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INTERNATIONAL COOPERATION IN PHOTOBIOLOGY

Association Internationale de Photobiologie
Part 2, 1975–1984

In 1975 Daphne Vince-Prue and David Hall described the history of the international photobiology organization (Vince-Prue and Hall, 1975). It was founded in Lausanne in 1928 under the name of Comité International de la Lumiere (C.I.L.) and later changed its name to Comité International de Photobiologie (C.I.P.). The following is a continuation of the history of international cooperation in photobiology.

In connection with the 7th International Congress on Photobiology held in Rome in 1976, it was decided to change the name once more. The organization had grown, and "comité" was a clear misnomer. C.I.P. became AIP, the "Association Internationale de Photobiologie" or "International Photobiology Association." The purpose of the organization is, according to the Statutes, "the stimulation of scientific research in physics, chemistry and climatology of non-ionising radiations (ultraviolet, visible and infrared) in relation to their biological effects, as well as the effects of the application of these radiations in biology and medicine." The subject coverage at the international congresses on photobiology (Table 1) shows in more detail what AIP considers as its field of work.

As the number of scientists has grown, national photobiology organizations have sprouted in various countries. AIP today is essentially a cooperation unit for these national societies, and most activities are handled by the latter. However, the parent organization ensures the continuity of the international congresses on photobiology, held every 4 years. It also organizes more specialized international meetings and helps finance them.

In 1978, the 50th anniversary of organized international cooperation in photobiology was celebrated by the arrangement of a workshop on "Solar Radiation Damage and the Induction of Skin Cancer" in Lausanne, the city where the organization was founded. The latest specialized workshop organized by AIP (jointly with the Indian Photobiology Society) was that on "Effects of Ultraviolet Radiation in Plants", in Delhi, November 1–5, 1982. It was hoped that by locating the Congress in India there would be an increased participation from developing countries, towards which AIP feels a special responsibility. It was also thought that the problem of the possible increase in the UV-B component of daylight and its impact on vegetation

Table 1. International congresses on photobiology

VII. *Rome* (Italy), *August* 29–*September* 3, 1976. President: F. Pocchiari. Secretary-General: A. Castellani.

Symposia: Photophysical and photochemical properties of excited states. Photoreactions in biological macromolecular complexes. Photomovement in microorganisms. Photosynthesis. Comparative effects of exciting and ionizing radiations. Photosensitized reactions of nucleic acids and proteins. Repair of radiation damage. Solar energy conversion systems. Photobiology in medicine. Cancerogenic effects of radiation. Light and development. Light induced degeneration of skin: chronic actinic dermatosis. Environment–space interactions: photobiological implications. Vision. Mutagenic effects of radiation.

Round tables: Units, nomenclature and dosimetry in photobiology. Topical photoprotection of normal skin. Photoprotection from UV and visible radiations. Photochemistry of psoriasis.

Farrington Daniels memorial lecture: Sir George Porter (UK): Solar energy.

Edna Roe memorial lecture: M. C. Paterson (Canada): Ataxia telangiectasia: An inherited human disease featuring radiosensitivity, neoplasia, and defective DNA repair.

VIII. *Strasbourg (France), July* 20–25, 1980: President: C. Hélène. Secretary General: M. Charlier.

Symposia: Trends in spectroscopy. Photoregulation. UV carcinogenesis and DNA repair. Primary processes in photosynthesis. Photochemical reactions in protein and in protein–nucleic acid complexes. Bioconversion of solar energy. Photobiology of rhodopsin and membrane systems. Photobiology and phototherapeutic aspects of furocoumarins. Phototherapy. Photomorphogenesis.

Round tables: Prebiotic photochemistry and photochemical reactions in space. Endogenous and exogenous inhibitors and sensitizers. Fundamental aspects. Usage and testing of sunscreens. Primary events involved in phytochrome action. Genetic engineering and DNA repair. Endogenous and exogenous inhibitors and sensitizers. Therapeutic and pathophysiological implications.

Finsen lecture: WOLFGANG JUNGE (FRG): Photosynthesis of green plants: Light as a substrate and as a probe.

Edna Roe memorial lecture: MARGARET L. KRIPKE (USA): Immunological aspects of UV carcinogenesis.

