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NEWSLETTER

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Professor Evert Christiaan Wassink
1905-1981
In Memoriam - by Dr. W.J. Vredenberg

On 1st June 1981 Professor Evert Christiaan Wassink, Emeritus Professor of Plant Physiology at the Agricultural University of Wageningen died at the age of 76.

Wassink studied Biology at the State University of Utrecht, where he obtained his Ph.D. in 1934 under Professor F.A.F.C. Went with a thesis on the limiting factors in respiration in the mold Phycomyces.

In 1935 he moved to the newly established Biological Spectroscopy Group, housed in the Physics Laboratory of the State University of Utrecht and supported by the Rockefeller Foundation, which was headed by Professors A.J. Kluyver (Delft) and L.S. Ornstein (Utrecht). Working together with physicists he began a study of the spectroscopic properties of photosynthetic organisms. During that period he carried out pioneering and novel research into chlorophyll fluorescence as related to photosynthesis. Biophysical research in the Netherlands into photosynthesis received a not inconsiderable impetus as a result of this work.

In 1947 he was appointed Professor of Plant Physiology at the Agricultural University as successor to Professor A.H. Blaauw. In the Laboratory for Plant Physiological Research he continued his studies into Photosynthesis on a wider front, paying special attention to: photophosphorylation and phosphate-balance in bacteria and microorganisms, the application of bulk culture of algae as a feasible method of fixing solar energy, and determinations of the efficiency of the conversion of light energy during photosynthesis and during algae and plant growth. In addition he opened up a new field of research into the influence of the spectral composition of light on photoperiodic phenomena and on morphogenesis in plants. Wassink was one of the first to have shown a specific effect of far-red light (then still called infrared) on the development of plants.

During the period of 27 years up until his appointment as Emeritus Professor in 1974 Professor Wassink led, and made significant contributions to important photobiological research. During this time he devoted himself entirely to these studies. Many students received their training to be independent scientific researchers under his direction. Several of them have obtained eminent positions as leaders of scientific education and research, both within and outside Wageningen. He has written countless publications for journals and proceedings of international conferences. From the time of his being made Emeritus Professor until just before his passing away he worked on publications on flower formation and the manner of flowering in several varieties of Iris. He was a much-requested invited speaker at international photobiological congresses. As an example of his international organizational activities he was sub-convenor of the Production Processes Section of the International Biological Programme for many years.

Wassink was a personality who could justly be called a scholar, for he also had a broad range of knowledge and interests outside the area of botany. He was a well-known collector of rocks, tiles and books and of quite everyday utensils having botanical decorative patterns. His strong willpower and his passionate drive gave himself and the Laboratory a leading position within the wider scientific community. Light was always a central theme in his work: light as the source of energy and of information for all forms of life on earth, in particular in plants. For him this light has now been extinguished after a productive life as an esteemed and memorable photobiologist.

HISTORY - J. W. Longworth

The Philadelphia Story: The Rise of the Diffraction Grating

This story began in Bologna with a 17th century Franciscan monk Francesco Grimaldi. Grimaldi first noticed diffraction effects which were published posthumously in 1660. A narrow pencil of sunlight (a sunbeam) was passed by an edge, and in the shadow cast, Grimaldi noticed there were fringes of light and darkness at the edge. There was light within the darkness. Thus light did not follow an exact linear path, but was diffracted by the object. Grimaldi commented upon the color of the fringes too. These results became well known, and are clearly stated in Opticks by Isaac Newton, published in London in 1704. Nevertheless, the mathematical models considered by Newton and Christiaan Huygens incorporated a strict linear propagation.

Grimaldi proceeded further and ruled four cuts into a mirror, and at large angular reflection noted a sequence of complexly colored images of a narrow slit. This would now be described as an echelon or step grating.

The phenomenon was next taken up by the colonial statesman and song writer Francis Hopkinson, in Philadelphia in 1786. Hopkinson's father, Thomas, was a member of the intellectual discussion group that gathered around Benjamin Franklin, the Junto. He made the crucial discovery that a metal point facilitates electrical spark discharges, which is the basis for lightning arresters on tall buildings. Thus, Francis grew up in an atmosphere of learned inquiry. Francis Hopkinson reported upon a puzzling diffraction effect when he viewed a distant streetlight having placed a fine silk handkerchief immediately in front of an eye. A regular pattern could be observed, and this gave the illusion of not moving when the handkerchief was moved left or right. We now recognize this as an ideal method to observe the Frauenhofer diffraction of an object, which will appear constant for a regular array. Hopkinson wrote of this puzzle to the leading physicist of Philadelphia, David Rittenhouse. But to digress, Francis Hopkinson was the first graduate of the College of Philadelphia (now the University of Pennsylvania) and was trained as a musician giving numerous concerts. He wrote popular songs and regularly played organ at Christ Church. He was a member of the Continental Congress and signed the Declaration of Independence. Later he was a member of the Pennsylvania delegation to the Constitutional Convention. His key contribution in both these debates was the writing of satiric poems and songs which did much to relieve acrimony. As an artist he designed the great seal of New Jersey and the American flag.

