1	
2	My turn to thank many around the World: Past and present:
3	Primarily for photosynthesis research in my life
4	
5	Govindjee
6	Department of Plant Biology, Department of Biochemistry, and Center of Biophysics and
7	Quantitative Biology, University of Illinois at Urbana-Champaign, Urbana, IL 61801 USA
8	(E-mail: <u>gov@illinois.edu;</u> url: <u>http://www.life.illinois.edu/govindjee/)</u>
9	
10	<b>January 1, 2019</b>
11	"Only when photosynthesis was invented about two and a half hillion years ago did oxygen
12	become part of earth's air and, because oxygen is a dangerous, reactive chemical, this poisoning
13	of the planet wiped out many creatures and forced others into hiding. These oxygen-haters live to
14	this day in lake bottoms, in swamps, and deep in the soil, eking out an existence in oxygen-
15	free environments. Other creatures adapted to the new pollutant and, using an elegant sidestepping
16	maneuver, turned the toxic oxygen to their advantage. Thus was born respiration using oxygen, an
l / 10	energy-liberating biochemical trick that we have inherited. Our lives therefore depend on an
10	in Nature Viking on 26, 27
17	in Nature. Viking, pp 20–27.
20	
21	In this Letter, I honor and thank all with whom I have interacted with in my research career
22	that began in the Department of Botany at Allahabad University, Allahabad, U.P, India, in
23	1954, and continued for more than 40 years, starting in 1956, at the University of Illinois at
24	Urbana- Champaign, Illinois, USA, until I retired in 1999. I was fascinated by the primary
25	events from the time light is absorbed until water is oxidized and reducing power is made;
26	we (i.e., those listed here) measured some of the key reactions and had great fun doing it.
27	However, during the last 20 years of my Emeritus life, the focus has changed to recognize the
28	players (big and small) in the field of photosynthesis; to help younger scientists; and to
29	explore how we can use photosynthesis for the benefit of us all. The current <i>Letter</i> is merely

30 to say "Thank You" to everyone I have published with in my academic life.

I am highly thankful to Robert (Bob) Blankenship, Thomas (Tom) Sharkey and
 George C. Papageorgiou for reading this letter before its publication on-line. I take full
 responsibility for all the left-over errors.

- 34 -----
- 35

Key words: Photosynthesis; Mentors and Professors; Graduate Students; Leaders; Collaboration;
 Team Work

38

### 39 **Prolog**

40 As I look back on (and in) my research life, starting in late 1954, until today, I realize immediately

41 that I have been very lucky to have had wonderful professors and mentors and many others who

- 42 have shaped my life in exciting research directions (Govindjee, 2019); I have decided to list these
- 43 wonderful persons here in 5 sections (each section being alphabetically arranged): (A) professors
- 44 and mentors; (B) Other leaders in the field who have influenced me; (C) My former graduate
- 45 students as well as those of others who were associated with me in some manner; (D) Senior