IX. *Philadelphia, PA, USA, July* 1–6, 1984. President: WILLIAM D. MCELROY. Secretary General: JAMES W. LONGWORTH.

Symposia: Recent developments in chemi- and bioluminescent systems. Photobiology of urocanic acid. Light and magnetic resonance: Biological systems. Induction by damaged DNA of repair systems in cells and bacteria. Model systems for photoreception in vision, photomovement and reaction centers. Modulation of light energy conversion in photosynthesis. Genetics of repair of DNA damage. Phytochrome: A photomorphogenic photoreceptor. Water splitting reaction in photosynthesis. Primary events in visual pigments and bacteriorhodopsin in response to light. Porphyrin phototherapy of cancer. Light-regulated processes in photoreception. Photoimmunology. Chronobiology.

Workshops: Systemic effects of UV radiation on human physiology. The experience of multicenter studies on the efficiency of PUVA and on the occurrence of human cancer. Ultraweak-level light emission from living systems: A tool for diagnosis and research.

Finsen lecture: T. C. VOGELMANN (Sweden): The contribution of light scatter to internal light quality and quantity in biological objects.

Edna Roe memorial lecture: BETSY M. SUTHERLAND (USA): Towards a molecular understanding of sunlight-induced skin cancer in mouse and man.

would be especially important for countries close to the equator and short of food. Unfortunately, only participants from India, the USA and Europe could attend, partly because of the slow action of UNEP.

National photobiology groups or societies associated with AIP now exist in the following countries (the year of affiliation in parenthesis): Czechoslovakia (1968), France (1929), Germany (1929), Hungary (before 1939), India (1964), Israel (before 1960, reorganized in 1983), Italy (1929), Japan (1962, reorganized in 1983), Netherlands (before 1939, reorganized in 1984), Norway (1983), Poland (1965), Sweden (1962), USSR (1973), United Kingdom (1929) and the USA (associated through the US National Committee for Photobiology from 1929). In the USA the American Society for Photobiology was first founded independently, but now (in 1982) has entered as a member of AIP, and thereby replaced the membership through the US National Committee for Photobiology. The American Society has a very large part of the world's organized photobiologists among its members, many of whom live outside of the United States. In several European countries the photobiologists are too few to form efficient national societies, and at the moment of writing plans are taking shape for the organization of a European Society for Photobiology.

The meetings organized by the national photobiology societies are too numerous even to be listed. However, it should be pointed out that many very successful international and regional photobiology meetings have also been organized independently of AIP or its member organizations, although in some cases with AIP sponsorship. Three series of photobiology meetings in the plant field, which seem to be perennials, are presented in Table 2. Due to the concern over a possible decreased ozone shield, the past period has also seen a number of meetings by various organizers concerning the effects of ultraviolet radiation on various organisms and ecosystems.

Table 2. Plant photobiology meetings

International Congresses on Photosynthesis
4th, September 4–9, 1977 in Reading (UK)
5th, September 7–13, 1980 in Halkidiki (Greece)
6th, August 1–6, 1983 in Brussels (Belgium)
7th, (planned) August 10–15, 1986 in Providence (RI, USA)
European Symposia on Photomorphogenesis in Plants
April 7–10, 1975 in Sutton Bonington (UK)
March 30–April 3, 1976 in Erlangen-Feuerstein (FRG)
March 19–25, 1977 in Bet Dagan (Israel)
August 13–18, 1978 in Aarhus (Denmark)
July 22–28, 1979 in Antwerpen (Belgium)
March 29–April 2, 1982 in Reading (UK)
July 19–23, 1983 at Frostavallen (Sweden)
April 15–19, 1985 in Wageningen (The Netherlands)
International Conferences on the Effect of Blue Light in Plants and Microorganisms
July 15–21, 1979 in Marburg (FRG)
July 10–17, 1983 in Marburg (FRG)

Proceedings and other AIP publications from the past period are shown in Table 3. It should be noted that a new international directory of photobiologists is now being compiled. Of course, many other photobiological publications have appeared during the period, among them three new journals: *Photobiochemistry and Photobiophysics* (Elsevier, Amsterdam, started in 1979), *Photosynthesis Research* (Martinus Nijhoff, The Hague, started in 1980) and *Photodermatology* (Copenhagen, started in 1984). In addition, also the *Photobiology Bulletin* (the membership bulletin of the British Photobiology Society), was started in 1979 and the *Newsletter* of the

