his partner for 70 years!). Talking to them was a delight because they were very cultured, traveled, engaging, and humorous people. Then, at some point in the evening, I asked: did you like the CD? Mary, quick as ever and with her spicy sense of humor, said, "Ahh, Mich did not dare tell you, but we do not have a CD player at home!" Ha ha ha! This good humor and spirit reigned in Mich's life.

Finally, I would like to say that initially I admired Mich for being a true encyclopedia for bees. But, after sharing some moments with him, my greatest admiration was for his personality: gentle, polite, and humble, as a great scientist should be.

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John F. Barthell, Oklahoma, USA

I began as a graduate student at U.C. Berkeley during the mid-1980s, decades after Charles Michener was an undergraduate and graduate student there. Even after that many years, he was held up as a standard for the graduate students in our department, and I was regularly reminded by one of my thesis advisers, Howell Daly, himself a student of Michener, that he had completed his doctoral work on a new taxonomy of the bees in just three years. A portion of my dissertation work included a comparison between bee faunas (*Osmia* spp.) collected during my thesis (1987–1992) and from a much earlier collection (1937–1943) at the Hastings Natural History Reservation near Carmel, California. The original specimens were stored in an unorthodox manner: each placed within a gelatin capsule and unpinned. The capsules were then stored according to species within clear, glassine envelopes that were just large enough to cover a 3-inch by 5-inch index card that had (in most cases) the species determination but no collector information. These were stored in the drawers of metal cabinets in the Reserve's museum when I first located them. Though unconventional, this method of curation probably ensured the longevity of these specimens and my opportunity



Figure 1. Charles D. Michener in his Snow Hall office, June 1978 (photograph courtesy of George W. Byers).

to study them. After presenting the findings at the George Eickwort Memorial Symposium in April of 1995, Michener, who was in the audience, told me that he had collected these specimens as part of a student research project while at U.C. Berkeley. I was surprised at the coincidence since there had been no record that I could find of his presence at the Hastings Reservation during those years. Instead, I had assumed that the reserve director at the time, Jean M. Linsdale, a vertebrate biologist, had made



Figure 2. Charles D. Michener and Mary H. Michener in early morning light at their house in Lawrence, Kansas (Autumn 1983, photograph by James H. Cane).

the collection. Nonetheless, Michener gladly read the resulting manuscript before it was published but, in his inimitable style, asked not to be a coauthor, and only to be recognized with an acknowledgement. To this day, I think often about the influence Michener had on me through Howell Daly's mentorship as well as by being my unwitting collaborator, a half century earlier.

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James H. Cane, Utah, USA

Charles Michener (hereafter "Mich": Fig. 2) was a diamond, but since I'll fall into platitudes in describing the entire gem, let me relate some memorable facets about this man and mentor instead. First, when I toured universities for grad school, it was Mich who cleared off some of his schedule for time with me. That and the comradery of the grad students there led me to KU [University of Kansas]. Mich generally didn't share his political perspectives with me, but his bumper sticker, "U.S. Constitution: Love it or Leave It", at a time of mindless flag-waiving let me know where he stood. As we all know, Mich was soft-spoken, a detriment as a public speaker, but only once did I see him without words. That was when George Byers asked him to a mysterious "faculty meeting" where before us all he presented Mich with a cake and a box with galley proofs for a festschrift of JKES [*Journal of the Kansas Entomological Society*] assembled/typed on the sly by Joetta Weaver over many preceding months. He was speechless. Mich was no cook or mechanic. After field work, we sometimes shared peanut butter sandwiches at his house, to Mary's dismay. Mich's vocabulary was more expansive,



Figure 3. Charles D. Michener and Holger H. Dathe at the International Ethological Conference XX, Madison, Wisconsin, 11 August 1987.

ranging from the highly technical to the descriptor “crummy”. Mich’s taxonomic career started early. Bill Bell, presiding over a “Mich Roast”, showed copies of a grade school drawing by Mich of two ants, one black, the other red, each labelled accordingly! Mich had a special connection with Brazil and its bee biologists that began with Padre Jesus Moure, the other gentle melittological giant of the Americas. There is a story of them as young men hailing down a train in the Andes when Moure’s old car broke down in a remote mountain pass. The association continued with numerous collaborations and Brazilian students that he hosted, my first personal connection with the wonderful international bee community. Both men spawned extensive multi-generational academic families, including many of you, populated by friendly people that have aspired to reflect the many qualities of these two gentlemen.

