Foreword

"The path of carbon in photosynthesis" for PROGRESS IN BOTANY: 50 years of CALVIN-BENSON cycle – 30 years of KELLY-LATZKO reviews

While writing this Foreword and trying to focus my thoughts on the biochemistry of photosynthesis, a handsome slim hardcover booklet of 104 pages bound in dark blue linen is in front of me on my desk:

"The Path of Carbon in Photosynthesis"
J. A. BASSHAM and M. CALVIN, 1957

I acquired it in the month of my oral Ph.D.-exams, April 1960, to get prepared with the Nobel-laureate's text. In 2004 in his last swan-song review for PROGRESS IN BOTANY GRAHAME J. KELLY celebrated "The CALVIN cycle's golden jubilee" in an overview of 50 years of carbon flowing for the progress in botany. He had met ERWIN LATZKO in 1970 in another then foremost and now historic place of the biochemistry of photosynthesis, the laboratory of MARTIN GIBBS at Brandeis University, Massachusetts. Four years later LATZKO and KELLY (1974) published their first joint review on photosynthetic carbon metabolism, starting off a long flow of articles on the flow of carbon in the series PROGRESS IN BOTANY. Most faithfully they produced regular accounts of the progress in PROGRESS IN BOTANY every second year, and when ERWIN LATZKO decided to retire after the 1996 review GRAHAME KELLY carried on alone.

Most of the reviews are headed by quotations and mottos alluding to both the author's sympathetic sense of humour and their deep concern for the issue of photosynthesis harvesting the sun, and in this vein the quotation in the 1992 review (KELLY and LATZKO, 1992) best suits as a representative example:

"The first man I saw was of a meagre aspect, with sooty hands and face, his hair and beard long, ragged and singed in several places. His clothes, shirt and skin were all of the same colour. He had been eight years upon a project for extracting sunbeams out of cucumbers, which were to be put into vials hermetically sealed, and let out to warm the air in raw inclement summers. He told me, he did not doubt in eight years more, that he should be able to supply the Governor's garden with sunshine at a reasonable rate ..."
JONATHAN SWIFT in *Gulliver's Travels*, ca. 1727.

With the 2004 review GRAHAME KELLY now also decided to retire. He does it at the climax of the golden jubilee of the CALVIN cycle, and this now certainly ends an era of photosynthesis reviewing. Reviews in the future will have a different touch, in as much as progress advances into the molecular realm: *"The transformation of a pig with a spinach gene has now been described"* (Saeki et al. 2004; see notes added in proof to the vol. 64, 2002-review in PROGRESS IN BOTANY, in this volume).

Looking forward to this book presenting the 16 reviews of 30 years of photosynthesis in PROGRESS IN BOTANY has a historical twist as the book demonstrates the development of the field over the decades. Nevertheless, it is more than looking back. It presents the reader with an up-to-date account of the state of the field. Hence we owe thanks to GRAHAME KELLY and Springer-Verlag for presenting the entire collection of the 16 reviews in this volume. It will be stimulating reading for all interested in the biochemistry of photosynthesis. Great thanks are also due to URSULA GRAMM for her continuous great care over very many years in general for PROGRESS IN BOTANY at Springer Verlag in Heidelberg and particularly for her care for the present book.

GRAHAME KELLY has meticulously re-read all the reviews again to develop updating comments from the perspective of 2005. These are added at the ends of the individual reviews compiled in this volume. It is noteworthy that astonishingly little needed to be said which underlines the evergreen liveliness of each individual review.

I wish this book about the path and metabolism of carbon in photosynthesis smooth paths and a metabolic generation of new approaches, ideas and insights in the community interested in the biochemistry of photosynthesis.

Darmstadt, in August 2005 ULRICH LÜTTGE

References

Bassham JA, Calvin M (1957) The path of carbon in photosynthesis. Prentice Hall, Inc., Englewood Cliffs, N.J.

Kelly GJ, Latzko E (1992) Photosynthesis: Carbon metabolism. Twenty years of following carbon cycles in photosynthetic cells. Progress Bot 54: 174–200

Saeki et al. (2004) Functional expression of a Δ12 fatty acid desaturase gene from spinach in transgenic pigs. Proc Natl Acad Sci USA 101:6361–6366