David Rittenhouse was a member of a wealthy family of wine merchants. He built the first telescope in America and used it to observe the transit of Venus across the face of the sun in 1769 and noticed that Venus had an atmosphere. He played many roles in colonial and early American government, amongst which were the completing of the survey of Mason and Dixon settling the dispute between William Penn and Lord Baltimore. He, paralleling Newton, became master of the mint for Congress. Rittenhouse took up the query from Hopkinson and had a jeweler machine two precision screw threads. Around them he wrapped fine hairs and fabricated a square diffraction grating. There were 50-60 threads, 4 threads/mm (15 x 15 mm). Projecting a slit image through this grating, Rittenhouse observed there were six orders of diffraction images of the slit. The first image was clearly colored, with red deviated to a greater extent than blue, this being in marked contrast to refraction. Using a telescope borrowed from Franklin, Rittenhouse measured the angular diffraction of the orders and realized there was a regularity for the angle (orders). The angles quoted for the red and blue image of the first order diffraction can be calculated to be consistent with the grating ruling. Rittenhouse had the prescience to comment on the importance these phenomenon would have to an understanding of the nature of light.

The diffraction grating permits a quantitative measure of the wavelength of light. Later steps in its development are due to Joseph Frauenhofer in Munich in 1821. Frauenhofer made the grating into a precision device which could be used quantitatively, following the theoretical treatment of the French polytechnician Augustin Fresnel. With these instruments, Frauenhofer could precisely measure refraction of lens glasses and improve them greatly. He moreover applied them to analysis of the absorption and emission lines in sun and stellar objects, becoming the pioneer of astrochemistry.

NEW BOOK

"The Dose-Response Relationship for UV-Tumorigenesis" by F. R. de Gruijl. For information contact: Dr. F. R. de Gruijl, Van Weerden Poelmanlaan 134, 3527 KS Utrecht, the Netherlands.

MEETINGS
1982

April 11-15 — Symposium on Genetic Mechanisms of Carcinogenesis. Gatlinburg, Tennessee. Further Information: Dr. W. K. Yang, Biology Division, Oak Ridge National Laboratory, P. O. Box Y, Oak Ridge, TN 37830

April 18-22 — Thirtieth Annual Scientific Meeting, RADIATION RESEARCH SOCIETY, Salt Lake City, Utah, Further Information: John J. Curry, Administrative Director, Radiation Research Society, 925 Chestnut Street, Philadelphia, PA 19107 -- 215-574-3153.

May 10-14 — 4th Photovoltaic Solar Energy Conference, Stresa - Italy

May 26-29 — International Workshop on Photobiology, Jeju (Cheju) Island, Korea. Further Information: Dr. Hyeong-OK Kim, Chairperson, Graduate School, Jeju National University, Jeju 590, Republic of Korea

June 27-July 1 — ASP Annual Meeting, Vancouver, B.C., Canada. Further Information: Diane Taub, Executive Officer, ASP, 4720 Montgomery Lane, Suite 506, Bethesda, MD 20814, (301/654-3080)

June 27-July 1 — Twenty-Seventh Annual Meeting, HEALTH PHYSICS SOCIETY, Las Vegas, Nevada, Further Information: Diane Taub, Executive Officer, HPS, 4720 Montgomery Lane, Suite 506, Bethesda, MD 20814 (301/654-3080)

June 28-July 2 — Gordon Research Conference on Lasers in Medicine and Biology, Meriden, New Hampshire. Further Information: Dr. A. J. Welch, Biomedical Engineering, ENS 610, University of Texas, Austin, Texas 78712

Other Gordon Research Conferences of interest:

