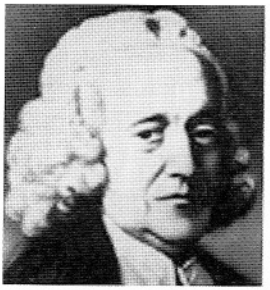

(a)

(b)

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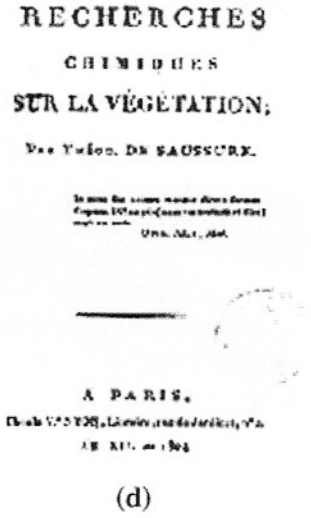
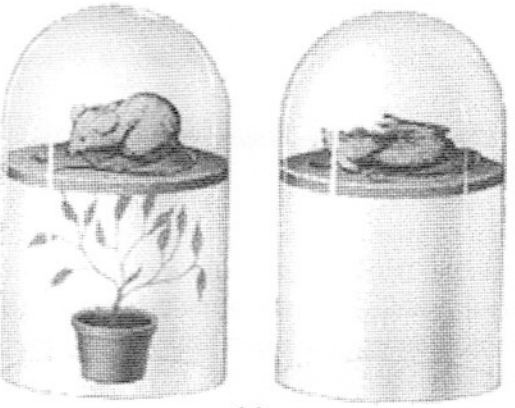


(d)



(e)

(f)

(g)

(h)

Fig. 1 – (a) Stephen Hales; (b) Joseph Priestley; and (c) Jan Ingen-Housz; (d) Cover of T. de Saussure's thesis; (e) Priestley's mouse experiment; (f) Robert Mayer; (g) Julius von Sachs; and (h) Theodor Engelmann.

