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Jozef Vercruysse's Love for Parasites: a 40 Years Carrier

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Introduction

"Parasites are beautiful". This has been one of J. Vercruysse's most common expressions throughout his career, and it characterizes his infectious enthusiasm on these pathogens. His love for parasites already existed when he graduated as a veterinarian at Ghent University in 1974. Being the son of a veterinarian who worked in Africa, he was already surrounded by legendary parasitologists like Jos Mortelmans, Denis Thienpont and Oscar Vanparijs in his early career.

His situation was comparable to what happened to Obelix from the Asterix cartoons, whom phenomenal strength resulted from having fallen as a boy into a cauldron containing a magic potion. Living in an environment of parasite lovers had a profound effect on J. Vercruysse's life. In Obelix' case this early age exposure to the magic potion had a serious side effect, an insatiable hunger; did we see any side effect in J. Vercruysse's case?

But what inspired these researchers to become parasitologists? When it comes to disease outbreaks, bacteria and viruses receive all the press. But parasites pose an equally great health threat for humans and animals around the world, although often less visible. Parasites are even more subtle and challenging enemies and they are beautiful when you observe them under a microscope.

The Africa period (1975-83)

After graduation at Ghent University, J. Vercruysse did not waste his time. He followed the diploma course on Tropical Animal Health and Husbandry at the Institute of Tropical Medicine in Antwerp and he was trained in parasitology at Janssen Pharmaceutica.

In 1975 he was appointed as an "Associated Expert" by FAO. After a short training at the FAO headquarters in Rome he started his Africa period. His first destinations were Ghana and Togo. He was part of a team of Australian vets who among many other things taught him how to catch a cow with a lasso! While he learned a lot on Africa, livestock and diseases, he was a bit disappointed by the lack of possibilities for research in the project.

He pulled his courage, booked a ticket to FAO Rome and managed to be transferred to the Central African Empire^a, where from 1976 he had to organize vaccination campaigns for Contagious Bovine *Pleuropneumonia*. Livestock keepers were mainly Fulani^b, a nomadic population, with whom he built an excellent relationship (Photo 1).



Photo 1: Jozef Vercruysse and the Fulani's.

^aNow the Central African Republic.

^b"Peuls" in French.

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Living conditions were tough, remote, transport was difficult, mainly by foot, there was no running water and electricity, but J. Vercruysse enjoyed every single day and soon realized that he was living in a paradise for parasites. He set up a basic parasitology lab and found out that the most interesting place to study parasites in the tropics is actually a slaughterhouse. During his career he has been visiting slaughterhouses in every corner of the planet, and he can write a book with anecdotes on the conditions in these folkloric places.

But he found the parasites he was looking for and soon started to describe and publish his findings. In the Central African Empire, he also met Florence! They married soon and she would follow him to all the exotic places where he worked.

Life in the jungle is fine but not for ever and in 1979 J. Vercruysse moved to Senegal where he was appointed as the head of the Veterinary Parasitology and Mycology department at the "Ecole Inter-Etats des Sciences et Médecine Vétérinaires (EISMV)" in Dakar. This event marked the start of J. Vercruysse's academic career. Although his job description mainly involved teaching and student coaching, J. Vercruysse actively invested in parasitology research (often with his own funds!) and engaged in studies on malaria, schistosomes etc.

Working in an international environment created opportunities for collaborations, mainly with French and British research groups. JV started to establish his network. One of his main research findings was the rediscovery of a "forgotten" *Schistosoma* species, *Schistosoma curassoni*, a parasite of ruminants in West Africa. During his four years appointment at the EISMV J. Vercruysse had a great impact on teaching and research at the Veterinary School for West Africa and he trained many young veterinary researchers who nowadays still remember him for his knowledge and enthusiasm. After more than 4 years in Dakar J. Vercruysse decided to leave beautiful wild Africa and to return to his home country. He was appointed as a professor in Parasitology at the Veterinary Faculty of Ghent University in September 1983.

