

Jean-Louis Camicas (1940-2017)

Obituary

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Figure 1 From left to right: Jean Paul Cornet, Beth Anne Schmidt, Hervé Zeller, Marc Wilson, Jean-Louis Camicas, Jean Paul Gonzalez.

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Massamba SYLLA

Jean-Louis Camicas passed away on September 24, 2017; he was 77 years old. With this passing, the Scientific World lost one of the best medical entomologists and last specialists of medical acarology. After graduating from Alfort Veterinary School in 1962, he joined the Department of Health of the Oversea Research Scientific and Technical Office (ORSTOM) in 1964 as an ORSTOM student and was already involved with the fascinating study of

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blackfly pre-imaginal stages, organisms that he became familiar with early-on and that he found passionate. After his training was completed in 1966 at the “anti tse-tse school” of Muraz Center, Bobo Dioulasso (Haute Volta), today the National Research Program for African human Trypanosomiasis Control, mentored by Doctor Jean Coz, ORSTOM asked him to lead the “tick-borne diseases” program. To take on this task, he trained in the laboratory of Professor Michel Lamontellerie, Medical Doctor of the Army, in Bobo Dioulasso, 1966.

His interest in studying the tick fauna of the Afrotropical biogeographical area, and more particularly the Occidental faunistic Sub-region, was then borne and his work became pioneering in the domain. His contributions on the subject are tremendous and span from this early stage until his retirement from the Laboratory of Medical Acarology, IRD Center, Montpellier. In 1966, Jean-Louis paid a visit to Professor Harry Hoogstraal’s Laboratory at the National Army Medical Research Unit (NAMRU) of the United States of America, in Cairo, Egypt, to improve his knowledge on tick (Ixodida: Argasidae, Amblyomidae and Ixodidae) taxonomy and bioecology. During this stay, Jean-Louis learned and brought back the technique for feeding and rearing Ixodina hard ticks, a technique that is still used today in French medical entomology laboratories. This stay at NAMRU, said our late Professor, was capital in his career. Professor Hoogstraal excelled on the subject of ticks and his 1,101 page monograph on African ticks, even though published in 1956, still remained a reference and took an important place in Jean-Louis’ library, first when he moved to Senegal in 1967, at the ORSTOM laboratory of Medical Zoology (hosted by the Pasteur Institute in Dakar), then in his ground floor office at the IRD Center of Montpellier, that he joined as an IRD Research Director, in June 1992. Moreover, during his training at NAMRU, Jean-Louis revised the group *leachi* Camicas, Hoogstraal & El Kammah, 1972 of the genus *Haemaphysalis*, members of “his Family”, the Amblyomidae. When Jean-Louis arrived in Senegal, Doctor Pierre Claude Morel had already been there since 1954 and had gathered a mine of information on tick presence (Acarina: Ixodidae and Amblyomidae) in Continental Ethiopian Africa, subject of his Ph.D. thesis defended in Orsay in 1969. In addition, the tick collection associated with this work was available at the Laboratory of Entomology and Protozoology in the Livestock Institute of Veterinary Medicine of Tropical Countries (Institut d’Élevage et de Médecine Vétérinaire des Pays Tropicaux-IEMVT) which Doctor Morel led from 1954 to 1965, known today as the National Laboratory of Parasitology Laboratory for Livestock and Veterinarian Research (Laboratoire National de l’Élevage et de Recherche Vétérinaire – LNERV) of the Senegalese Institute of Agricultural Research (Institut Sénégalais de Recherche Agricole-ISRA).

Their fates then overlapped, two passionate researchers studying ticks, their distributions and their host preferences. To better reach their objectives, they both had acquired strong backgrounds in botany, biogeography, systematics and the bio-ecology of terrestrial vertebrates, natural hosts of different tick species. Sadly, this creative outburst of Doctor Camicas was suddenly stopped due to a field-contracted infection; in 1972, a rickettsia-infected tick bite caused cerebral bleeding and severe disability. Admitted to the Val-de-Grâce hospital, he recovered from the infection, and after three long years of convalescence and reeducation, he returned with a strong will to his passion and became one of the most recognized researchers in acarology of his generation.

After returning to Senegal, Jean-Louis pursued a fruitful collaboration with Doctor Morel. « CAMICAS and MOREL », the « reference duo », produced several publications, the most distinguished of which being the revision of the systematic position and classification of ticks (Acarida: Ixodida) published in *Acarologia* in 1977, and the catalogue of Ticks of the World published in 1998 at ORSTOM Editions. When I met Jean-Louis in Dakar for the first time in February 1992, he was immersed in the database of the latter book, working on it early every morning, after “jogging” from his home on Emile Zola street to his laboratory at the Pasteur Institute in Dakar, and then again in the late afternoon hours, using a computer program conceived and developed by IRD researchers, François Adam (mammologist) and Jean-Paul Hervy (medical entomologist). 869 tick species are reviewed in this catalogue, their taxonomic status elucidated, their biogeographic distribution described and the major hosts given. What

sacrifice and tenacity! As he guided and trained me to work on Senegalese soft ticks (Ixodida, Argasidae), a subject that he and Morel wanted to investigate themselves, we were able to add fourteen Argasina species to the list, including a new species, *Alectorobius (Reticulinasus) camicasi*, that I dedicated to Jean-Louis in 1997. Together, we traveled every Tuesday, to his research station in Bandia, where he was interested investigating tick vectors of Crimean-Congo Hemorrhagic Fever virus (FHC) and the potential reservoirs of this virus, two bird species, the Red-Billed Hornbill, *Tockus erythrorhynchus* Temminck, and the Long-Tailed Glossy Starling, *Lamprolornis caudatus*, P.L.S. Müller.