46 scientists, visiting professors and post doc associates, who worked with me, or came to work with 47 me at the University of Illinois at Urbana-Champaign, UIUC; and (E) Other co-authors or co-48 editors (including professors & senior scientists, but excluding those listed above in sections A-49 D). Unfortunately, for all of us, many are no more\* with us; their names are bolded and are in 50 italics. The list also includes many whom I never personally met, but they collaborated via others 51 I knew (or know), and are as important to me as the others. With help from many, I have provided 52 the full names of all except just a couple that we have not found vet. Further, I have added 53 parenthetically the years I have coauthored a paper, a review, a tribute or a news report. 54 I invite you all to visit my web page at: http://www.life.illinois.edu/govindjee/. 55 Information on publications (from where the list below was prepared) is at : 56 http://www.life.illinois.edu/govindjee/recent papers.html and at : 57 http://www.life.illinois.edu/govindjee/pubschron.html. (A large number of publications can be downloaded from these two sites.) 58 59 Since the following list may be incomplete, I request the readers to send an e-mail to me 60 (gov@illinois.edu) about any errors they find. 61 62 A. Professors & mentors 63 64 *Robert Emerson*<sup>\*</sup>, University of Illinois at Urbana-Champaign (UIUC) (Rabinowitch, 1961; Govindiee, 2004; Govindiee, 2018) 65 66 *Eugene Rabinowitch\**, UIUC (1960;1961; then as a colleague (joint advisor): 1965-- 1969; 67 1973) (Bannister, 1972; Govindjee and G.C. Papageorgiou, in preparation, 2019) 68 Shri Ranjan\*, University of Allahabad (1955) 69 (Laloraya, 1970) Jan Bartholomeus Thomas\*, Visiting Professor from the State University, Utrecht (1960; 1961) 70 71 (van Ginkel and Goedheer, 1991) 72 73 B. My favorite leaders in the field 74 75 William (Bill) Arnold\*, Oak-Ridge, Tennessee (1983) 76 (Choules and Govindiee, 2004; Govindiee and Srivastava, 2004) 77 Louis (Lou) N.M. Duysens\*, Biophysics, University of Leiden, Leiden (1976) 78 (Govindiee and Pulles, 2016) 79 C. Stacy French\*, Carnegie Institution of Washington at Stanford 80 (Govindjee and Fork, 2006) 81 Herbert (Herb) S. Gutowsky\*, School of Chemical Sciences, UIUC (1976; 1978; 1981; 1983; 82 1984; 1987; 1988) (Jonas and Slichter, 2006) 83 Martin D. Kamen\*, University of California at San Diego (1969) 84 (Govindjee and Blankenship, 2018) Bessel Kok\*, Research Institute of Advanced Studies (RIAS), Martin Marietta Labs, Baltimore 85 86 (Myers, 1987) Gregorio Weber\*, when he was at UIUC, and had taught me "All I wanted to know about 87 88 Fluorescence, but was afraid to ask" (Jameson, 1998) 89 90 C. Former graduate students and a few others

- 91
- 92 (For details, see: <u>http://www.life.illinois.edu/govindjee/g/GraduateStudents.html</u>)
- 93 (Year of PhD, and years of published papers, are included; below, I have used the generic term of
- 94 Plant Biology<sup>#</sup> for degrees that were either in "Botany" or in "Plant Physiology" or in "Cell and
- 95 Molecular Biology" area, or program)
- 96
- 97 Maarib D. L. Bazzaz (formerly Bakri) (PhD, 1972, Plant Biology<sup>#</sup>; 1967; 1973;1974)
- 98 Glenn W. Bedell (PhD, 1972, Plant Biology;1966; 1973)
- 99 Danny Blubaugh (PhD, 1987, Plant Biology;1984—1986;1988;1989)
- 100 Jiancheng Cao (PhD, 1992, Plant Biology; 1988; 1990 --1993)
- Carl N. Cederstrand (PhD, 1965, Biophysics; with Eugene Rabinowitch;
   1960;1961;1963;1966;1967)
- 103 Fredrick (Fred) Y. Cho\* (PhD, 1969, Biophysics; 1966; 1970) (Govindjee et al., 2017)
- 104 Raymond (Ray) Chollet (PhD, 1972, Plant Biology; with Dominick Paolillo and William Ogren)
- 105 Roger Chylla (PhD, 1990, Biophysics; with John Whitmarsh)
- 106 William (Bill) Coleman (PhD, 1987, Plant Biology; 1984; 1985;1987;1988;1990;1993)
- 107 Julian J. Eaton-Rye (PhD, 1987, Plant Biology; 1984—1988; 2012)
- 108 Fatima El-Shintinawy (Plant Biology; PhD in Egypt; 1990)
- 109 James (Jim) Fenton (Biophysics; 1979; 1980;1987)
- 110 Oliver (Olli) Holub (Biophysics; PhD work under Robert Clegg; 2000; 2003;2007)
- 111 Paul A. Jursinic (PhD, 1977, Biophysics; 1972; 1976—1979;1982)
- 112 Rita Khanna (PhD, 1980, Plant Biology; 1977–1981; 1983; 2018)
- 113 Anne Krey (MS, 1966, Biophysics; 1966)
- 114 Ted Mar (PhD, 1971, Biophysics; 1969; 1971;1972;1974)
- 115 *Prasanna K. Mohanty*\* (PhD, 1972, Plant Biology; 1970--1975)
- 116 (Tiwari et al., 2014; Papageorgiou, 2014; Naithani and Govindjee, 2018)
- 117 John C. Munday (PhD, 1968, Biophysics; 1967; 1969;1970; 2017)
- 118 George C. Papageorgiou (PhD, 1968, Biophysics; 1967-1969;1971;1973;1998;1999, 2004;
- 119 2007;2009; 2011;2012; 2014; 2016--2018)
- 120 Ralph Schooley (Biophysics; 1976)
- 121 Hyunsuk Shim (PhD, 1992, Biophysics; with Peter Debrunner; 1990)
- 122 Paul Spilotro (Plant Biology; 1998; 2002; later MD from George's University, 2004)
- 123 Alan (Al) J. Stemler (PhD, 1974, Plant Biology; 1973 --1975)
- 124 David (Dave) VanDerMeulen (PhD, 1977, Biophysics; 1973--1977)
- Willem (Wim) F. J. Vermaas (1981;1982; 1991; Biology & Agriculture DSc in 1984,
  from The Netherlands)
- 127 Daniel Wong (PhD, 1979, Biophysics; 1976 -- 1981)
- 128 Thomas (Tom) J. \*Wydrzynski (PhD, 1977, Plant Biology; 1974--1980)
- 129 (Conlan et al., 2018; Govindjee et al., 2018)
- 130 Jin Xiong (PhD, 1996, Plant Biology; 1992; 1995 --1998)
- 131 Chun-He Xu (PhD, 1992, Biophysics; 1988—1992; 1995; 1997--2001)
- 132 Louisa Yang (MS, 1965, Plant Biology; 1966)
- 133 Barbara A. Zilinskas (PhD, 1975, Plant Biology; 1972–1976; 1987; 2018)
- 134

