Obituary: Prof dr. Johannes Joseph (Jon) van Rood (1926-2017)

Prof. dr. Jon J. van Rood, a distinguished member of our scientific community, passed away on 21 July at 91 years of age. In light of his scientific legacy, we wish to commemorate some of his most significant achievements and contributions.

A few historical aspects

Jon was born on 7 April 1926 in Scheveningen, a town situated on the coast of the Netherlands. At the end of the second World War, he began his medical studies at Leiden University. After finishing these, Jon was active as a 'house doctor', and visited many of his patients in the country areas. He considered this one of the best medical learning experiences of his early career, as he was confronted with so many different illnesses. Jon could also tell amazing stories about touring on his motor bike in bad Dutch weather in the rural countryside. Apparently he was a poor driver, and ended up parking his motorbike at least six times in a canal.

He moved temporarily to New York in 1950, and under the guidance of Dr. R.F. Loeb (Presbyterian hospital, New York), he became intrigued by Internal Medicine. Upon returning to Leiden, Jon began his training with Prof. dr. J. Mulder in order to specialise in the field. In 1957, he was certified as a specialist in Internal Medicine (equivalent to US board certification), and was appointed as head of the Leiden Blood Bank. To quote Jon: 'The board thought that a young, inexperienced doctor could do the least harm in such an unimportant place'. Those were the days just after open-heart surgery had been introduced, and unprecedented amounts of blood were required. Jon began to organise things, recruiting large numbers of donors, and improving the supply pipeline. All of this demonstrated his talent for organisation, and the young doctor soon proved to be a highly capable manager.

At its inception, the entire Blood Bank team comprised just a handful of staff members and technicians. One of them was George Eernisse, an MD, who could isolate, radio-label, and perform in vivo studies of red blood cells and platelets; the other was Aad van Leeuwen, who had a pair of golden hands and was an eminent serologist. The combination of Jon's, George's, and Aad's talents created the basis for a forceful team, ready to embark on great discoveries, as Jon was able to think well out of the box. He was at his best when trying to comprehend something in order to answer a question, and was prepared to conduct things in an unconventional manner while squeezing out the answer that would finally satisfy his curiosity. For instance, the male staff members of the Blood Bank exchanged skin grafts and platelet transfusions to study the relationship between transfusion and transplant immunity. It soon became clear that the young doctor was destined to become a zealous medical investigator, who expected of his employees the same high level of dedication and commitment, although this aspect of his character was not always easy for everybody to accept.

The early days of HLA

Science often begins with a key observation. One of Jon's male patients had to receive a blood transfusion on a monthly basis, simply to stay alive. After each of these events, he developed a severe transfusion reaction. No adverse reactions occurred when the white blood cells were removed from the blood transfusion, demonstrating that leukocytes had been responsible for the previous transfusion reactions. Jon always credited the collaboration with Prof. dr. J.J. van Loghem for sharing the isolation technique. The second Eureka moment soon followed in 1958. A woman who had given birth to twins – followed by a fluxus post-partum – experienced a severe transfusion reaction. Her medical record showed no previous blood transfusions, and she assured Jon that she had never been transfused. A subsequent series of elegant tests indeed demonstrated that the woman possessed antibodies directed to the white blood cells of the transfusion donor and her husband. This set of key observations became the very basis of the discovery of the HLA system. Independently, and in the same timeframe, the groups led by Jean Dausset (Paris, France) and Rose Payne (Stanford, USA) made similar

observations using slightly different approaches. Jon van Rood published his discovery in the scientific journal Nature, and graduated in 1962 cum laude as a Doctor in Medicine (PhD). His thesis entitled 'Leucocyte grouping: a method and its application' was reprinted on several occasions, and probably ranks among articles most cited. An American publisher offered to bring the thesis on the market in the form of a book. Jon bluntly refused, and to quote him: 'I was rather leftish, and could not allow publishers to earn money on the backs of my patients'. In fact he was one of the first bioinformaticians using computers to determine the reactivities of different anti-HLA sera. His stories about the large size of the room and those enormous old-fashioned computers with limited calculating power are legendary.

