

Victor Westhoff (1916-2001)

van der Maarel, Eddy¹ & Schaminée, Joop H.J.²

¹Department of Plant Biology, University of Groningen, P.O. Box 14, NL-9333 AA Haren, The Netherlands; Fax +31561430941; E-mail eddy.arteco@planet.nl; ²Alterra, Green World Research, P.O. Box 47, NL-6700 AA Wageningen, The Netherlands; Fax +31317419000; E-mail j.h.j.schaminee@alterra.wag-ur.nl

On 12 March 2001, Victor Westhoff died in a car accident at the age of 84. With him we lost not only a great vegetation ecologist and conservationist, but also a beloved friend.

It is not easy to summarize the significance of Westhoff's work because it spans an unusually long period of time – 67 years – and an even more unusually wide spectrum of topics. His first publication (Westhoff 1934) was on the dramatic changes on flora and vegetation caused by the closing of the Zuiderzee and the last of his publications, in a journal for analytical psychology, dealt with botanical symbolism. Most of Victor Westhoff's 700 (!) papers refer to vegetation ecology and nature conservation.

Major achievements

Publications for which Westhoff enjoyed wide international recognition include the syntaxonomic survey 'Plantengemeenschappen in Nederland' (Westhoff & den Held 1969). This survey of Dutch plant communities comprises a critical discussion of the literature – unusual for that time – and was a major improvement compared with the first survey of its kind in The Netherlands of which Victor, at only 25 years old, was the first author (Westhoff et al. 1942). The 1969 survey did not contain phytosociological tables, although the typology was based on such tables. Thanks to the initiative of Westhoff a new survey, 'De vegetatie van Nederland', documented by synoptic tables and complete with detailed ecological and geographical characterizations, was prepared. The first of five volumes of this new work was published in 1995 (Schaminée et al. 1995). Westhoff was, once again, among the authors and he also was a co-author of volumes 2 and 4.

Although Westhoff described some new dune associations in his doctoral thesis on the vegetation of three Dutch Wadden islands (Westhoff 1947) and was a co-author of some higher units, for instance the *Saginetea maritima* (Tüxen & Westhoff 1964), syntaxonomy was not Victor's favourite interest. His passion – and his strength – was the ecological characterization of plant communities and their species. He thoroughly studied the



ecology and geography of individual plant species based on phytosociological characterization, for instance of *Listera cordata* (Westhoff 1959), *Carex buxbaumii* (Segal & Westhoff 1959) and *Fritillaria meleagris* (Horsthuis et al. 1994). In this respect we also mention the ecological notes on species in 'Flora Neerlandica', the scientific flora of The Netherlands. His biogeographical interest found expression in a study with Jan Barkman on the geographical position of the Drenthian district in The Netherlands (Barkman & Westhoff 1969).

Many of the studies mentioned here deal with coastal vegetation and indeed Westhoff remained fascinated by the coastal landscape since he prepared his doctoral thesis. Apart from publications of international importance on salt marshes and dunes and their management (e.g. Westhoff 1971b, 1987, 1988, 1990) he also wrote many popular-scientific contributions, culminating in a standard work on the flora and vegetation of the Wadden islands by Victor and his friend Max van Oosten (Westhoff & van Oosten 1991).

Westhoff wrote, or co-authored, several papers on concepts and terms in vegetation science (e.g. Westhoff 1950, 1970, 1979; Pignatti et al. 1994) and he was a

major advocate of the use of structural characteristics in phytosociological classification (Westhoff 1967), an elaborate example of which can be found in van der Maarel & Westhoff (1964). The best-known, and still widely cited, work of Victor Westhoff is the chapter 'The Braun-Blanquet approach' in the Handbook of Vegetation Science (Westhoff & van der Maarel 1973). This work is a comprehensive account on the development of the theory and methods of vegetation science, including an introduction to gradient analysis and the use of multivariate methods.

Victor's international reputation in the world of nature conservation was particularly based on his opening address to the 11th Symposium of the British Ecological Society, where he elucidated the concept of the semi-natural landscape and the dynamic nature of plant communities. The lecture was published in the proceedings of this symposium (Westhoff 1971a), a book that became a classic in the field of conservation ecology. The significance of Westhoff was later acknowledged in the series 'Contemporary conservationists' in the leading journal *Biological Conservation* (van der Maarel 1981).