It is under these circumstances that I learned to appreciate a humanist, who generously shared knowledge, and an incomparable pedagogue in the art of differentiating and diagnosing ticks. Jean-Louis set up a reference collection of ticks in the IRD Laboratory of Medical Zoology and was always available to train young acarologists in systematics. He was particularly humble and welcoming.

J.-L. Camicas was a reviewer of the scientific journal *Acarologia*, member of the West African Society of Parasitology, and the Integrated Consortium on Ticks and Tick-borne Diseases (ICTTD). He was passionate about fine art and classical music and enjoyed listening to Beethoven's symphonies while relaxing. Promoted to IRD Emeritus Research Director in 2001, he retired in 2002, after 38 years dedicated to improving our knowledge in acarology. Jean-Louis Camicas died in his home, 2 bis rue de Verdun, 34000, Montpellier, leaving orphan his native city of Agen (Lot-et-Garonne, Aquitaine region) in South West France where he was borne on April 5, 1940, his IRD colleagues and friends, and the worldwide community of acarologists.

Jean-Paul GONZALEZ

I knew Jean-Louis Camicas, the man of science, long before knowing the true man. We initially met when I first moved to the Pasteur Institute of Bangui in 1979 as an ORSTOM trainee researcher needing to learn and understand entomology *sensu lato* to study arthropod transmitted diseases from beginnings as a microbiologist. In this year, along with my medical entomologist and acarologist colleagues and with Jean-Louis as a leader, we initiated a study of tick vectors that would last for the next twenty years and more. Under Jean-Louis' leadership, our team initiated the first study conducted at ORSTOM on rickettsiae, which then led to indepth work on viruses and other tick-transmitted parasites. Later, in 1987, when we met and worked together at the Pasteur Institute of Dakar, we developed a deep and lasting friendship that would never be broken. It is at this time that Jean-Louis joined our pluridisciplinary research unit where he initiated all of us, IRD virologists and acarologists alike, to the art of growing pathogens in cell culture, feeding ticks with infected blood meals, and monitoring the outcome of these experimental infections using immunological techniques and microscopy to study the outcome of transstadial pathogen transmission pathways. Moreover, Jean-Louis first described the neutralization technique with ixovotoxin to inoculate tick eggs into newborn mice in order to isolate virus from the eggs, and ultimately demonstrate trans-ovarian transmission of these viruses within arthropods. This was a tremendous step forward in our knowledge of arbovirology.

From Senegal to Gabon, via Thailand, Jean-Louis Camicas always followed us with his advice and enthusiasm and thus helped push for scientific progress in our diverse disciplines. Lastly, among my most treasured memories were those Friday afternoons, after our Professor's acarology classes at the Pasteur Institute of Dakar, when Jean-Louis would feed his other passion, that for classical music: what a pleasure to take the ferry to Gorée island with some friends, and listen to chamber music under the starry sky of the tropics!

Thanks, Jean-Louis, my friend, for those unforgettable moments!

Jean-François SALUZZO

I keep a touching memory of the numerous and enriching mornings I spent in Jean-Louis' office at the Pasteur Institute in Dakar, before our coffee break with the ORSTOM team. Jean-Louis greatly admired Sir Harry Hoogstraal, and gave me the honor of sharing the astonishing bibliography given to him by Hoogstraal which contained thousands of documents translated from Russian, related to Crimean-Congo Hemorrhagic Fever virus epidemiology among other subjects. Jean-Louis told me the story of the Russian Professor, Mikhail Petrovich Chumakov (discoverer of the CCHF virus), who came to Senegal to study CCHF virus epidemiology. He was particularly impressed to discover that Chumakov hunted birds with a throw-stone in order to blood sample them for serological study (!). A few years later, due to Jean-Louis' expertise, we described an important CCHF focal area in Senegal; it was the first proven evidence of CCHF virus hemorrhagic fever documented in Africa. We received a congratulatory letter from Sir Hoogstraal himself!

Xavier POURRUT

When I was first appointed in ORSTOM Senegal in 1994, I did not know Jean-Louis Camicas, eminent researcher and one of the rare ORSTOM veterinarians. I remember that, while traveling for the numerous field studies that I had to do at that moment, I usually made a stop at Bandia to "feel" the environment; everybody there had fond memories of « Dr Jean-Louis » and a particular atmosphere prevailed in Bandia around the research station, a wood-cement made home, a little broken, but still religiously conserved by the villagers.