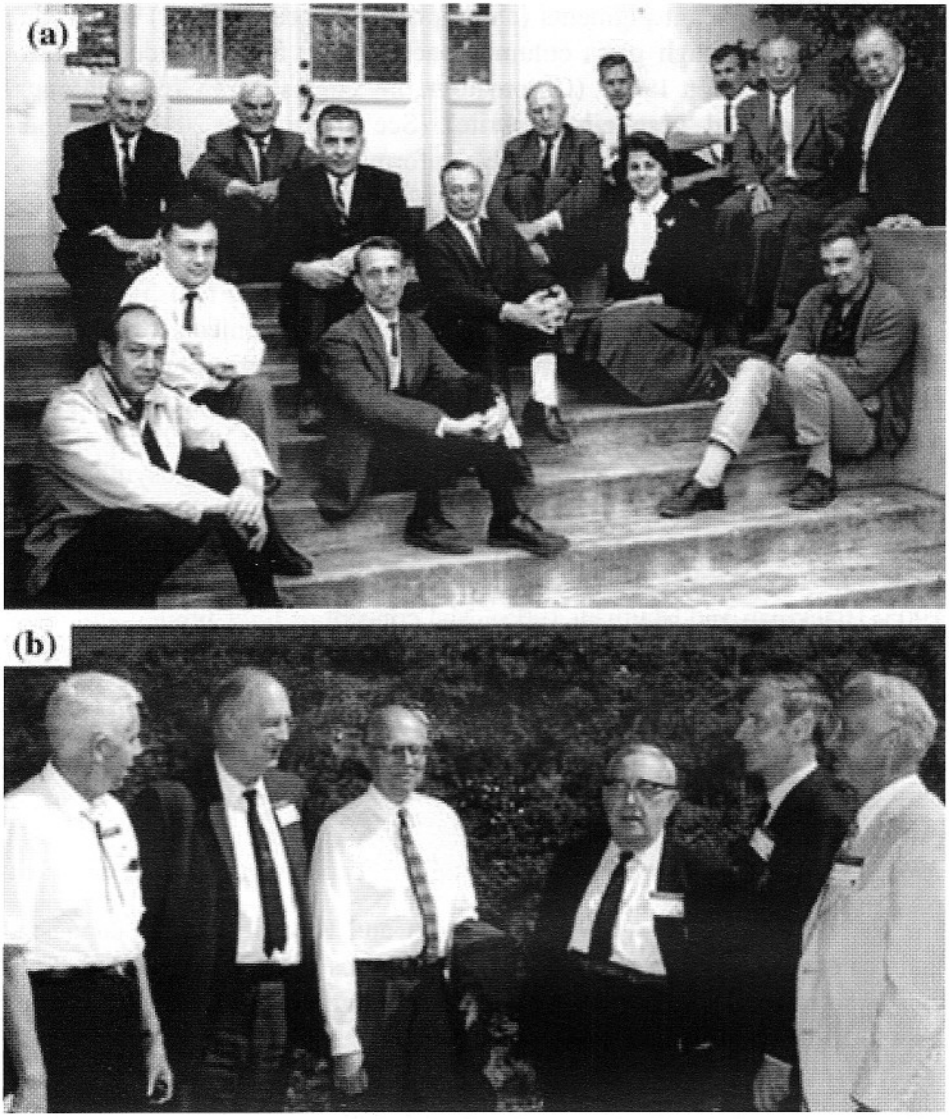


Fig. 3 – (a): James H.C. Smith and others in the mid-1960s at the Division of Plant Biology, Carnegie Institute of Washington (CIW), Stanford, California. *Top row* – Smith (first from left); C. Stacy French (third from left); Olle Björkman (fourth from left). *Middle row* – William Vidaver (center, with folded hands on his knees). *Next row down*: Yaroslav de Kouchkovsky (first from left; with glasses, white shirt and tie); and David C. Fork (second from left), among others. Photo, courtesy of CIW. (b): Past dignitaries of photosynthesis research, gathered at Gatlinburg in 1971. *Left to right*: William Arnold; C. Stacy French; Hans Gaffron; Eugene Rabinowitch; Robert Hill and Lawrence R. Blinks. Photo courtesy of Oak Ridge National Laboratory.

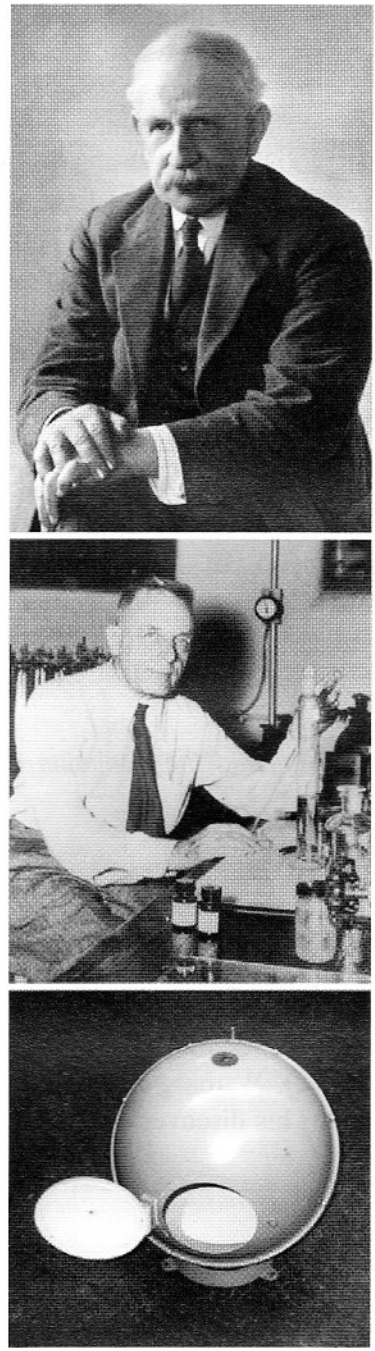


Fig. 4 – Top: Frederick Frost Blackmann. *Middle*: Otto Warburg, while he visited the 'Photosynthesis Laboratory' at the University of Illinois, Urbana, Illinois, during the late 1940s, after World War II. Photo courtesy of Clint Fuller. *Bottom*: Warburg's integrating sphere, used to measure the quantum yield of oxygen evolution. Photo courtesy of Elfriede K. Pistorius.