Casinoplein, Ghent University – The early years (1983-1990)

September 1983: imagine Vercruysse's first visit to his new workplace: the entrance to the Parasitology department looks like an old messy warehouse, after a turn left, three small overloaded labs and an office, that's all, not to forget some dark old experimental animal facilities behind the lab! Five staff members: two senior researchers, a starting junior researcher, a lab technician/secretary and an animal care taker. Hard to believe that this small old place was the starting point of a very successful period of the parasitology lab in the next 32 years! JV admitted later that he seriously questioned his decision on his new appointment on that first day. Working conditions were indeed worse than in Dakar!

J. Vercruysse decided to start a new research line, on gastrointestinal nematodes in Belgium. This meant beginning from scratch, but J. Vercruysse taught his new colleagues to engage in international collaborations and he sent them to laboratories abroad for training.

Soon, the lab was transformed into a bustling place with benches packed with tubes, flasks and funnels. J. Vercruysse also established contracts with pharmaceutical companies.

In that period a revolution in nematode control was going on with the introduction of prophylactic approaches and the launch of a new drug, ivermectin. The lab set up field trials for testing anthelmintics and parasite control methods. Jozef's private car became the project vehicle. Poor Florence saw her clean Mercedes turned into a smelly farmers' truck.

Gradually, J. Vercruysse's lab got a good reputation among the students and other departments at the faculty, and a modest place on the parasitology map in Europe was acquired. To further improve the positive atmosphere, a laboratory cat, Sharou was adopted, that greeted the parasitologists in the morning and followed them during their activities, in the lab, in J. Vercruysse's office and in the stables.

While starting up the Belgian research activities, J. Vercruysse hadn't forgotten his old love, the tropics. He kept his good contacts with his African, British and French colleagues on schistosomes and other parasites. While the tropics had always been far away from the Ghent University veterinary faculty, an opportunity emerged in Sri Lanka. Through the Belgian Cooperation, a project had started at the veterinary school of Peradeniya. An ambulatory clinic had been set up, two young Belgian veterinarians had been hired to run the project, and several professors from Ghent University visited the project. Of course J. Vercruysse could not resist, and his first visit to Sri Lanka marked the start of a very intense and productive collaboration with many partners in Africa and Asia. Soon, he took over the coordination of the project. J. Vercruysse was surprised that the Belgian experts only set up and ran the ambulatory clinic but did not do any research, while the parasites were screaming for attention. He discovered the abattoir in Kandy, organised the parasitology lab where he established a snail colony, found beautiful schistosomes in the mesenteric veins and nose of cattle, identified a forgotten nematode in cattle and buffaloes (*Mecistocirrus digitatus*), and described one of the first cases of anthelmintic resistance in goat nematodes in Asia. The tropics moved a bit to Ghent too, a snail colony was established in the department's corridor, and J. Vercruysse himself took care of the delicate feeding and breeding. He dried lettuce in a small oven to feed his babies. In one of the labs he organised his tropical corner, with a locked cabinet from which sometimes a glimpse of the content was seen: pots, scoops, sieves, forceps, ... , that he cautiously prepared for every field trip to the tropics that he was undertaking. The project in Sri Lanka and the possibility to apply for "small" flexible projects in developing countries with the Flemish Interuniversity council (VLIR) inspired JV to start projects in Zambia, the Philippines, Malaysia, and later also in Mali, Senegal, Vietnam, and in many other countries (Photo 2). J. Vercruysse sent junior experts to each of these countries, resulting in a network of staff and activities in tropical parasitology research.



Photo 2: Staff in Vietnam.

J. Vercruysse was also a pioneer of the One Health concept. Long time before this topic became popular he worked on medical and veterinary problems and tried to approach them in a similar way. J. Vercruysse became a world authority, not only in veterinary but also in medical parasitology.

Consolidation of the Parasitology lab at Ghent University (1990 – 2000)

From 1990 onwards the parasitology lab started growing. New staff and PhD students were attracted to assist in the increasing number of field studies. Research on *Ostertagia* and *Cooperia* epidemiology and control was still the core activity but new research lines on immunology and vaccination for these gastrointestinal nematodes were created. Funds continued to come from the pharmaceutical industry, and also competitive research grants were obtained from national and international sponsors. Besides fieldwork, the department had become more experienced in experimental infections.