## D. Senior scientists/ visiting profs/ post doc associates (who worked or came to work at UIUC)

- 137
- 138 Patrick (Pat) Breen (active participant in research of the group; provided a leadership role)
- 139 *Jean-Marie Briantais*\*, (1970; 1972; 1977;1979)
- 140 (de Kouchkovsky and Cerovic, 2005)
- 141 Christa Critchley (1982--1984)
- 142 Mrinmoyee Das (1967; 1975; jointly with Eugene Rabinowitch)
- 143 Ralphreed (Ralph) Ahad oglu Gasanov (1974; 1979)
- 144 Ashish K. Ghosh\* (1966; jointly with Eugene Rabinowitch):
- see an article by Ghosh (2004)
- 146 Adam Gilmore (1995; 1996; 1998--2000)
- 147 *Elizabeth (Liz) Gross*\* (1975)
   148 < http://www.bio.net/mm/</li>
  - < http://www.bio.net/mm/photosyn/2007-October/001914.html>
- 149 Takeshi Kambara (1985; 1986)
- 150 Ashok Kumar (active participant in research of the group)
- 151 *Shmuel Malkin*\* (1980) (Herbert et al., 2018)
- 152 Ismael Moya (1977)
- 153 Teruo Ogawa (1982)
- 154 Barbara Prezelin (1979)
- 155 G. Sarojini (1981)
- 156 Manfredo J. Seuffereleld (2001;2007;2008; 2012;2015)
- 157 Carmela Shimony (1967)
- 158 *Beazy Sweeney*\* (1979) (Vanden Driessche, 1990)
- 159 Karel Vacek (1977; 1978)
- 160 Jack J.S. Van Rensen (1978; 1981; 1982; 1984; 1989; 1991; 1993; 1995; 1997; 1999)
- 161 162

# E. Other co-authors or co-editors (including professors & senior scientists, but excluding those in sections A-D)

- 163 164
- 165 Ziya Kagranan oglu Abilov (1979)
- 166 Frantis ek Adamec (2003)
- 167 Alia Alia (2009)
- 168 Suleyman I. Allakhverdiev (2011–2014; 2016; 2018)
- 169 John F. Allen (2004)
- 170 Aikaterni Alygizaki-Zorba (1999)
- 171 Jan Amesz\* (1996)
- 172 (Hoff and Aartsma, 2002)
- 173 Gennady M. Ananyev (2011; 2012)
- 174 Jessica M. Anna (2017)
- 175 Khalid Anwar (2018)
- 176 Paul A. Armond (1981)
- 177 Eva-Mari Aro (1997;1998)
- 178 Chantal Astier (1990;1995)
- 179 Julie Auger (1990)
- **180** *Gerald (Jerry) T. Babcock*\* (1974;1975)
- 181 (Yocum et al., 2001)
- 182 Marcel Babin (2008)