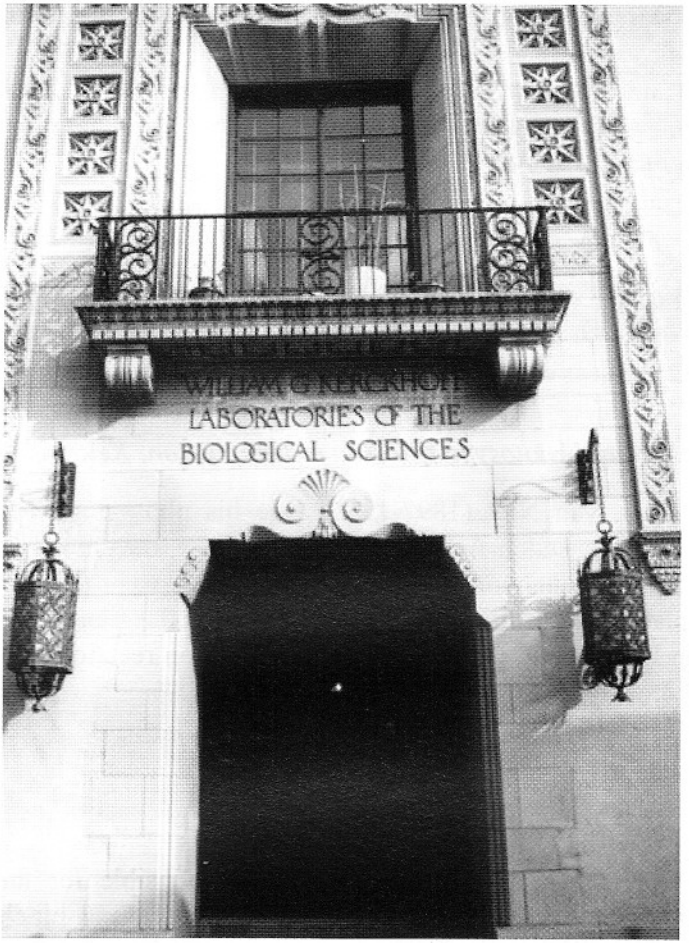


Fig. 5 – William Kerckhoff Laboratories of the Biological Sciences at Cal Tech, Pasadena, California, where the 1932 experiments on the 'Photosynthetic Unit' were performed by Robert Emerson and William Arnold. Photo by Govindjee, taken in 1995.

Fig. 6 – (a) A photograph, taken at the Division of Plant Biology, Carnegie Institution of Washington (CIW), Stanford, California (date, somewhere between 1938 and 1943), showing Charleton M. Lewis (back row, first from left); Hans Spoehr (back row, fourth from left), Robert Emerson (back row, fifth from left), Harold Strain (front row, sixth from left), among others. Photo is a courtesy of CIW. (b) Robin Hill (first from left), C. Stacy French (fourth from left), and James H. C. Smith (sixth from left), among other contemporaries, circa early 1950s. Photo was provided by the late Hans Gaffron family, via Peter Homann. (c) Jack Myers (*extreme right*) with Maria Ghirardi. Photo taken by Govindjee in 1992.