The laboratory moved to the new campus in Merelbeke. The new space created even more possibilities for research, with more specialised labs for "dirty" and "clean" work, a protein lab, a molecular lab, and besides attracting veterinarians for new positions or for PhD research, also biologists, biochemists and epidemiologists joined the team. An own experimental animal section was created, with donor animals for *Ostertagia* and *Cooperia*, separate labs for faecal cultures, washing of gastrointestinal tracts and perfusion of lungs, ...

J. Vercruysse became a manager, negotiating with companies, writing proposals, although he still loved to work in the lab. The work for the industry generated funds that could be used to further establishing the lab infrastructure, to buy a lab car, but especially to feed the innovative research. The expertise generated by these activities made the lab a strong and productive place and it became a leader in research on gastrointestinal nematodes in ruminants. This resulted in more successes in obtaining competitive grants and PhD scholarships.

The Parasitology lab in the 21st century

J. Vercruysse has always been ambitious, but his dreams came true thanks to hard work, leadership, attracting good collaborators, networking. EU grants were obtained, PARASOL, GLOWORM; Jozef became the president of the World Association for the Advancement of Veterinary Parasitology (WAAVP) and organised the 21st international conference of the WAAVP in Ghent in August 2007, which was a success, not only because of the excellent scientific quality and organisation, but also for the fantastic social programme. He also became the chairman of the department of Virology, Parasitology and Immunology and later also Director of the doctoral School of Life Sciences and Medicine of Ghent University. With more staff in the lab, research activities diverted from GI nematodes of cattle, to *Giardia* and *Cryptosporidium*, *Ascaris*, zoonotic helminths, mange. J. Vercruysse could also use his knowledge of veterinary parasitology in certain fields of medical parasitology, especially with regard to the use and efficacy assessment of anthelmintics. His lab became WHO collaborating centre for the efficacy of anthelmintics and through funding from the Gates foundation, he was able to further expand this research line, and to run multi-centre studies on drug efficacy studies on soil transmitted helminths.

A big concern of Vercruysse has always been to help his collaborators to find good and stable jobs. Pierre Dorny is a professor at the Institute for Tropical Medicine in Antwerp and visiting professor at Ghent University, Edwin Claerebout and Peter Geldhof have now become permanent staff in his department, and Bruno Levecke will probably follow.

They are major assets for the continuity of the research in his lab (Photo 3). He also helped former collaborators with their applications in other universities, institutes and companies. J. Vercruysse has always loved to pass his knowledge and experiences to the young generation. His lectures have always been inspiring and interesting and he very much liked to tell stories on situations that he experienced. Besides teaching parasitology and parasitic diseases at the veterinary faculty of Ghent University, he started with a Parasitology course in the faculty of Pharmaceutical Sciences of the UGent and contributed to parasitology courses at the Institute of Tropical Medicine, Antwerp, Pasteur Institute in Paris, the University of Naples Federico II, ... He has also always been a very much appreciate speaker at veterinarians and farmers association meetings.



Photo 3: Staff of the Laboratory of Parasitology,
Faculty of Veterinary Medicine,
Ghent University (2015).
N= 23(+4)): 4 tenured staff;
3 post-doc; 12 PhD students;
4(+4) administrative & technical staff;
7 nationalities.

Two important events marked 2015, J. Vercruysse's last year at the faculty of Veterinary Medicine: he became Dr Sc. *honoris causa* at the McGill University, Montreal, Canada (Photo 4), and he was appointed as the President of the Ghent University Global Campus, in Songdo, South Korea. While J. Vercruysse officially retired as Professor of Veterinary Parasitology at the UGent, he will remain active in this satellite campus of the University, at least for another year.

One of his colleagues at his retirement formulated J. Vercruysse's merits as follows "With your hard work, combined with lots of fun, warmth and tremendous hospitality, you have shown us the way. Long may it continue!".



Photo 4: 2015, Dr *Honoris Causa* at McGill University, Montreal, Canada.

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