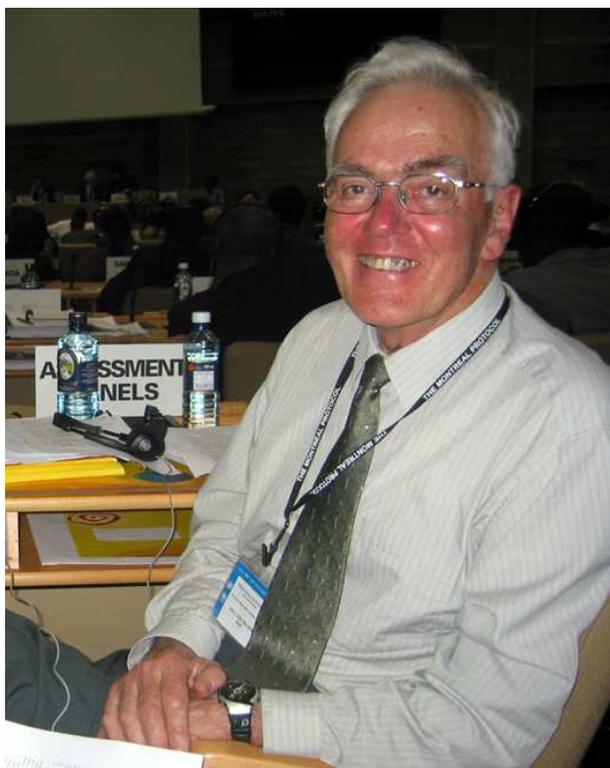


Jan van der Leun, June 14,1928 – July 6, 2016: eminence grise in protection of the ozone layer

Written by Frank R. de Gruijl,
Jan's 1st PhD student on experimental UV carcinogenesis and skin cancer risk modelling



Jan van der Leun as Co-Chair of the Environmental Effects Assessment Panel (EEAP) at the 5th Meeting of the parties to the Montreal protocol, Nairobi, Kenya, November 10 – 14, 2003 (www.iisd.ca).

Jan Cornelis van der Leun was born on June 14 1928 in the harbour town of Rotterdam, the Netherlands. As an eleven year old he lived through the bombardment of his home town by the German Luftwaffe on May 14 1940, wiping out the town centre. This put a quick end to a 4-day Blitz. The Dutch army immediately capitulated to avoid an imminent bombing of the city of Utrecht. In 1945, after the war, Jan went to the unblemished city of Utrecht to study experimental physics and graduated in 1955. From 1949 to 1951 his study was interrupted to serve as 1st lieutenant meteorologist in the Dutch Royal Air Force. He married Jannie Florence Goedhart in 1957, and they were blessed with 4 children. In 1953 he started an internship at the department of

Dermatology of the Academic Hospital Utrecht where he would stay the rest of his career, with a one year intermezzo (1966-1967) as assistant professor at Cornell University Medical College (New York) in the group of prof. Farrington Daniels Jr. Just before leaving with his family for the US, he finished his PhD with a thesis titled “Ultraviolet Erythema; a study on diffusion processes in human skin”. In 1980 he was appointed as a professor in “Physics of the Skin”. He retired from this position and as head of Photodermatology in 1993. A symposium titled “The Dark Side of Sunlight” with lectures by many of his international colleague-friends was held in recognition of his work.

The upheaval early in his life in Rotterdam must have had a tremendous impact, but Jan never divulged any of this to his students. To them he was a very reserved and solemn gentleman scientist who was dedicated to his research and left them much freedom in carrying out their

projects, inviting them to bring in their own ideas. His quiet and self-confident demeanour instilled his working methods on his students (for some this included an ever expanding archive of papers and reports bursting from filing cabinets and spreading in piles stacked on and under tables and chairs – but Jan always found his way in this “sedimentary” archive).

For his internship at the department of Dermatology the tall young student was stashed in a specially built small room with a few UV lamps. He could not stand upright in the room, but he was very happy with it anyway. Jan analysed and mathematically modelled the physical aspects of the UV-induced erythema and other skin effects (suction blister formation and waves in outgrowing hairs). The old German studies on skin photobiology published in “Strahlentherapie” formed an important and rich basis of his work (as these old German papers became largely hidden from literature searches, Jan together with prof. Frederick Urbach had planned to write an English monograph on it). He took over as head of Photodermatology in 1972 and discovered that the skin of patients reacting pathologically to UV radiation could be rendered insensitive (‘hardened’) by a series of gradually increasing UV exposures. And in close collaboration with Philips his group introduced the narrow-band TL01 lamp to optimize phototherapy of psoriasis.