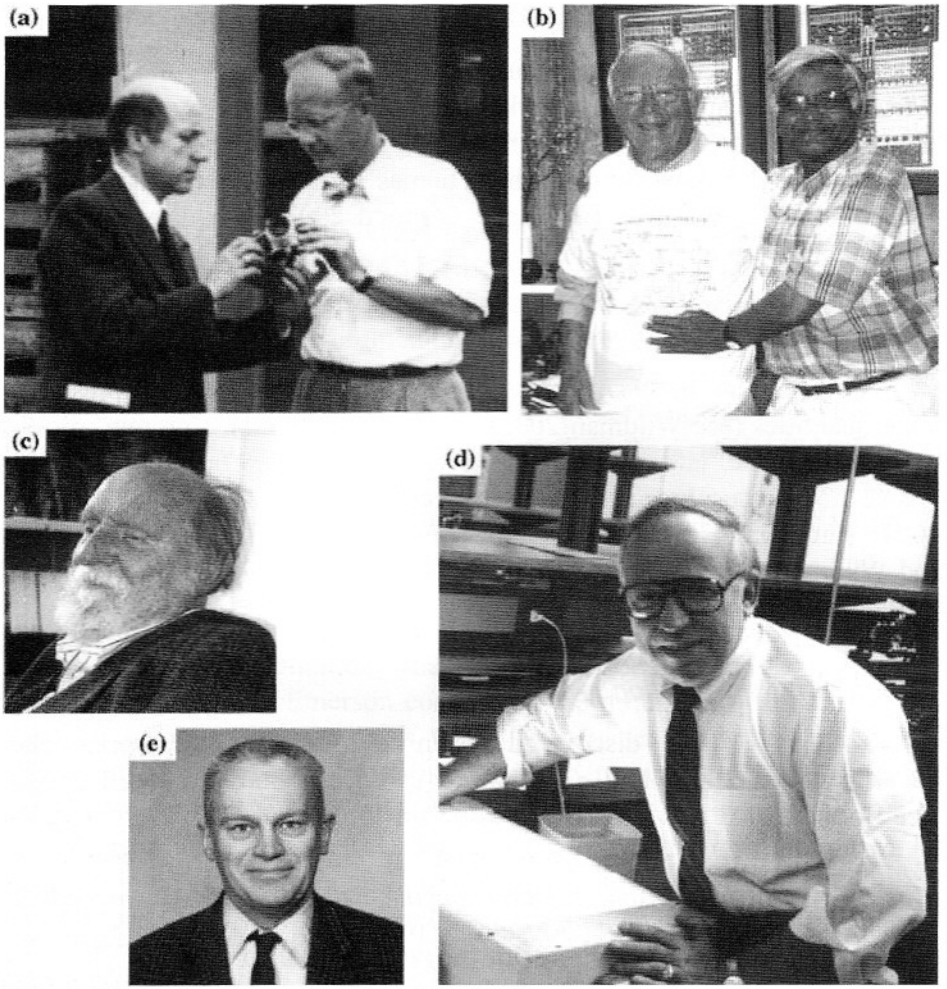


Fig. 7 – (a) Melvin Calvin (*left*) and Andrew Benson (*right*) examining a camera. Photo was provided by the late Calvin to Govindjee in 1988. (b) Andrew Benson, wearing the Calvin–Benson–Bassham cycle T-shirt (*left*) with Govindjee, who was jokingly hiding Calvin's signature on the shirt. Photo taken in August 2001 by Rajni Govindjee. (c) The late Bernard Strehler. Photo taken in 1995 by Govindjee. (d) Dave Krogmann in about 1964. Photo was provided by Krogmann. (e) Fred Crane. Photo was provided by D. Krogmann.

Fig. 8 – (a) A photograph taken in the middle 1950s. *Left to right*: Robert Emerson, Kenneth Thimann, Daniel Arnon, unidentified, and Dean Burk. Photo from the collection of the late Hans Gaffron family, provided via Peter Homann. (b) A 2002 photograph of Bob Buchanan (*center*) and two of the daughters of the late Daniel Arnon, in front of one of the homes of Arnon in Berkeley. Photo taken by Govindjee. (c) Coworkers of Robert (Bob) Emerson when the Emerson Enhancement effect, in photosynthesis, was discovered: Carl N. Cederstrand (*left*), and Ruth (Shortie) V. Chalmers (*center*), with Emerson (*right*). Photo taken in 1957 by Govindjee. (d) Govindjee standing in front of the door of 157 Natural History Building, University of Illinois, Urbana, Illinois, that led to Emerson's laboratory during 1943–1959. Photo taken in 1999 by Robert Clegg. (e) A photograph of Rajni Govindjee (*right*), Iris Martin (*center*) and Govindjee (*left*), who worked with George Hoch, in the summer of 1962, at Martin Marietta Labs. in Baltimore, Maryland, when they discovered Emerson enhancement effect in NADP reduction in chloroplasts. Photo was taken in 1999 by Amy Whitmarsh. (f) Robin Hill (*right*) and Achim Trebst (*left*). Photograph from the late Hans Gaffron collection, obtained via Peter Homann.