183 *Ion C. Baianu*\* (1982, 1983, 1984) 184 (Brown and Glazebrook, 2013) 185 Neil R. Baker (2005) 186 Horatio Bannister (2018) 187 Thomas (Tom)Turpin Bannister\* (2017) 188 (Laws et al., 2018) 189 James (Jim) Barber (1987; 2012; 2018) 190 Helen Bassham (2016) 191 Susan Bassham (2016) 192 J.Thomas (Tom) Beatty (2003; 2004) 193 Gerald A. Berkowitz (2007) 194 Gábor Bernát (2017) 195 Sudhakar Bharti (1998) 196 Devika Bhaya (2016) 197 Karl Y. Biel (2016; 2017) 198 Ajava K. Biswal (2012) 199 Lars Olof Björn (2009; 2012; 2013; 2015--2018) Clanton C. Black (2008) 200 201 L. Curt Blair (1988) 202 Robert (Bob) E. Blankenship (2007; 2009; 2013; 2018) 203 Hans J. Bohnert (1999; 2009) 204 Karolina Bosa (2011; 2012; 2014) 205 Salil Bose (1981) 206 Warwick Bottomley (1989) 207 John S. Boyer (1979;1982) Jerry J. Brand (2017) 208 209 Marian Brestic (2012; 2014) 210 Vı'te'zslav Brezina (2003) 211 Winslow R. Briggs (1989; 2016) 212 R. David Britt (2015; 2016) 213 Donald (Don) Bryant (1989) 214 Bob B. Buchanan (2015; 2016) 215 Rosanna Caliandro (2011; 2012) 216 Shiguo Chen (2012) 217 Yi-Chun Chen (2011; 2012) 218 Lucinda Choules (2014) 219 Wah S. (Fred) Chow (2000) 220 Chengcai Chu (2015; 2018) 221 *Robert (Bob) M. Clegg*\* (2000; 2007; 2010--2012) 222 (Jovin, 2013; also see https://physics.illinois.edu/people/memorials/bob-clegg) 223 Martin Cohen (2007) 224 Brendon Conlan (2018) 225 Jason Cooley (2013) 226 Robert Cooney (2017) 227 William (Bill) A. Cramer (1987, 2017)

228 David Crisp (2007)

229 Antony (Tony) R. Crofts (1983;1989;1991;1998; 2008; 2016) 230 John J. Cullen (2008) 231 Anath Bandhu Das (2014) 232 Hank de Klerk (1969) Oscar de Vos (1993;1995) 233 234 Peter Debrunner (1990;1996) 235 Sandor Demeter (1989) 236 Tanaji S. Desai (1977;1981;1984) 237 Eric deSturler (2005) 238 Elsinraju Devadasu (2015) 239 Don Charles DeVault\* (1983;1990) 240 (Seibert, 1991) 241 Charles (Chuck) Dismukes (2018) 242 Roberto Docampo (2001) 243 Günter Döring (1970) 244 **Roland Douce**\* (2015: 2016) 245 (http://www.academiesciences.fr/pdf/membre/DouceR bio0210.pdf) 246 Stephen R. Downie (1995) 247 W. John S. Downton (1981) 248 Dainis Dravins (2009) 249 Jean-Marc Ducruet (1995) 250 Susan Dutcher (2013) 251 Gerald E. (Gerry) Edwards (2012) 252 Peter Eggenberg (1992) 253 Lutz A. Eichacker (2013) 254 Sailaja V. Elchuri (2016) 255 Anne-Lise Etienne (1990;1995) 256 Ulrich Finkele (1992) 257 Darrell Fleischman (2012) 258 David C. Fork (1980;1981;2006) 259 Christine H. Foyer (2005) 260 Susan Frenkel (2015) 261 Georges Freyssinet (1980) 262 Petra Fromme (2017) 263 Christiane Funk (2000) 264 Gyozo Garab (1988; 2014) 265 Ernesto García-Mendoza (2013) 266 Rafael Mikhaylovich Gazanchyan (1979) 267 *Howard Gest*\* (2002; 2003) 268 (Bauer et al., 2012) 269 Christopher (Chris) Gisriel (2017) 270 Joop H.C. Goedheer (1987) 271 Christoph Gohlke (2000; 2007) 272 Cindy S. Goldstein (1989) 273 Vasilij Goltsev (2012; 2014) 274 Harriet H. Gorham (2007)