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Holger H. Dathe, Germany

When I started my studies in Hymenoptera in the mid-1960s, I very soon encountered Charles D. Michener’s precisely and succinctly prepared papers on bees. I was instantly fascinated by his contemporary views on seemingly old-fashioned systematic problems of the sort that had fallen completely out of fashion in the “modern biology” (of German universities). Perhaps his early great success in Colletidae systematics was one of the reasons that I myself became particularly interested in this insect group, which at that time was largely neglected in Europe. However, in pursuing my own interests I felt morally supported by his studies, so that I ventured to deal with

such outdated things as intact organisms, even insects, and their behavior in my free time. Professionally, I worked as a behavioral biologist.

Today I am sure that many young scientists in Europe, like me, were encouraged by CDM's example to study apoid biology and systematics. In my opinion, this field offers some of the most fascinating challenges in modern biology. We now call it "biodiversity", which he had recognized long before as a key problem in environmental management and animal species protection.

At that time, I lived in the Eastern World and did not expect to meet him personally one day. My joy was thus immense after surprisingly finding his name on the speaker's list of the International Ethological Conference XX in Madison, Wisconsin, which I was able to attend in 1987. The photo (Fig. 3), which I contribute to this Festschrift, clearly shows my lucky situation: a discussion on *Hylaeus* nomenclature. The deepest impressions of my whole stay in America were gained as I got to know Michener not only as a very serious and dedicated scientist, but also as a friendly, generous, and open-hearted personality. Later, I sometimes had the occasion to ask for, and to cherish, his conciliatory support in difficult disputes. I am sure that he — and only he — could hold together in that way the very individualistic apidologists in favor of our *scientia amabilis*. I like to confess to Charles Michener's scientific school.

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Connal D. Eardley, South Africa

Living in South Africa I was unfortunate in not having the opportunity to get to know Mich personally. I met him once in 2002 on my way to the Bee Course, when I stopped over at the University of Kansas. However, soon after I began my career as a melittologist in 1977, Mich appeared to be the only person who read my articles in full — every one of them. This was evident from his comments, which were always encouraging. To have Mich take an interest in my work from 16,000 km away was my biggest inspiration in my research career. Not only did I know that I could strive to satisfy one person who read my work, but that person was Mich. Without him I would possibly have changed careers. When I met him he lived up to all that I had heard of his kindness. His personal interest in a young lady who had adopted him and Mary as her parents, daily he offered to lift me to my motel, which was a 10-minute walk from the lab, and offered to return just to lift me when he left the lab early, in his car with the seat belt attached to the door — something otherwise unknown to me.

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Fernando Fernández, Colombia

Many years ago I had my first contact by mail (the old mail system!) with Michener, and he was always kind, sending me many reprints and agreeing to receive and identify many bees. His answers to my questions were always quick with the kindness and courtesy so characteristic of him. In particular, he was very interested in the bees of the dry forests of Colombia, whose fauna seemed the richest and most interesting from the country. Also, many years ago, Mich agreed to work in conjunction with me on a Spanish version of his monumental book *Bees of the World*, reduced and adjusted

to focus exclusively on the Neotropical region. This idea resulted in a period of intense correspondence between us, as we worked to translate and augment the text.

Mich's contribution to the systematics and phylogeny of bees cannot be understated, and his knowledge of comparative morphology was exceptionally broad. Mich always answered any questions regarding his beloved bees, and he was one of the wisest and most generous entomologists to his colleagues and generations of students. His collection of bees in Kansas is an international reference for anyone who wants to study these hymenopterans. The best tribute to the memory of Mich will be contributions toward an increased understanding and preservation of these magnificent insects that live with us.

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Claus Rasmussen, Denmark

For as long as I have worked with bees, Professor Charles Michener, was the lighthouse. Or, as I soon learned, 'Mich', was the lighthouse when any topic touched upon bees. His accomplishment was not only the important *Bees of the World*, a book synthesizing all known information about bees in 2000, or the many hundreds of scientific papers he wrote leading up to that book. It was also his continuous generosity whether it would be for help with loan of specimens, location of references, identifications, editorial aid for manuscripts, or even career advice. He was always there and supporting in any way he could with his kind and clear analysis.

His experience was longer than for any other researcher (he began his life-long research on bees even before he turned a teenager), and his dedication and curiosity for natural history and bee biology was extremely inspiring to me. His good and courteous communication, exemplary scholarly insights and support — as that of a true gentleman of the past — is surely missed today.

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David W. Roubik, Panama

As a close friend who I esteemed highly but never saw, Mich was always an inspiration, for he set an example by what he accomplished and did. It is my conceit to have trodden some of the same paths and met with some of the same obstacles and delights, living in the Republic of Panama. Mich did this as an army entomologist in the early 1940s and, in 1954, assembled the monograph, *Bees of Panama*, published by the American Museum of Natural History. Mich visited me, as a graduate student during 14 months of field studies in French Guiana, three times. He delighted in field work, and was certainly of the 'old school'. For instance, on one occasion when he later visited me in Panama, after I began as full-time staff entomologist for the Smithsonian Tropical Research Institute, he was treating me to a farewell dinner at a pretty swanky seafood restaurant on Balboa Avenue. The waiter managed to dump an entire glass of ice water down my back. Mich still tipped him. Mich, who many have known, was a deep connection to a world of real science. If you were a bee person, there was

no further requirement. But he still had a few humble words of advice: Don't put all your eggs in one basket. I still think of him, and Mary, often.