Around 1970 the prospect of large scale supersonic commercial air travel through the stratosphere raised the spectre of a vanishing ozone layer which would allow more hazardous short wavelength UV radiation to reach the Earth’s surface. This threat to the ozone layer never really materialized but a more surreptitious one by chlorofluorocarbons (CFCs), identified in 1974, did. In 1971, on one of his visits, Jan was invited by prof Daniels to join him in a meeting of experts convened by the US Academy of Sciences on the



Jan van der Leun in apparent contemplation at the 20th Anniversary Seminar of Montreal Protocol, “Celebrating 20 Years of Progress”, 16 sept 2007, Montreal , Canada. (www.iisd.ca).

“biological impacts of increased intensities of solar UV radiation”. Prof Daniels knew about Jan’s unique background in both meteorology and skin photobiology which made Jan “cut out for the job”. This environmental problem struck a chord with Jan and he got actively involved; first in the US, culminating in the CIAP monographs (1975). He became an internationally recognised authority in political circles and stayed dedicated to the cause of protecting the ozone layer till long after his retirement. To improve his assessments on increases in skin cancer based on epidemiological data he started a long term research program on experimental UV carcinogenesis carried out by successive PhD students. At first Jan was unsuccessful with granting agencies. Then Jan’s department head, prof. Jansen, drew Prince Bernard’s attention to Jan’s work. Convinced of the importance the Prince wrote a confidential letter of recommendation to the Dutch Cancer Society. This secured Jan’s first grant which got him started in 1977 in close collaboration with the group of prof. Urbach at the Skin and Cancer Hospital in Philadelphia. Dose response relationships and the wavelength dependence (the SCUP action spectrum) of UV carcinogenesis in hairless mice were determined and extrapolated for risk assessments in humans. Later on attempts were made to quantify other health impacts (e.g., on cataracts and on immunity and infections), but quantification of the increase in skin cancer did not only provide the first numbers on the

impact of an ozone depletion, but still provides the best founded numbers. This has always been an important factor in mobilizing politicians and in driving international agreements on measures to protect the ozone layer. Ironically, Jan contributed to successful international action in curbing the threat to the ozone layer, but substantial increases in skin cancer occurred anyway due to human behaviour.



Jan van der Leun at the the 5th Ministerial Conference on the Environment and Development in Asia and the Pacific, March 24 – 29, Seoul, Korea, 2005 (www.iisd.ca).

Long before the Montreal Protocol on protection of the ozone layer (agreed on September 16,1987, and

effective as of January 1, 1989) Jan was prominently contributing to international meetings on the subject. In 1978 the Dutch governmental delegation to meeting in Munich on the threat of CFCs was pleasantly surprised to find Jan as a fellow countryman in the panel of experts. This launched Jan as an expert in his home country. Jan chaired the effects section of UNEP's Coordinating Committee on the Ozone Layer from 1982 to 1988, before becoming a founding co-chair of the Environmental Effects Assessment Panel (EEAP) established under the Montreal Protocol. He had to relinquish the co-chair of his beloved EEAP in 2010 because of his age and health but remained an honorary member. Next to this continuous co-chair, Jan has participated in and chaired many national and international committees (e.g. WHO & IARC) on UV health effects. He was a member of the Dutch Health Council and adviser of the Dutch Cancer Society in its campaigns on moderating sun exposure. Jan was always well balanced in his judgements and from the outset in campaigning against excessive sun exposure pointed out that low level UV exposure is beneficial in producing vitamin D.

Jan received several awards. UNEP honoured him in 1995 with its Global Ozone Award and in 1997 the Global 500 Roll of Honour for Environmental Achievement. In 2005 he was the recipient of the Vienna Convention award. The Finsen Medal was awarded to him in 1996 in Vienna for his research on skin photobiology and his effort in protecting the ozone layer. In 2003 he received from the European Society for Photobiology the Medal for long, dedicated and outstanding scientific contribution within the field of photobiology. In 2004 he was knighted in the Order of the Dutch Lion by Queen Beatrix for applying his research to the benefit of the environment. In 2009 he received the Arnold Rikli award for his work on "Climate change and skin cancer".

Jan's life was celebrated with a sense of fulfilment at his funeral on July 13, 2016, in his home town Bunnik. His children and grandchildren spoke endearingly and thankfully, from which Jan emerged as a warm-hearted family man, a true pater familias.