- 275 Rajni Govindjee (1956 (as Varma); 1962; 1964; 1965; 1968; 1970; 1974; 1975;1998)
- 276 David Grantz (1982)
- 277 Enrico Gratton (1990:1993)
- 278 Scott Greenfield (1995 -- 1997)
- 279 Arthur (Art) R. Grossman (2016)
- 280 Brijesh K. Gupta (2018)
- 281 William Hagar (2011)
- 282 Behzad Haghighi (2012; 2013)
- 283 Steven C. Halls (1995)
- 284 Saber Hamdani (2015; 2018)
- 285 Jack H. Hammond (1972; 1975)
- 286 S.R. Hartman (1969)
- 287 Theodore L. Hazlett (1995;1996;1998)
- 288 Gregor J. Heiss (2007)
- 289 David N. Hendrickson (1980;1986)
- 290 Steven (Steve) K. Herbert (2018)
- 291 Arnd G. Heyer (2018)
- 292 Jane F. Hill (2014)
- 293 Rhoda Eleson Hirsch (2010)
- 294 Joseph (Yossi) Hirschberg (1992)
- 295 George Hoch (1962—1964; 2018)
- 296 Arnold Hoff\* (1977) (Gast et al., 2002)
- 297 Barry Holtz (2016; 2017)
- 298 Peter Homann (1989)
- 299 Alexander (Alex) Beaumont Hope\* (2000)
- 300 (Chow, 2010)
- 301 Cai Xia Hou (1998)
- 302 Harvey J.M. Hou (2014)
- 303 Irada M. Huseynova (2011; 2013; 2016)
- 304 Ron Hutchison (1995 --1997)
- 305 Shoji Ichimura (1960)
- 306 Yorinao Inoue (1983 --1985)
- 307 Klaus-Dieter Irrgang (1999)
- 308 Karen Jacobsen-Mispagel (2012)
- 309 Anjana Jajoo (1998; 2014)
- 310 Jiangjun Jiang (2018)
- 311 Douglas G. Johnson (1989;1990)
- 312 Pierre Joliot (2016)
- 313 Douglas (Doug) Jordan (1980)
- 314 Wolfgang Junge (1980)
- 315 Hazem M. Kalaji (2011; 2012; 2014)
- 316 Radek Kaňa (2009; 2012; 2016; 2017)
- 317 Deepika Kandoi (2016)
- 318 *Navik V. Karapetyan*\* (2014)
- 319 (Yurina et al., 2017)
- 320 Kenneth (Ken) Kaufmann (1979)

321 Aron Keresztes (1981) 322 Cheryl A. Kerfeld (2017) 323 Jan F. Kern (2010) 324 Mika Keränen (1998) 325 Naveed Khan (2018) 326 Yaser R. Khan (2014) 327 Waqasuddin Khan (2018) 328 Nancy Y. Kiang (2007) 329 Hyunook Kim (2015;2017) 330 Diana Kirilovsky (1995) 331 Karel Klem (2016) 332 David Knaff\* (2006) 333 (Malkin, 2016; also seehttps://cen.acs.org/articles/94/i28/David-B-Knaff.html) 334 Robert (Bob) S. Knox (1996; 2018) 335 Sireesha Kodru (2015) 336 Hiroyuki Koike (1985) 337 Derrick R.J. Kolling (2008) 338 Ondrej Komárek (2009; 2012) 339 Janusz Kościelniak (2011:2012) 340 Eva Kotabová (2012) 341 David (Dave) M. Kramer (1994) 342 Alexander (Sasha) A. Krasnovsky Jr. (2017) 343 David (Dave) W. Krogmann\* (2002; 2004; 2006) 344 (Brand et al., 2017) 345 Johannes Kromdijk (2018) 346 Jiri Kubásek (2018) 347 Deepak Kumar (2010); 348 Inna Musa gizi Kurbanova (1979) 349 Agu Laisk (2003; 2009) 350 Manmohan Manohar Laloraya (1955;1956) 351 Margaret Gwyn Latimer (2017) 352 Christoph Lauterwasser (1992) 353 Jean Lavorel (1969; 1970;1987) 354 Edward (Ed) Laws (2018) 355 Dusan Lazár (2018) 356 Sadhu Leelavathi (2012) 357 Hong Li (2012) Kuen Bao Li (1997) 358 359 Ming Li (2018) Rong Li (1995; 1997;1998; 2001) 360 361 Hartmut K. Lichtenthaler (2015; 2016) 362 Nianyun Lin (1997) 363 Xinyu Liu (2018) Stephen (Steve) P. Long (2005) 364 365 George Lorimer (2016;2017) 366 Pirkko Mäenpää (1995;1997)

