

Neglected Tropical Diseases: a tale from Flanders

Father Damian Ceremony, New York 11 May 2015

Address by Prof Dr Bruno Gryseels,
Director of the Antwerp Institute of Tropical Medicine

Excellencies, Colleagues, Ladies and Gentleman,

It is a great honor to address this august meeting and to contribute to the commemoration of our joint Flemish-American hero, Father Damian. He epitomizes the tens of thousands of other Flemish missionaries, nurses, doctors and scientists that have committed their lives to the health of the poorest of the poorest in this world over the past century. Ten years ago, Father Damian was therefore elected in Flanders as "greatest Belgian of all times".

Last year, Time Magazine chose the Ebola fighters as "Persons of the Year". While the USA justly honored its own Ebola heroes, a disproportionately large number were actually Flemish and Belgian health workers. The Belgian branch of Médecins sans Frontières Belgium was responsible for the earliest and largest international Ebola response; Brussels Airlines was the only company that kept on flying experts and goods to the quarantined hot zone throughout the epidemic. My own Institute of Tropical Medicine of Antwerp carried out the most important and successful clinical trial with convalescent plasma so far, and is now gearing up to reconstruct the devastated health systems. Historically, the Ebola virus was actually discovered at our Institute in 1976, by Peter Piot, who became even more famous as one of the pioneers in the global fight against AIDS.

Mostly below the radar of the international press and politics, Flemish and Belgian NGO's, institutes and agencies have been active for many decades to fight diseases and develop health care in the developing countries. Let me especially quote the Damian Foundation, present here today, which carries on the legacy of our hero in the worldwide fight against leprosy and tuberculosis. While leprosy is largely under control in many endemic areas, tuberculosis - caused by a related mycobacterium - is still one of the greatest killers on earth among poor people. It threatens also developed countries again, with a vengeance actually, as multidrug resistant strains spread around the world. I am proud that the Antwerp Institute of Tropical Medicine has been collaborating closely with the Damian Foundation for many decades in the worldwide surveillance of tuberculosis and the improvement of diagnosis and treatment. The Antwerp institute holds currently the largest international collection of drug resistant tuberculosis bacilli, as a reference for all laboratories in the world and as a treasure for fundamental and applied research. The first new drug against tuberculosis in 50 years, bedaquiline, has been developed by Flemish scientists at Tibotec, under the umbrella of Johnson & Johnson, one of the American pharmaceutical giants. It is a tempting idea that this discovery is part of a permanent Flemish-American timeline in the field of mycobacteriology since the days of Damian.

Indeed, in the election of Damian as greatest Belgian of all times, the runner-up was no less than Dr. Paul Janssens, founder of Janssens Pharmaceuticals and of Tibotec, both of which are now part of Johnson & Johnson. Few know that Dr. Paul, as we affectionately have known him, was another pioneer in tropical medicine. While he and his company are now mainly known for true blockbusters in cardiovascular, psychiatric and anesthetic medicine, their early successes consisted of breakthrough drugs against tropical parasitic and fungal infections. Several of them still figure on the

Essential Drug List of the World Health Organization, and are administered daily to millions in the ongoing fight against what are now known as "Neglected Tropical Diseases".

These scourges remain largely unknown in the west, but sleeping sickness, leishmaniasis, Buruli ulcer, filariasis and schistosomiasis still affect the lives of billions of people. Neglected diseases typically affect neglected populations in neglected countries, and remain therefore neglected in terms of scientific research and technology development. Once more, I am proud that the Antwerp Institute of Tropical Medicine can count itself as the international top in the research and control of neglected tropical diseases. As one example, we lead with the Congolese Ministry of Health the worlds' largest elimination programme for sleeping sickness, in collaboration with the Belgian government, the World Health Organization and the Bill and Melinda Gates Foundation. Also for leishmaniasis, Buruli ulcer and helminthiasis, we can boast on exceptional expertise, sample collections and international networks. The long-term support of the Flemish government has been crucial to build and maintain our scientific position, while the federal government funds a large-scale programme for capacity building in developing countries. In total, our annual investments in the research, training and control of tropical diseases and public health amount to \$65 million. We pride ourselves with some of the worlds' best training programs in our field, at master and doctoral level. As all of them are run in English, they bring together bright students and researchers from all over the world in what one participant called a "permanent scientific conference". We would therefore be very happy to welcome more US students and scholars in the wonderful city of Antwerp, at a few hours travel from other European historical capitals.

Let me emphasize that tropical medicine is not just a matter of international solidarity with poor countries and populations. We should not forget that several tropical diseases, including malaria, were only eradicated from the US and Europe after the Second World War. Washington became the US capital because Philadelphia was plagued with yellow fever. A generation ago, intestinal worms were still a common feature among European and American school children. As a consequence of globalization, climate change and migration, tropical diseases become once more a direct threat to western societies. Dengue virus creeps up along the Mediterranean, with a potential of devastating economic and political impact. Scientists of our institute are constantly monitoring tiger mosquitoes, one of the main dengue vectors, in the Antwerp harbor area where they are imported with mundane features of globalization, such as used tires and tropical plants. The USA as well is struggling to keep dengue and chikungunya virus out of its borders, and has been with several outbreaks of West Nile fever over the past decades.

In spite of its momentous societal relevance and urgency, however, I would like to end this tale with my scientist's' declaration of love for tropical diseases. As evolutionary fellows of *Homo sapiens* since the dawn of times, these parasites, viruses and bacteria have found an ecological balance with their host populations through some of the most intricate, yet robust biological mechanisms known in science. As such, they have shaped to a large extent the physiology and immunology of the 21st century humans. The current revolutions in genetic and molecular sciences allow the unveiling of these fascinating interactions as never before. I am therefore confident that tropical medicine is a fundament of *all* biomedical sciences, just as well to world-wide equity, peace and development. The Institute of Tropical Medicine and Flanders will remain on the forefront of this endeavor, and reach out to friends in the United States for upholding Father Damian's legacy through ever-closer partnerships.