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Luisa Ruz, Chile

It was during my stay at KU as a graduate student (1980–1986) when I had the opportunity to do bee research under the wise guidance of Dr. Michener as advisor, but also to spend time to learn more about him. When every midday he said, "It is lunch time", regardless how hot or cold it is was outside, a group of us followed him to the Memorial Union to share a simple soup or sandwich. However, the most important thing was not the food but his conversation about bees. So there was never wasted time, we were always learning something new from him.

I will never forget when, visiting the "bee house" where one of his students was working on her Ph.D. dissertation, Dr. Michener gently asked, "how are you doing?" She answered, "I have worked so hard using different kinds of formulas to solve this problem, but I cannot make it". He simply replied, "Let me see, maybe you can look at it this way". Astonished, she said, "Wonderful, I got it". For me that was just admirable!

In a conversation with Dr. Michener, right before the preparation of my orals, he said to me, "I would recommend you to read an interesting article of the *Ann. Rev. Ent.* vol. 24, 1979." I thought, how could he remember that? But, surprisingly the article was exactly where he said it would be found. His memory was fantastic. Moreover, after three years I had showed him some interesting features of one bee's genitalia and he could immediately recall the details.

One of the funniest situations I experienced during the early months as a student was when with enthusiasm I said, "Dr. Michener, last night I was dreaming with you". He smiled and with kindness explained to me why that expression was an idiomatic mistake. After that I always remembered the correct way to say it.

This is just a little sample of anecdotes from my time at KU, and of my admiration and gratitude to Dr. C.D. Michener — a great apidologist and a wonderful person. His scientific contributions and advice will last forever.

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Cory S. Sheffield, Canada

I was a Ph.D. student when the first edition of *The Bees of the World* was published in 2000. I had pre-ordered it as I knew Mich would be speaking at the joint meetings of the Entomological Societies of Canada and America in Montréal that year, and was super excited to meet him, and get my copy signed. A few of us drove from Nova Scotia to Québec in some pretty bad weather, me with my copy of Mich's book in my backpack. At the conference, I carried it with me every day until I met him. Thus, my first brush with celebrity was with one of the people who indirectly shaped my career, and not only did he sign his book, but he also took a few moments to talk about my research. All that I had heard was true, Charles Michener was an amazing person! My next interaction was soon after, when I re-discovered the cuckoo bee *Epeoloides pilosus*-

lus in Nova Scotia. I was corresponding with Mich via email about it, and asked if I could send the specimens to Kansas for him to verify. He was glad to do so, and I was happy to have him retain a specimen in Kansas (the other was sent to the Canadian National Collection). Although I only had the chance to meet him a couple of more times in person, both of these on visits to Kansas, these interactions, and more importantly, his published works, continue to inspire me, and likely many more generations of melittologists.

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Natapot Warrit, Thailand

Mich, at the age of 84, accepted me as one of his many students in bee systematics. I did not know much about bees and I wondered many times, “How in the world did a well-known and highly respected bee researcher like Mich want to train me?” This question surfaced frequently throughout doubts in my career, but resolved after a few months of working under his guidance. Mich was the humblest human being I have ever known. No matter who you are, smart or not, Mich provided opportunities for everyone who is interested in bees and science. His humility is one of the best characters of Mich that influenced many young minds for generations.

Mich introduced me to *Ceratinidia*, an obscure but abundant subgenus of small carpenter bees in Southeast Asia. That was the beginning of a career, which I now continue as an assistant professor in my homeland, Thailand. It has resulted in bee surveys of the Oriental fauna with the help of many young Thai students whose works expand to other groups such as *Amegilla*, *Megachile*, *Thyreus*, and *Xylocopa*. For Thailand, without Mich’s indirect initiatives, the study of bee diversity would never have taken off. I give all the credit to this loving, caring, and polite grandfatherly figure — which he deserved.

The only regret I have is that I met Mich late in his life. My first encounter with him was in 2000. If Mich was still alive, I hope he would be excited as I am seeing more people interested bees in Thailand today.

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Mark L. Winston, Canada

At one point early in my career I was recognized as the world’s expert in the labio-maxillary complex of the long-tongued bees. Admittedly obscure, this study nevertheless transformed my scientific career, not so much for the scientific findings as for the cultural lessons I learned from my mentor in the project, the eminent bee biologist Charles Michener.