- 367 Tirupathi Malavath (2015) 368 Alize'e Malnoe (2015) 369 Mahir Mamedov (2015) 370 Dominique Marcelle (2016) René Marcelle\* (1987) 371 372 (Govindjee and D. Marcelle, 2016) 373 Norma Marchesini (2001) 374 John L. Markeley (1984) 375 Steve Marks (1978) 376 Peter Maroti (1992; 2016) 377 Paul Mathis (1979) 378 Shizue Matsubara (2011;2012) 379 Leland Mayne (2012) Douglas C. McCain (1984) 380 Victoria S. Meadows (2007) 381 382 Henri Merkelo (1969:1972:1975:1978:1979:1981) 383 Johannes Messinger (2009; 2010; 2018) 384 *Mamuro Mimuro*\* (1998) (unavailable) 385 Jun Minagawa (1998;2008) 386 Teresa Miranda (1995) 387 Tihana Mirkovic (2017) 388 Anamika Mishra (2016; 2018) 389 Kumud B. Mishra (2016; 2018) 390 Amarendra M. Misra (2017) 391 Atefeh Nemati Moghaddam (2012; 2013) 392 Sasmita Mohanty (2016) 393 Gary Moore (2012) 394 John Mullett (1989) 395 Paula Mulo (1997; 1998) 396 Norio Murata (1983; 1998; 2014) 397 Neti R. Murty (1967) 398 Jason Musick (2013) 399 J. Dirk Naber (1993) 400 Victor Nadtochenko (2015) 401 Sushma Naithani (2018) 402 Mohammad Mahdi Najafpour (2011 -- 2014) 403 Herbert (Herb)Y. Nakatani (1984) Ladislav (Lada) Nedbal (2003;2007;2009;2012) 404 405 Sreedhar Nellaepalli (2015) 406 Kärin Nickelsen (2011; 2012) 407 Arthur M. Nonomura (2016; 2017) 408 Constance G. Nozzolillo (2007) 409 Michael P. O'Neil (1992) Hector Ocampo-Alvarez (2013) 410 411 Dieter Oesterhelt (1992)
- 412 William (Bill) Ogren (1984, 1989)

