Photosynthesis

Proceedings of the C.S. French Symposium on Photosynthesis Held in Stanford, California, July 17–23, 1988

Editor

Winslow R. Briggs
Department of Plant Biology
Carnegie Institution of Washington
Stanford, California

Alan R. Liss, Inc., New York

Address all Inquiries to the Publisher
Alan R. Liss, Inc., 41 East 11th Street, New York, NY 10003

Printed in the United States of America

The publication of this volume was facilitated by the authors and editors who submitted the text in a form suitable for direct reproduction without subsequent editing or proofreading by the publisher.

Library of Congress Cataloging-in-Publication Data

C.S. French Symposium (1988 : Stanford, Calif.)
Photosynthesis : proceedings of the C.S. French Symposium held in Stanford, California, July 17-23, 1988 / editor, Winslow R. Briggs.
p. cm. -- (Plant biology ; v. 8)
Includes bibliographies and index.
ISBN 0-8451-1807-2
1. Photosynthesis--Congresses. I. French, Charles Stacy, 1907-
. II. Briggs, Winslow R. III. Title. IV. Series.
QK882.C24 1988
581.1'3342--dc20 89-8332
CIP

Photosynthesis, pages 1–3

MY ASSOCIATION WITH STACY FRENCH

Govindjee

Departments of Physiology and Biophysics, and Plant Biology, University of Illinois at Urbana-Champaign, 289 Morrill Hall, 505 South Goodwin Avenue, Urbana, IL 61801

An exciting series of articles on the form and function of the photosynthetic apparatus is presented in this book. This is an area in which Stacy French has made enormous contributions (French, 1979). In particular, Stacy's pioneering work (see *e.g.* French, 1971) on the spectral forms of chlorophyll *a* and their functions continues to be at the cornerstone of discussions in photosynthesis.

I shall fail in my job as chairman of the session on the "Form and Function of the Photosynthetic Apparatus" if I did not include the remarks I made, about my association with Stacy, at the time of the conference.

I had heard about Stacy when I was a student of Robert Emerson and Eugene Rabinowitch from 1956-1960 (first two years with Emerson until his death, and then with Rabinowitch). During that time, I had heard about the French press, of course, but I thought it was one of those American things like the French toast! Emerson, however, educated me on its origin, *i.e.*, its creation/invention by Stacy French. Rabinowitch, on the other hand, instructed me on Stacy's work on fluorescence and energy transfer (Franck *et al.*, 1941; French and Young, 1952). I was already aware of Stacy's work on the Hill reaction (French *et al.*, 1946), but it was Rabinowitch who told me that it was French who had named the chloroplast reaction, discovered by Robin Hill, as the Hill reaction (see French, 1979).

In 1960, I published (Govindjee and Rabinowitch, 1960) action spectra of the Emerson Enhancement Effect in the green alga *Chlorella* and the diatom *Navicula* showing peaks in the chlorophyll *a* (Chl *a*) region at 670nm, suggesting that some Chl *a* belonged to the short-wave (accessory or auxiliary pigment) system (the PSII of today). Later, I saw papers from Stacy's laboratory showing a similar peak (see *e.g.* French *et al.*, 1960). Being inexperienced in the ways of scientific life, I thought,

wrongly, of course, that this was the end of my scientific career since my work was not recognized and cited by an authority in the field. I thought that the award of my Ph.D. was threatened since the University of Illinois requires "original" work for Ph.D. I discussed this with Rabinowitch, my thesis advisor. He was quite cool about it and said why don't you write a letter to French. I wrote, perhaps, a very stupid letter to Stacy; but, I remember receiving a very kind and wonderful reply. I believe it said something about independent observations in science. I was relieved and decided that I must work with this wonderful person sometimes in the future.

When Rajni (my wife) and I were at the Carnegie Institution of Washington at Stanford in the summer of 1963, we learned from Stacy how doing experiments can be really fun, and it was fun. We enjoyed the use of the automatic action spectrophotometer he had constructed; Stacy also helped us do the experiments on oxygen evolution in the red alga *Porphyridium* in alternating light flashes (Govindjee and Govindjee, 1965). His input in this paper was greater than mine, and he should have been a coauthor of this paper. It was indeed easy and fun to work with Stacy. He never looked over our shoulders when we were doing experiments, and, I have followed this rule in my life with my own graduate students.

On the lighter side, I learned during the 1963 visit that the Carnegie Inst. of Wash. (as it was listed in the telephone directory) was sometimes mistaken by local residents to be a laundry service! A few years ago, I received an interesting letter from H.I. Virgin of Sweden. He described an anecdote about the discovery of a new fluorescence band which appeared and disappeared depending upon Stacy's presence or absence in the room. Its origin was ultimately traced to Stacy's fat cigar. We need not worry about such emission bands as Stacy no longer smokes cigars.

Finally, it is association with people like Stacy that makes science so much fun. Happy 80th Birthday Stacy.

REFERENCES

Franck J, French CS, Puck TT (1941). Fluorescence of chlorophyll and photosynthesis. J Phys Chem 45:1268-1300.

French CS (1971). The distribution and action in photosynthesis of several forms of chlorophyll. Proc Natl Acad Sci USA 68: 2893-2897.

French CS (1979). Fifty years of Photosynthesis. Annu Rev Plant Physiol 30:1-26.

French CS and Young VMK (1952). The fluorescence of red algae and the transfer of energy from phycoerythrin to phycocyanin and chlorophyll. J Gen Physiol 35:873-890.

French CS, Holt AS, Powell RD, Anson ML (1946). The evolution of oxygen from illuminated suspensions of frozen, dried and homogenized chloroplasts. Science 103:505-506.

French CS, Myers J, McLeod GC (1960). Automatic recording of photosynthesis action spectra used to measure the Emerson Enhancement. Symp Comp Biol 1:361-365.

Govindjee, Govindjee R (1965). Two different manifestations of enhancement in the photosynthesis of *Porphyridium cruentum* in flashing monochromatic light. Photochem Photobiol 4:401-415.

Govindjee and Rabinowitch E (1960). Two distinct forms of chlorophyll *a in vivo* with distinct photochemical functions. Science 132:355-356.