Within The Netherlands and Belgium Westhoff became a well-known public figure through the popular-scientific three-volume book 'Wilde planten' from the early 1970s (of which more than 100,000 copies were sold!) and numerous public lectures and interviews in leading newspapers and magazines.

Period 1916-1947

Victor Westhoff was born on 12 November 1916 in Sitoebondo on Java, where he spent the first three years of his life, after which his family returned to The Netherlands. At a young age he became a member of the 'Nederlandse Jeugdbond voor Natuurstudie' (NJN), a society of youngsters aged between 12 and 23 years who organized excursions and camps and published journals completely independently of the adult world. He later studied biology at the University of Utrecht. In 1937 Victor established a phytosociological working group within the NJN and started the journal *Kruipnieuws* ('creeping news', i.e. reports on phytosociological work, usually done on the knees), this journal still exists. Many later members of this group met Victor, who was regularly asked to lead excursions for the group, and became his pupils in this way, irrespective the nature and place of their university studies. The senior author of this obituary is one of them; he first met Victor in 1954 and they remained friends since 1957.

In the 1930s, phytosociology was a new discipline without academic status – ecology was considered a hobby for natural history amateurs and not a university discipline, at least not in The Netherlands where the first chair in plant ecology was not established until 1961.

Nevertheless, both students and researchers (the latter mainly foresters from the then Wageningen Agricultural College) became fascinated by the relationships between plant communities and their environment, and started to make relevés. The technique of this analysis was learned in the field from the 'fathers' of phytosociology, i.e. J. Braun-Blanquet himself, who visited The Netherlands for the first time in 1935, W.C. de Leeuw from The Netherlands and R. Tüxen, who became very influential through his survey of plant communities of NW Germany (Tüxen 1937). Within a few years thousands of relevés were made, covering most of the Dutch plant communities and, as previously mentioned, the first survey – partly based on Tüxen's survey – was published (Westhoff et al. 1942). In the same year, a textbook on phytosociology was also published (Meltzer & Westhoff 1942). It was certainly inspired by Braun-Blanquet's textbook, but had its own character with Dutch examples and was a remarkable achievement for two authors who were both under 30 years old.

Period 1947-1968

After he had defended his doctoral dissertation, Victor Westhoff spent nine years at Wageningen Agricultural College, later Wageningen Agricultural University, where he organized the teaching of vegetation science and motivated several students to prepare a doctoral thesis. This led to a series of dissertations, including those of Frans Maas on alluvial forests and spring communities, Jan Boerboom on dune vegetation, Isaac Zonneveld on the vegetation of a freshwater delta, Hendrik Doing on forests and Willem Beeftink on salt marshes. Meanwhile Westhoff had moved to the State Institute for Nature Conservation Research (RIVON) where he remained from 1957 to 1968.

During this period nature conservation theory was further elaborated. Westhoff – against the current belief in the country and Europe at large – developed the idea that it was not enough to simply acquire and preserve nature reserves but it was also necessary to actively manage them. His key concept was the semi-natural landscape, where flora and fauna are largely natural but the structure and species composition of the vegetation has been changed by man as a result of centuries of land use, with heathland, grassland and coppice woodland as important examples. This concept was introduced at a lecture on biological problems of nature conservation, held (how significantly) at an NJN-congress in 1945 (Westhoff 1945) and elaborated in several international publications (e.g. Westhoff 1952, 1971a).

Also during this period a long-lasting co-operation began with C. G. van Leeuwen who, stimulated by Westhoff, developed his Relation Theory (van Leeuwen 1966). Together they published on boundary environments and their

management (e.g. Westhoff & van Leeuwen 1966).

Another important development was the establishment and yearly recording of permanent plots in many vegetation types. A famous series of plots was situated at the shore of the former Zuiderzee. After the enclosure of this sea, the soil rapidly became desalinized. Where grazing of the vegetation continued halophytes persisted while in other places, where the vegetation was no longer grazed, a rapid change to a tall reed community with glycophytes occurred (Westhoff & Sýkora 1979). Another series of plots was established on the Wadden island of Terschelling allowing a much better understanding of the complex dynamics of salt marsh vegetation due to long-term analysis (Roozen & Westhoff 1985; Westhoff 1987).