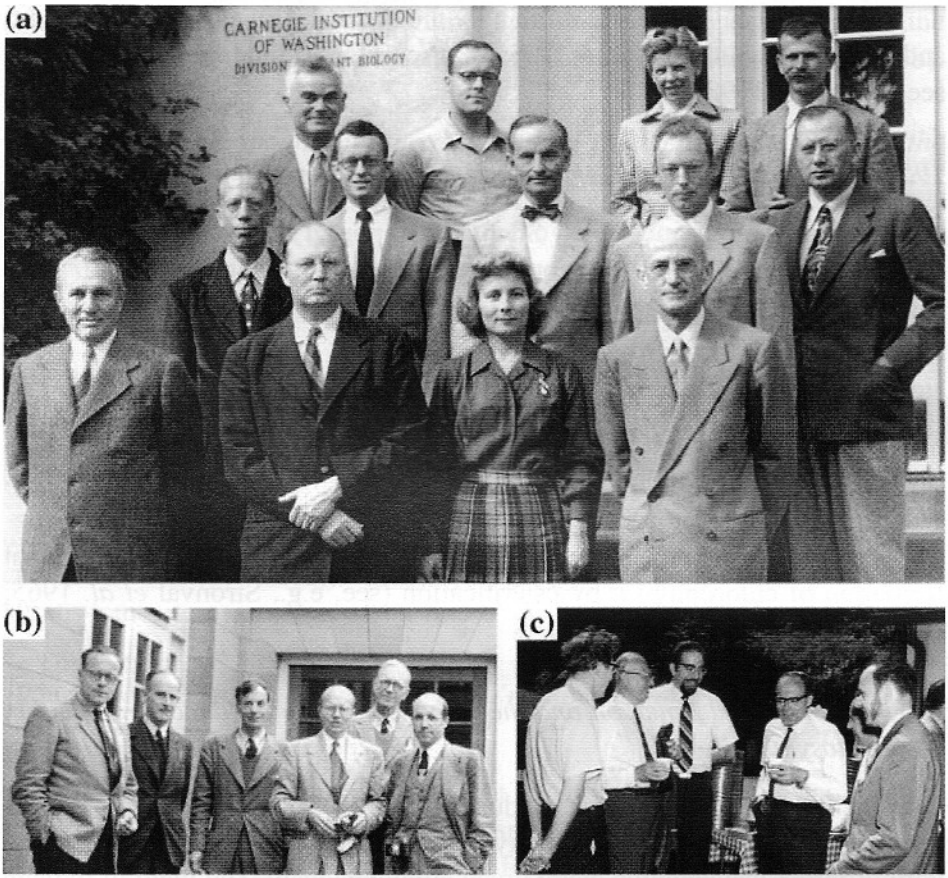


Fig. 9 – (a) A photograph of Bessel Kok, with others, taken at the Division of Plant Biology, Carnegie Institution of Washington (CIW), Stanford, California (date, somewhere between 1954–1959), showing Kok (back row, second from left); James H.C. Smith (middle row, third from left; wearing a bow tie), Hans Spoehr (front row, first from left), C. Stacy French (front row, second from left), and V.M.K. Young (Victoria Lynch) (front row, third from left), among others. Photo is a courtesy of CIW. (b) *Left to right*: Bessel Kok, Meirion Thomas, Robin Hill, Hans Gaffron, unidentified, and Melvin Calvin. (c) A 1963 photograph of Hans Gaffron (second from left), and Bessel Kok (fourth from left), among others.