Unearthing HLA complexity and workshops

During a conference involving an additional laboratory work session organised by Dr. Bernard D. Amos in Washington DC in 1964, it was realised that the different HLA markers discovered by independent research teams showed no or poorly understood relationships. Hence, a ground-breaking and novel set-up was needed, and the exchange of sera was promoted. The first official Histocompatibility Testing workshop was organised in 1965 in Leiden. Bernard Amos was acting President and Jon was the Secretary General. This approach turned out to be a success, and the first light was shed on the allelic complexity of the HLA system. The tradition of organising workshops is

still a strong one. He foresaw that the growing number of HLA alleles would sooner or later impact HLA-matching protocols in the context of organ donor selection. He also realised that given the polymorphism of HLA, the optimal combination of donor and recipient might benefit from a large number of donors across geographic borders. In 1967, he founded Eurotransplant, the first international organisation to promote allocating a donor organ to the best matched recipient. Since then, many similar organisations have been created around the globe. In 1968, Jon was involved in the first successful allogeneic bone marrow transplantation in the Netherlands, and one of the three first transplants conducted worldwide. The story was told at several international meetings over the years, and always caused quite a thrill. In 1969, the Leiden University appointed him as full professor. Some of the old-timers refer not only to the high standards of Dutch science but also to the fantastic after-parties.

In 1985, he was one of the founding fathers of the European Federation for Immunogenetics (EFI), and he was the acting President from 1985 until 1988. In the first chapter of Article 3 (aims) of the EFI, it reads: 'to support the development of Immunogenetics in Europe as a discipline of medicine and promote research and training in this field'. This simple statement breathes in every detail the input of Jon van Rood. In 1988, he was also heavily involved in setting up a registry of bone marrow donors – Bone Marrow Donors World Wide (BMWD) – and he founded the Europdonor Foundation, now called Matchis, the Dutch centre for stem cell donors.

Retirement, thus not

In 1991, Jon van Rood turned 65, and had reached the age of retirement. It was generally considered that one then begins to enjoy life's other fine aspects. Although Dutch law did not allow exemptions to the rule, Jon saw it slightly differently. He said he 'was forced to retire, and that was more than scandalous and a waste of resources'. A respected Dutch newspaper published an exciting two-page interview regarding his successful career, and looking back at his accomplishments. The reporter's last question translates as follows: *'What are you going to do after your retirement?'* Jon answered: *'Spend a lot of time on my hobby'*. The reporter walked straight into the open trap, and asked: *'What is your hobby?'* Jon replied in only two words: *'My work'*.

He found scientific refuge within his old department, and to secure his future, Frans Claas kindly offered him a PhD position. For quite some time, Jon told anybody who wanted to hear it – proudly and with a big smile on his face – that he had just started to work on his new thesis. He 'found' a room with a view at the Europdonor Foundation, and simply kept busy with what he had been doing previously. From 2011, he and Anneke Brand shared an office, reuniting transfusion and transplantation immunology. Remarkably – but wisely – he rarely interfered with the new management of his former department. Instead, his energy was channelled into promoting his new 'scientific babies', such as the NIMA (Non-Inherited Maternal Antigens) concept and the impact of breast-feeding on a child's immune system. We have always been astonished by and in awe of Jon's own scientific curiosity, but also by the way in which he strove to support and stimulate young researchers in the field. The three of us had contact with him on a very regular basis. On the one hand, he would phone or contact one or all of us at the most unexpected moments when he wished to discuss some of his novel ideas. On the other hand, he would use any given moment – suitable or otherwise – to hammer home an old message that he felt was worth pursuing. Long after his retirement, he continued to attend EFI, ASHI, and various transplantation meetings, as well as PhD, research and clinical meetings. Over time, however, his impaired mobility interfered with the possibility of travelling and attending international meetings. He hated that fact, and it took him some time to come to terms with it. But this did not mean that he gave up. In fact, he never missed any interesting meeting that was within range of his bike or his car.