What changed everything for me was the basistipital process, a tiny protuberance found on some long-tongued mouthparts but not on others. What made this structure important was that it differed in the highly social honey bees and stingless bees. Tracing its evolution back through more primitive bees suggested that each group had evolved social behavior independently, and therefore sociality had evolved not once but twice among the bees.

I quickly realized the important implications of the basistipital process. My next thought was more terror than exhilaration. Mich had published a 1944 paper describing the evolutionary relationships between all the bees, a monumental achievement that formed the bible of bee taxonomy for decades. If I was right, then Mich's classic study was incorrect. I would have to tell one of the greatest biologists of our time that he was wrong.

It was with considerable trepidation, and after much procrastination, that I made an appointment to see Mich and brought him my findings. I was well prepared with specimens and my arguments, but was surprised by his reaction.

Mich was fascinated rather than defensive. Without the slightest sign of disappointment, he said we needed to reexamine the honey bees and stingless bees to see if other evidence would challenge his 1944 conclusions.

We went on to look at other structures, particularly those on the legs used to collect pollen, and a wide range of social behaviors in the two groups, and eventually published a paper proposing the dual origin of highly social behavior among the bees (Winston & Michener, 1977).

That appointment with Mich, when he was open to evidence contradicting his own classic and much-cited work, changed my fundamental understanding of scientific culture. He modeled for me how science is not a right or wrong polarity but a continually evolving examination of new data. When the data contradict the theory, it's appropriate to dump even the most hallowed hypothesis.

And there is a postscript: when new molecular techniques became available, the results suggested that Michener's original taxonomy was correct, and our dual origin proposal perhaps was not accurate. It remains an ongoing issue in social insect biology, still with no definitive conclusion.

[Note: This article was shortened and excerpted from the book, *Listening to the Bees* (Winston & Saklikar, 2018).]

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Clare T. Wuellner, Texas, USA

I will leave to others the daunting task of encapsulating Mich's scholarly work. Some will surely talk about what a truly lovely human being he was. And he really was amazing. He offered to be my advisor after Byron Alexander died. I will be forever grateful to Mich for this.

When I think of Mich, there are always a few interactions that stand out to me. These interactions were noteworthy for their understated nature and big impact.

In the late 1990's, we were at the *Dieunomia triangulifera* site in Eudora, KS with a visiting grad student. Countless nest entrances speckled the ground. We watched as bees returned to their nest openings. I never tired of watching the bees — head-to-tail bright yellow with pollen — disappear into their homes. I remarked about this and how cute the bees were (not very scientific, but I couldn't help myself) and Mich said quietly with a small smile, "Yes, they are cute bees." Did I hear that right? The esteemed and scholarly world expert on bees, Charles Michener, just described a bee as "cute." This just melted me.

Unlike a lot of graduate students, I did not typically work on weekends, even as I finished my dissertation. On one Monday morning, as I stood assessing what to do first, Mich walked into my office and said a bit mischievously, “Oh! There you are.”
Message received.

The last “Mich-ism” will be recognized by anyone who spent time with him. Mich had a super-human scope and depth of knowledge, and understanding of too many things to list. Even so, he was never anything but the very soul of modesty. Ask him a question, and his answer was always thoughtful and exhaustive. His answers to questions regarding opinion, whether scientific or otherwise, were the best. Ask what he thought about such-and-such, and he would pause, tip his head, look thoughtful, and then always begin with, “It seems to me...”

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REFERENCES

- Banaszak, J. 2016. Charles D. Michener, world-famous entomologist and bee expert, has passed on. *Polskie Pismo Entomologiczne* 85(2): 177–180.
- Breed, M.D. 2016. Charles Michener, 1918–2015. *Apidologie* 47(4): 491–494.
- Engel, M.S. 2015. The bibliography of and taxa proposed by Charles D. Michener. *Journal of Melittology* 54: 1–109.
- Engel, M.S. 2016a. In memoriam: Charles D. Michener (1918–2015). *Entomologist’s Monthly Magazine* 152(1): 73–77.
- Engel, M.S. 2016b. Charles D. Michener (1918–2015): The compleat melittologist. *Journal of the Kansas Entomological Society* 89(1): 1–44.
- Engel, M.S. 2017. Charles D. Michener (1918–2015): A life among the bees. *Arthropod-Plant Interactions* 11(3): 243–247.
- West-Eberhard, M.J., & M.S. Engel. 2017. Charles D. Michener, 1918–2015. *Biographical Memoirs, National Academy of Sciences* 2017: 1–23.
- Winston, M.L., & C.D. Michener. 1977. Dual origin of highly social behavior among bees. *Proceedings of the National Academy of Sciences, U.S.A.* 74(3): 1134–1137.
- Winston, M.L., & R.S. Saklikar. 2018. *Listening to the Bees*. Nightwood Editions; Gibsons, Canada; 240 pp.



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