Table 3. AIP publications

1. *Statutes for AIP and the Niels Finsen Foundation of AIP.* Lund 1977. Available from the Secretary General.
2. *International Directory of Photobiologists.* Third edn. 1977. Out of print.
3. *Research in Photobiology* (*Proceedings of the Seventh International Congress on Photobiology*), edited by Amleto Castellani, 776 pp. Plenum Press, New York 1977. ISBN 0-306-31034-1.
4. *Trends in Photobiology* (*Proceedings of the Eighth International Congress on Photobiology and the Colloque Internationale du CNRS on "Les Effets Biologiques et la Bioconversion duy Rayonnement Solaire"*), edited by C. Hélène, M. Charlier, Th. Montenay-Garrestier and G. Lanstriat. 673 pp. Plenum Press, New York 1982. ISBN 0-306-40644-6.
5. *International workshop on the Effects of Ultraviolet Radiation on Plants* (Speeches and summaries of discussions and poster sessions). Edited by K. K. Rohatgi-Mukherjee. New Delhi 1983.
6. *Proceedings of the International Workshop on the Effects of Ultraviolet Radiation on Plants* (scientific papers). Edited by L. O. Björn and J. F. Bornman. 102 pp. Physiologia Plantarum, Copenhagen 1983. ISBN 87-7001-144-3. Available from the Secretary General.
7. *International directory of photobiologists.* Fourth edn. 1985. Available from the Secretary General.

Table 4. Finsen Medals

1976	To H. F. BLUM (USA) for "contributions to photodynamic action and carcinogenesis by ultraviolet light."
	To S. B. HENDRICKS (USA) for "contributions to the control of plant development processes by light."
	To D. SHUGAR (Poland) for "contributions to photochemistry and the structure of nucleic acids and proteins."
1980	To RICHARD B. SETLOW (USA) for "contributions to photobiology and repair of nucleic acids."
1984	To KENDRIC C. SMITH (USA) for "fundamental contributions to photobiology". More specifically, Dr. Smith has worked with the genetic control and biochemical basis of the repair of DNA of cells damaged by UV radiation.
	To WOLFGANG HAUPT (FRG) for "fundamental contributions to photobiology". More specifically, Prof. Haupt has worked primarily with the light reactions of the green alga *Mougeotia* and, using mostly very simple equipment, has derived information about the regulator pigment phytochrome, which is of great general significance for plant photobiology.

American Society for Photobiology was started in 1972.

AIP administers the fund of the Finsen Foundation, which was established to honour the Danish scientist

Table 5. Boards of AIP

1976–1980	President: L. R. CALDAS (Brazil) Vice-Presidents: D. O. HALL (UK) C. HÉLÈNE (France) K. SHIBATA (Japan) F. URBACH (USA) Secretary General: L. O. BJÖRN (Sweden) Treasurer: A. WISKEMANN (FRG)
1980–1984	President: F. URBACH (USA) Vice-Presidents: E. MOUSTACCHI (France) K. K. ROHATGI-MUKHERJEE (India) H. SMITH (UK) K. L. WIERZCHOWSKI (Poland) Secretary General: L. O. BJÖRN (Sweden) Treasurer: H. HÖNIGSMANN (Austria)
1984–1988	President: K. K. ROHATGI-MUKHERJEE (India) Vice-Presidents: L. O. BJÖRN (Sweden) E. RIKLIS (Israel) W. SHROPSHIRE, Jr. (USA) T. YOSHIZAWA (Japan) Secretary General: R. M. TYRRELL (Swiss Institute for Experimental Cancer Research, CH-1066 Epalinges S./Lausanne, Switzerland) Treasurer: H. HÖNIGSMANN (Austria)

Niels Finsen who received the Nobel Prize in Medicine and Physiology in 1903 for his work in photodermatology. *Finsen medals* are awarded at International Congresses on Photobiology to scientists who have made outstanding contributions to photobiology (Table 4). At the congresses, attention is paid also to younger photobiologists by inviting them to give *Finsen lectures* or *Edna Roe lectures*, the latter being sponsored by the Edna Roe Memorial Fund. The recipients of these honours are listed in Table 1.

A trend that can be seen in different contexts is an increased emphasis on the education of a new generation of photobiologists. Photobiology schools have become a regular part of the congresses. They consist of review lectures on a level that can be followed by nonspecialists. Textbooks in photobiological subjects, as well as nontechnical accounts for a broad public, have appeared during the period. The American Society for Photobiology has appointed an education committee and started an education program. It has been realized that the greatest time for photobiology is yet to come.

LARS OLOF BJÖRN
Department of Plant Physiology
Box 7007, S-220 07 Lund, Sweden

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