- 413 Nir Ohad (1992)
- 414 Vello Oja (2003)
- 415 Larry Orr (1998; 2001; 2007; 2010; 2013: of "Photosynthesis and WWW" fame)
- 416 Donald (Don) R. Ort (1987;1991;2005; 2015; 2016)
- 417 Evgeny E. Ostroumov (2014; 2017)
- 418 Olga v. H. Owens (1963)
- 419 Sean Padden (2008)
- 420 Subhash Padhye (1980;1986)
- 421 Himadri Pakrasi (1989)
- 422 Shiv S. Pandey (2012)
- 423 Dominick J Paolillo (1974)
- 424 P. Pardha-Saradhi (2015;2017)
- 425 Ashwani Pareek (2009; 2018)
- 426 Saya Patil (1998)
- 427 Gopal K. Pattanayak (2012)
- 428 Michael (Mike) Pellin (1979)
- 429 Shahnaz Perveen (2018)
- 430 Wil R. Peters (2002)
- 431 Brigetta Peteri (1990;1995)
- 432 Klaus Pfister (1981;1992)
- 433 Roman Y. Pishchalinikov (2013)
- 434 Vladimir O. Popov (2017)
- 435 Robert (Bob) J. Porra (2007)
- 436 Archie R. Portis Jr. (2006; 2007; 2012)
- 437 Ondřej Prašil (2008; 2009; 2012; 2017)
- 438 Christopher Preston (1989; 1990)
- 439 Roger C. Prince (2015; 2016)
- 440 M.P.J. (Tinus) Pulles (1976; 2016)
- 441 Hope Punnett (2011)
- 442 [See Hagar et al. (2011) for a Tribute to **Tom Punnett\***]
- 443 Laura Punnett (2011)
- 444 Sheng Qiang (2012)
- 445 Mingnan Qu (2015; 2018)
- 446 S. Rajan (1981;1983)
- 447 Tadimeti Rajarao (1955; 1956)
- 448 Ravi Rajwanshi (2010)
- 449 Silvia Ramundo (2017)
- 450 *Fabrice Rappaport*\* (2015)
- 451 (<u>https://www.journals.elsevier.com/biochimica-et-biophysica-</u>acta-bioenergetics/editorial-452 board/fabrice-rappaport- A tribute is being prepared for publication in 2019)
- 453 Constatin (Tino) A. Rebeiz (1980)
- 454 Kevin Redding (2017)
- 455 Vanga S. Reddy (2012)
- 456 *Gernot Renger*\* (1977;1983;1985;1993;1999)
- 457 (Siggel et al., 2016)
- 458 Marvin Rich (2010)

- Galina Yu. Riznichenko (2014) Howie Robinson (1984;1989) Jean-David Rochaix (1991) Margarita V. Rodionova (2018) Robin Roffey (1994) Suzanne Marguerite Dethier Rogers (1988;1989) J. C. Romijn (1977) Stuart Rose (2008) Guy Roy (1974) Cathy Royer (1993) Zsuzsa Rozsa (1988) Kang-Cheng Ruan (2000;2001) Alexander B. Rubin (2014) Felix A. Ruiz (2001) Indumati (Indu) S. Rupassara, (2012; 2015) William (Bill) A. Rutherford (1984) Göran Samuelsson (2018) Prafulla Chandra Vishnu (Raj) Sane (1977;1981;1984;2014) Sathon Saphon (1979) Sudhir Sapory (1999; 2009) Neera Bhalla Sarin (2010) Shai Saroussi (2017) Kazuhiko Satoh (1986) Kimiyuki Satoh (1983) Sergei Savikhin (2011) Richard (Dick) Sayre (1994--1997) Gert Schansker (1997; 2001;2003) Lance C. Schideman (2012; 2015) Paul G. Schmidt (1975; 1976; 1978) Greg D. Scholes (2014; 2017) Beatrice Schwarz (1991) Barbora Šedivá (2012) Antigona Segura (2007) Michael (Mike) Seibert (1989;1990;1992;1994-1997; 2010) Ted C. Selig (1984) Alexy Semenov (2015) Melih Sener (2010) Zdenek Sestak\* (2002) (Naus et al., 2009; Lichtenthaler, 2018) Nisha Shabnam (2015;2017) Ashutosh Sharan (2018) Thomas (Tom) D. Sharkey (2000-- 2018) Anuradha Sharma (2015) P. Sharmila (2015; 2017)
- 503 Jian-Ren Shen (2012;2018)

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504 Yun-Kang Shen (1995; 1997;1998;2000; 2001)