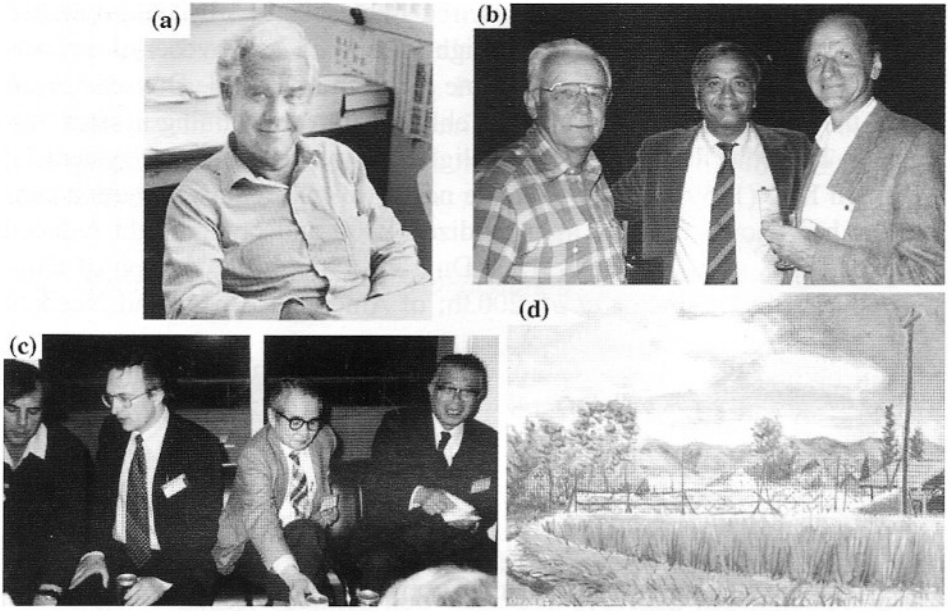


Fig. 10 – (a) Warren Butler. (b) Norman Good (*left*), Govindjee (*center*), and Achim Trebst (*right*). (c) Seikichi Izawa (third from left), with Gernot Renger and Tony Crofts (*on his right*), and the late Hirose Huzisige (*on his left*). (d) 'A rural Japanese scene, 1946' by Seikichi Izawa, courtesy of the Izawa family.

Fig. 11 – (a) Don DeVault (*center*) with Andrej Rubin (*right*) and Mike Seibert (*left*). (b) Institut de Physico Chimique Biologie Building at 13 Rue Pierre et Marie Curie, Paris V (France); it is in this building that one of us (G) had met R. Wurmser, and where Pierre and Anne Joliot, R. Delosme and many other scientists work. Photo by Govindjee. (c) Wolfgang Junge in front of Emerson's door at Urbana, Illinois. Photo taken in 2002 by Govindjee. (d) Norio Murata (*extreme right*), with Prasanna Mohanty (*sitting on the floor; extreme left*), George Papageorgiou, Rajni Govindjee, and Govindjee in Norio Murata's home in Okazaki, Japan. Photo taken by Mrs Murata in 1996.

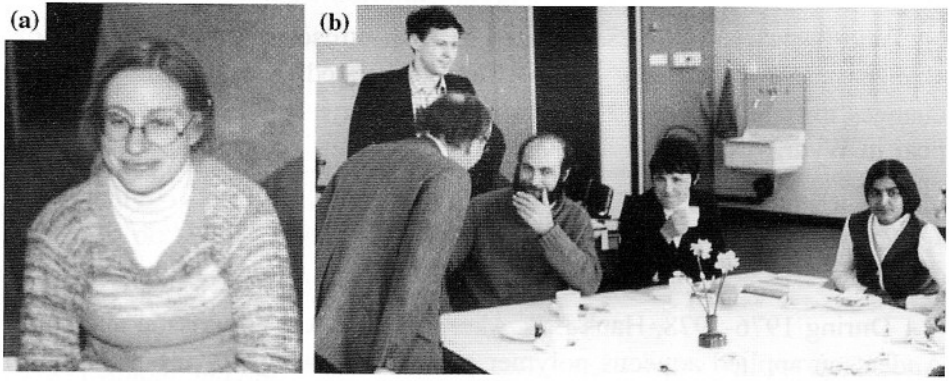


Fig. 12 – (a) Bernadette Bouges-Bocquet. Photo by Govindjee, taken in the 1980s, at 1101 McHenry Street, Urbana, Illinois. (b) Bruno Velthuys (*standing*) with L.N.M. Duysens (*in the process of sitting down*). Guy Paillotin (*hand on his beard*), Anne-Lise Eienne (*with cup in hand*) and Rajni Govindjee. Photo taken by Govindjee in the Netherlands, around 1976.