When I returned to Montpellier in 1998, I was office-less, and had the luck to be able to closely interact with Jean-Louis over several months after he generously offered to host me in his office. I was then able to watch the researcher daily behind his computer, with his huge database, and a hill of documents around him. Naturally, he taught me taxonomy and about the main African tick vector species, but also several other things; he always had stories to tell that I found particularly passionate, because they always focused on our field sites and the epidemiological implications of animal pathogen reservoirs, elements which have remained the linking theme of my research throughout my career. From him, I learned to be rigorous, because he accorded prime importance to the exact referencing of all tick specimens, collections and bibliographic notes. I always wondered how he was able to spend hours on a specific detail, crossing data until being absolutely certain. I can still hear his limping walk, vestige of cerebral bleeding caused by a rickettsiosis infection, a testament to his intense implication in his work! It was only during my second stay in Senegal, starting in 2002, that I really started working on ticks. I then met Massamba Sylla, who was probably his most attentive and assiduous student. Together we followed Jean-Louis' footsteps in the field, collected many tick specimens and we always respectfully associated him in our research and publications.

Coming back regularly to Montpellier, I never failed to spend a moment in his office, on the ground floor of the building. I remember meeting some of his friends and colleagues there, notably Jean-Paul Gonzalez, who also came during each of his stays in metropolitan France, between two overseas territories. I often asked Jean-Louis for advice and I particularly liked his letters, always written in impeccable French, almost from another era. Sometimes I opened the dictionary to better understand the meaning of certain words... and waited several months for an answer that he had stored in his mailbox, the immediate memory of certain things sometimes played tricks on him. Jean-Louis was a friend, an older (veterinarian) brother and I often thought of him in the field. I have fond memories of his happy disposition, his generosity and his humour.

Gerrit UILENBERG

I didn't personally meet Jean-Louis Camicas very often, but I always admired his tenacity, his concentration and the work he achieved, despite his disability. The 1998 catalogue is still

considered as a database and reference of taxonomic knowledge, not only on ticks of Senegal and Africa, but of the entire world. This is certainly not the last word in this evolutionary domain, and molecular methods are already adding new light to this pioneering lifetime work.

Jean-Paul CORNET

I met Jean-Louis Camicas in 1968 at the Pasteur Institute in Dakar, but I only interacted closely with him from 1972 onward, when I was his intern at ORSTOM Bondy for seven months. This meeting changed my life because he was not only my thesis director, my teacher throughout my career, but also an understanding friend on whom I could count in various circumstances. After my introduction to tick systematics in his laboratory at ORSTOM Bondy, I joined the research team at the Pasteur Institute in Bangui, Central Africa, to work on *Amblyomma variegatum* under his supervision. Despite the distance that separated us at that time, he always knew how to answer my various questions quickly and guide me in my research. I cannot forget the key literature he sent me by mail. On my way to Bangui, he offered me "African Ixodoidea" by H. Hoogstraal, a "bible" in our profession. Over my journey with him as a PhD student, he directed my writing. For him, each word, each comma, had a precise meaning. He adored the role of letter-writer and narrator, because there were always anecdotes to tell, and one could always recognize Jean-Louis in his so precise and legible personal writing style. When I later joined him at the Pasteur Institute in Dakar to work with him on the Crimean-Congo Hemorrhagic Fever program, he taught me rigor, as well as to observe certain details which, to my eyes, seemed insignificant... but it was from these details that I learned to differentiate certain species. I can only express an immense thank you to this Master that was Jean-Louis; I feel lucky that our paths crossed.

Dominique CUISANCE

As a researcher from the Centre of International Cooperation for Research in Agriculture Development (CIRAD), I worked for seven years at the IRD of Montpellier where I met my good veterinary colleague Jean-Louis Camicas, whose office was close to mine. Born in Agen in 1940, his father was a veterinary surgeon, which attracted him to the profession but through an original career path. After graduating from the Alfort Veterinary School in 1962, he was recruited by ORSTOM where he began a brilliant career as a researcher after a Master in Biology/Entomology. He specialized on ticks and tick-borne diseases, working on the epidemiology of these diseases and, in particular, haemorrhagic fevers, including Crimean-Congo haemorrhagic fever, and rickettsioses (to which he would later pay a heavy price with a locomotor handicap).

He stayed several years in the laboratory of Dakar, Senegal for his field and laboratory research, later returning as Research Director to the new IRD center in Montpellier, where he supervised the work and theses of several students. Great French taxonomist of ticks, many are those who called upon him to benefit from his expertise. A very cultured man, he was an informed music lover, optimistic, warm, modest and always ready to help. After a few months of an incurable illness, he died on September 24th, 2017 in Montpellier, where he had retired with his wife several years earlier. His funeral was held on Friday September 29th, 2017 at the Centre funéraire de Grammont in Montpellier. Rest in peace, Jean-Louis!

Acknowledgements

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