Period 1968-2001

In 1967 Victor Westhoff was appointed professor of Botany at the University of Nijmegen, where he started the Department of Geobotany and served the University until his retirement in 1981. There is no doubt that this period in Victor's life was by far the most important, especially because of his impact on so many students. In that time the study of biology was concluded by a Master of Science degree which took three years after the Bachelors degree. The M.Sc. study consisted mainly of a 12-month project and some 6-month projects. Each project was concluded with a written report. We estimate that more than 200 students have been supervised directly or indirectly by Westhoff. The senior author witnessed this period as a member of Westhoff's staff, the junior author as a student and later a doctoral student. In addition to these M.Sc. students, 20 doctoral students were supervised by Victor Westhoff. Most of them will remember him particularly for the many excursions he led, both in The Netherlands and abroad.

Scientifically, the Nijmegen period was very fruitful, partly because of the numerous visitors (including many postdocs and researchers on sabbatical leave). Landscape-ecological mapping and evaluation for conservation and planning became a specialty of the department, as did the application of multivariate methods. A highlight was the international symposium on the relationships between plant species and communities, Victor's favourite theme, held on the occasion of his 60th birthday (van der Maarel & Werger 1978).

In 1989, more than 50 years after the NJN phytosociological working group was founded Victor Westhoff, together with the junior author of this obituary, founded the Plantensociologische Kring Nederland, publishing the journal *Stratiotes*. In the meantime phytosociology had adopted advanced methods of soil and microclimate analysis and, particularly, numerical methods. Westhoff was not particularly interested in

the latter methods, but he always supported his students and staff in the development of new approaches. The 1980s were a difficult period for vegetation science in The Netherlands because many professorships and other positions were sacrificed in favour of 'hard' disciplines. However, during the 1990s there was a renewed interest in vegetation science, partly because of the establishment of very large databases and computer methods to exploit them, and partly because of the need for vegetation descriptions in nature conservation and land use planning.

A man of many qualities

Victor Westhoff was an active, and later honorary, member of the International Association for Vegetation Science and has had a major impact on international co-operation in our field. He was unique in that he witnessed all three meetings where the association was established or resurrected. In April 1939, the 'Association Internationale de Phytosociologie' was founded in Marseille, but the Second World War made ended the young association. In 1947, it was re-established, in Hilversum, during a visit of J. Braun-Blanquet to The Netherlands. Finally, in 1982, following the death of R. Tüxen, who had led the association since 1947, the association got its present name and statutes.

Westhoff was also a member of the editorial board and an editor of *Vegetatio*, which was linked to the association from the journal's start in 1948 to 1989, when the *Journal of Vegetation Science* became the official organ of IAVS. He took part in several international excursions and presented many lectures. He also attended the founding meeting of the working group for the European Vegetation Survey (in 1992 in Rome).

The outstanding influence Victor Westhoff had on the development of vegetation science can best be summarized by listing the professors and associate professors who were in some way or another his pupil; Jan Barkman (Utrecht, NL[†]), Kees Blom (Nijmegen, NL), Antoni Damman (Storrs, CT, US[†]), Kees den Hartog (Nijmegen, NL), Hendrik Doing (Wageningen, NL[†]), Rik Leemans (Wageningen, NL), Frans Maas (Delft, NL), Willem Meijer (Lexington, KY, US), Ladislav Mucina (Phuthadijhaba, ZA), Matthijs Schouten (Cork, IL and Wageningen, NL), Pauli Snoeijis (Uppsala, SE), Karle Sýkora (Wageningen, NL), Eddy van der Maarel (Uppsala, SE and Groningen, NL), Jan van Donselaar (Amsterdam, NL), Jan van Groenendael (Nijmegen, NL), Robert van Hulst (Lennoxville, QC, CA), Chris van Leeuwen (Delft, NL), Willem van Vierssen (Delft, NL), Theo Verwijst (Uppsala, SE), Marinus Werger (Utrecht, NL), Isaac Zonneveld (Enschede, NL and Wageningen, NL).

[†]deceased

Although Victor Westhoff was a dedicated and prolific botanist, he also had many other qualities and interests. He was a man of letters and a poet who published two collections. He was a philosopher, who became interested in Buddhism (his funeral took place in a Roman Catholic church, but the service was Buddhistic). He had studied analytical psychology and was an adept of C.G. Jung. He was fond of music and had a tremendous knowledge of many composers, Mozart in particular. Victor was a true *uomo universale*.

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