June 28-July 2 — Radiation Chemistry

July 5-9 — Mutagenesis, Biological and Chemical Mechanisms

July 5-9 — CO_2 Fixation by Green Plants

July 12-16 — UV/Visible Multiphoton Ionization and Dissociation Processes

July 19-23 — Origin of Life

Information about these and the 97 other Gordon Conferences may be obtained by contacting: Dr. Alexander M. Cruickshank, Director, Gordon Research Conferences Pastore Chemical Laboratory, University of Rhode Island, Kingston, Rhode Island 02881. Tel. 401/783-4011 or 401/783-3372

August 2-8 — Phycomyces Meeting, Cold Spring Harbor, New York 11724. Further Information: Dr. Patricia V. Burke, 469 Natural Science II, University of California, Santa Cruz, CA 95064 or Dr. E. D. Lipson, Department of Physics, Syracuse University, Syracuse, NY 13210

August 8-13 — Society for Industrial Microbiology - Annual Meeting - University of Minnesota, St. Paul, MN. Contact: Ms. Ann Kulback, Society for Industrial Microbiology, 1401 Wilson Blvd., Arlington, VA 22209, or call (703) 256-0337

August 16-29 — NATO Advanced Study Institute on New Developments in Membrane Research and Biological Energy Transduction. Island of Spetsai, Greece. Further Information: Dr. K.W.A. Wirtz, State University of Utrecht, Laboratory of Biochemistry, Padvalaan 8, P. O. Box 80.054, NL-3508 TB Utrecht, the Netherlands

August 29-September 9 — NATO Advanced Research Institute - Molecular Mechanisms of Photoresponsiveness, San Miniato - Pisa (Italy). For applications contact: Dr. G. Montagnoli, CNR, Instituto di Biofisica, 26 via S. Lorenzo, 56100 Pisa, Italy

MEETINGS (Continued)

1982

September 6-11 — 8th International Conference on Raman Spectroscopy - Applications to biomedical research. Bordeaux, France. Further Information: Professor J. Lascombe, 8th International Conference on Raman Spectroscopy, Universite de Bordeaux I, 351, cours de la Liberation F-33405 Talence, France

September 20-23 — Second EC Energy from Biomass Conference. Berlin, Germany, Further Information: Dr. D. Nicolay, Commission of the European Communities, DG XIIIA, L 4072 Kirchberg, Luxembourg

1983

July 10-15 — Third International Conference on Oxygen Radicals in Chemistry and Biology. Neuherberg/Munich, Germany. Further Information: Dr. Wolf Bors, Attention: III.ICOR, GSF Research Center, 8042 Neuherberg, F.R.G.

JOB OPENING

POSTDOCTORAL POSITION IN IMMUNOCYTOCHEMICAL INVESTIGATIONS OF PHYTOCHROME Available beginning 1 July 1982. Immunocytochemical and related morphogenically active chromoprotein, phytochrome, to consider possible interaction between calmodulin and phytochrome, and to study possible cytoskeletal-membrane interactions in the mechanism that causes rapid, controlled movements of phytochrome within the cell. Background in immunochemistry and experience with one or more immunocytochemical techniques (especially cryoultramicrotomy) is desired. Initial appointment for one year at salary of $14,500 with second year dependent upon satisfactory progress. Please send curriculum vitae and names, addresses and telephone numbers of three references (or 3 letters of reference if overseas) to Dr. Lee H. Pratt, Botany Department, University of Georgia, Athens, Georgia 30602. Telephone: 404/542-3732. Closing date 15 May 1982 or until position is filled. The University of Georgia is an Equal Opportunity/Affirmative Action Institution.

SUMMER INSTITUTE

The State University of New York at New Paltz will again sponsor a Summer Institute In Polymer Science and Technology and a Fall Institute in Science and Technology program.

May 3-5	"Composite Materials-Interface, Structure and Performances"
June 14-18	"Advances in Polymer Synthesis, Modification and Characterization"
June 21-25	"Advances in the Stabilization and Controlled Degradation of Polymers"
October 13-15	"Fundamentals of Adhesion: Theory, Practice and Applications"
October 18-22	"Scanning Electron Microscopy and X-Ray Microanalysis: Theory and Practice in Materials Science"
October 25-29	"Scanning Electron Microscopy and X-Ray Microanalysis: Theory and Practice in Biology and Medicine"
November 1-3	"Water-Soluble Polymers: Synthesis, Structure and Applications"
November 1-4	"Understanding Polymer Science: Synthesis, Characterization, Properties"

Contact: Dr. Angelos V. Patsis, Professor and Chairman, Chemistry Department, Institute Director, SUNY at New Paltz, New Paltz, NY 12561, Telephone: (914) 257-2175

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