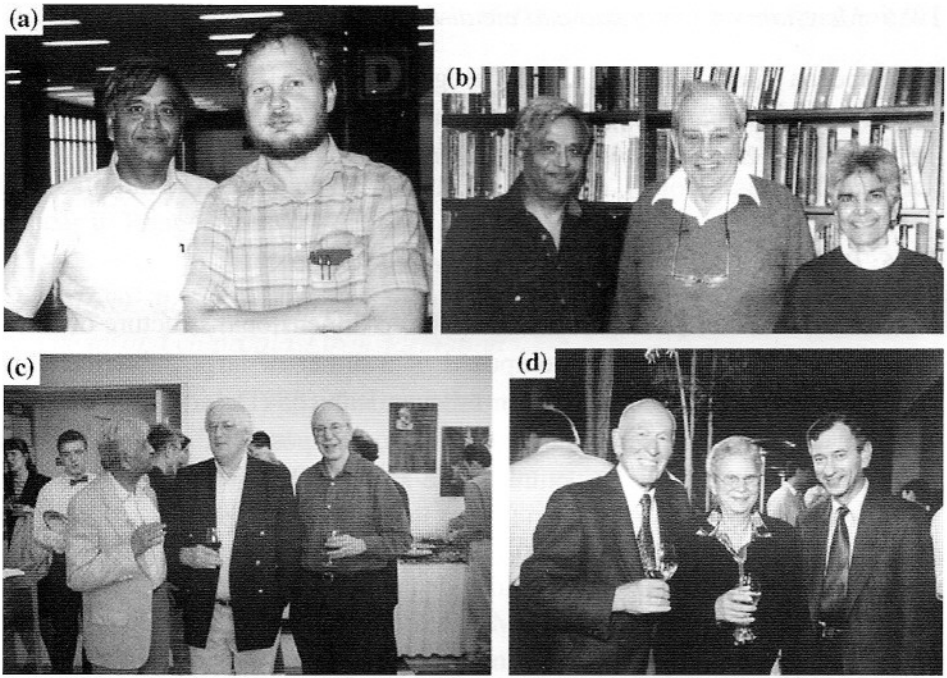


Fig. 13 – (a) Hartmut Michel (*right*) with Govindjee (*left*). Photo: circa 1990. (b) Rudolph Marcus (*center*) with Rajni Govindjee (*right*) and Govindjee (*left*) in Marcus's office at Cal Tech, Pasadena, California. Photo: circa 1995. (c) John Walker (*center*) with Robert Gennis (*right*) and Govindjee (*left*) at a reception given by the Department of Biochemistry, University of Illinois at Urbana, Illinois. Photo taken in 2002 by Ashtamurthy S. Pawate. (d) (*left to right*) Paul Boyer, Elizabeth Neufeld (Chair and Professor, Department of Biological Chemistry, University of California at Los Angeles, UCLA) and Emil Reisler (then Chair and current Professor UCLA Department of Chemistry and Biochemistry) at a reception following special ceremony dedicating the new name of the MBI Building on the UCLA campus to Paul D. Boyer Hall on Monday, November 15, 1999, at Paul D. Boyer Hall patio. Photo courtesy of Sabeeha Merchant.