The Jon van Rood school

When Jon retired in 1991, the Department of Immunohematology and Blood Bank had an impressive number of almost 200 employees, all of them dedicated to the central theme of HLA research. He always stressed that a strong relationship between research and the clinic is the basis for success, and he advocated that MDs and researchers in other life science disciplines should work closely together. Jon's legacy is immense. He acted as a promotor of more than 60 PhD defences. Many of his former PhD students have become professors themselves. They are spread all over the world, and continue to work along the threads of the web Jon originally started weaving. A famous member of our scientific community stated once that Jon must be proud being the father to a fantastic pedigree of well-known scientists. The Grand Master himself published more than 400 scientific papers, and the last one was published in a reputable peer-reviewed journal about three weeks before he passed away.

International prizes and recognition

Jon served on the boards of many journals, either as an editorial board member or as an editor-in-chief, and received many prizes for his work. The list is too long to present in full, but a few noteworthy ones are: the Karl Landsteiner Memorial Award and recipient of the Robert Koch medal (both in 1977); The Wolf Prize in Israel (together with Jean Dausset and George Snell) in 1978; The Stella Artois-Baillet Latour prize (Belgium, 1985); The Heineken Prize Amsterdam (1990); and the Peter Medawar Prize (together with Jean Dausset and Paul Terasaki) in 1996. He delivered the Ceppelini lecture (EFI, 1988) and the Niels Jerne lecture (1990), and received the Rose Payne award (ASHI, 1991). In 1978, he was appointed as a member of the highly prestigious Royal Academy of Sciences of the Netherlands (KNAW). He also became a member of the likewise prestigious National Academy of Sciences of the United States of America. On top of that, his achievements were awarded in the form of honorary doctorates from eight international universities. He was so proud when Queen Beatrix promoted him to the high-ranking status of Commander in the Knighthood Order of Oranje Nassau. Whenever Jon received a prize, he celebrated the event with the whole department, as he regarded any award as a team achievement. Jon had a warm personality, and the celebration often meant a fantastic dinner followed by a big party with dancing and drinks. And he sure loved to dance.
If the prize involved a sum of money, the funds were always re-routed directly into his lines of research.

A few concluding remarks

Jon was a visionary medical scientist and a pioneer in immunology, but he was also a caring doctor who invariably approached things from the perspective of the patient. He made tremendous contributions to the progress in medical science, and was one of those rare dinosaurs that actually made a difference. Jon's life, however, was not only about work; for instance, he loved to go hiking and skiing, though sailing was really his big thing. He regarded his boat, de Zeehond (the Seal), as an extra set of lungs. We knew that the time to say farewell would come, and in fact he reminded us on a regular basis that it was getting closer and closer. When we said goodbye to each other after a meeting or a dinner, he would use the phrase 'Deo valente' increasingly often.

Yet when the moment did arrive, it was unexpected and far too soon. We have lost not only an exceptional tutor but most of all a dear and respected friend. We miss him already in this capacity, and will be forever grateful for all the lessons, the wisdom, the support, and the precious time that was spent together. We will always cherish these memories. Above all, we will strive to continue weaving on the wonderful web that Jon van Rood started, and to carefully guard his scientific testimony and thoughts.

Jon was married to Sacha, and he fathered three children, Yanda, Peter, and Tinka. We wish them strength in this time of their loss.

Ronald Bontrop[1], Anneke Brand[2], and Frans Claas[3]

[1] Biomedical Primate Research Centre Rijswijk, Rijswijk the Netherlands
[2] Jon van Rood National Center for Clinical Transfusion Science, Leiden the Netherlands
[3] Department of Immunohematology, LUMC, Leiden the Netherlands

The same text will be published in Immunogenetics, HLA and Human Immunology