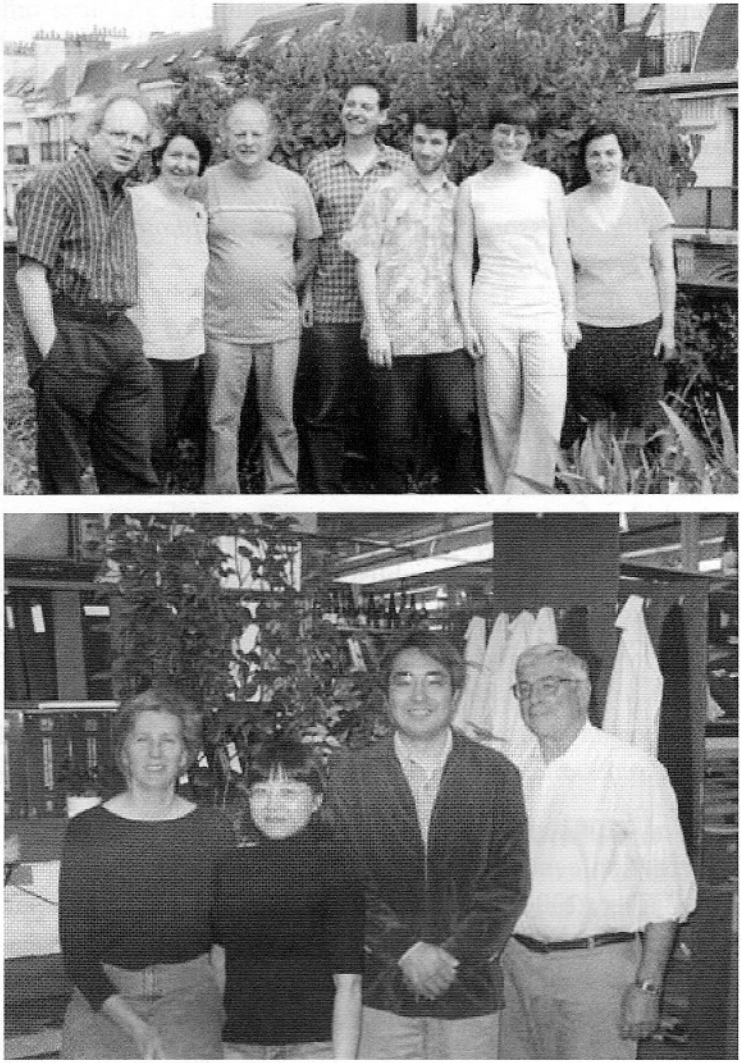
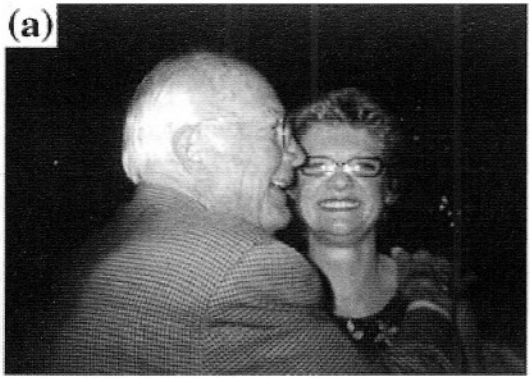


Fig. 14 – Cytochrome b_6/f structure research groups. (*Top*) The Paris (France) group: *From left to right*: Jean-Luc Popot, Francesca Zito, Yves Pierre, Daniel Picot, David Stroebel, Cécile Breyton and Claudine Lebreton. (*Bottom*) The Purdue (Indiana, USA) group: *From left to right*: Janet L. Smith, Huamin Zhang, Genji Kurisu and William A. Cramer.



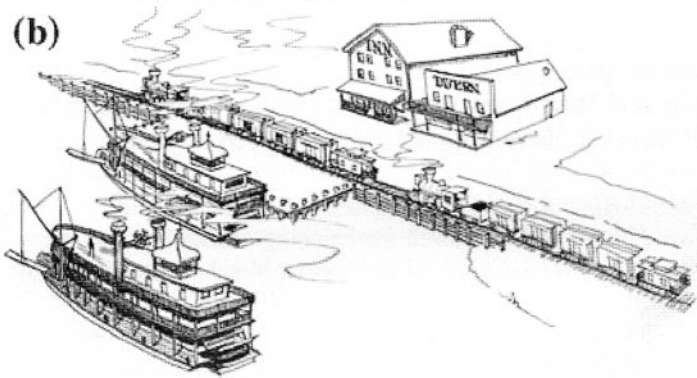


Fig. 15 – (a) Andrew Benson and Christa Critchley dancing at Brisbane, Australia, in 2001, celebrating the progress of photosynthesis research from Stephen Hales (1727) to Horst Witt (2001). (b) An unpublished (ca. 1950) ink drawing by Eugene Rabinowitch explaining to students the bottleneck reactions of photosynthesis. Electron (or hydrogen atom) transfer as a faster reaction analogous to soldiers being brought by fast trains to the sea shore; and the loading of the soldiers on the slow ships, being the bottleneck event. We imagine that it hints at the slower reactions of the Calvin–Benson–Bassham cycle, and the faster reactions of the production of ATP and reduced NADP.