505 Louis A. (Lou) Sherman (2012) 506 Dmitriy (Dima) Shevela (2011–2013; 2017; 2018) 507 Hyunsuk Shim (1990) 508 Vladimir (Vlad) Shinkarev (1993;1997;1998) 509 Robert (Bob) Shopes (1987;1989; 2007) 510 Vladimir (Vlad) A. Shuvalov (2018) 511 Yona Siderer (2018) 512 Janet Siefert (2007) 513 Ulrich (Uli) Siggel (1977) 514 Abhay Singh (2012) 515 Gauri Shankar Singhal\* (1969;1972; 1999) 516 (Andley et al., 2005) Sneh Lata Singla-Pareek (2018) 517 518 William R. (Bill) Smith (1974; 1975) 519 Jan Snel (1993) 520 Neelam Soda (2018) 521 Chris Somerville (1989) 522 Hong -Yu Song (1997) 523 Sudhir K. Sopory (1999; 2009) 524 Martin H. Spalding (1984) 525 Marc Spector (1980) 526 Jobie C. Spencer\* (1966) 527 (http://www.news-gazette.com/obituaries/2015-07-20/jobie-spencer.html) 528 Alaka Srivastava (1995;1998;1999; 2003) 529 Shyam Lal Srivastava (2010) 530 Nupur Srivastava (2014) 531 William T. Stacy (1971); 532 Kostas Stamatakis (1998;1999; 2016) 533 Gábor Steinbach (2017) 534 Katherine (Kit) E. Steinback\* (1981) (unavailable) 535 Hans Ulrich Stilz (1992) Alexandrina (Sandra) Stirbet (1998; 2011; 2012; 2014–2016; 2018) 536 537 Bruno Strasser (1998) 538 Reto Jörg Strasser (1991;1992;1995;1998;1999; 2001; 2003; 2010; 2012; 2014;2015) Dalibor Stys (2003) 539 540 Shankar Subramaniam (1996;1998) 541 Rajagopal Subramanyam (2015; 2018) 542 David J. Suggett (2008) 543 Roger E. Summons (2016) 544 Bengt Svensson (2008) 545 Charles Swenberg (1971) 546 Laszlo Szalay\* (1967) (Maróti, 1998) 547 Mahmoud Amouzadeh Tabrizi (2012; 2013) 548 Widmar Tanner (2018) 549 Shinichi Taoka (1991); Vidyasagar G. Tatake\* (1977; 1981; 1984) 550

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- 610 Krystyna Zuk-Golaszewska (2011, 2012)
- 611 Nicholas (Nick) Zumbulyadis (1975, 1976)
- 612

613 **Appendix 1** has some selected quotes of general interest, arranged by the year of birth of the

614 author cited.615

## 616 Epilog

617

## 618 My Family

I end this "Letter" by remembering (from early days in Allahabad till I came to Urbana in 1956) a
large number of wonderful teachers and friends (without naming them), and my father
(\*Vishveshwar Prasad; he had passed away when I was 11 year old boy), mother (\*Savitri Devi),
elder brothers (\*Krishnaji & \*Gopali), elder sister (\*Malati Sahay), sisters-in-law \*Bimla (wife
of \*Krishnaji) & Nirmala (wife of \*Gopalji), and brother-in-law Radha Krishna Sahay (husband
of \*Malati), who supported me when I was growing up in Allahabad, India (see Govindjee, 2007;
Govindjee and Srivastava, 2010).

- However, during most of my professional life in Urbana (since 1957- till now), I owe my
  life and ability to work primarily to my wife Rajni and our family (daughter Anita, son-in-law
- 628 Morten Christiansen and their daughter Sunita; son Sanjay, daughter-in-law Marilyn, and their
- sons Arjun and Rajiv). (See Ebrey (2015) for a wonderful article on Rajni; and Ravi Sharma's
- 630 web site on both of us: <u>https://www.linkedin.com/pulse/govindjee-rajni-confluence-</u>
- 631 photosynthesis-dr-ravi-sharma)
- 632

## 633 **Photosynthesis group at UIUC**

- 634 What has been crucial and important for my continued interest and excitement in photosynthesis
- research is the comradery of the "Photosynthesis Gang" at UIUC that has included (in no
- 636 particular order) the following: Charles (Charlie) Joel Arntzen; Christiaan (Chris) Sybesma;
- 637 Donald (Don) Richard Ort; Colin A. Wraight\*, C. John Whitmarsh; William (Bill) Ogren;
- Anthony (Tony) Crofts; Constantin (Tino) Rebeiz; Archie R. Portis; Stephen (Steve) Long; Carl
- 639 Bernacchi; Elizabeth (Lisa) Ainsworth; and Andrew Leaky. Amongst these, Tony Crofts and I
- have collaborated the most; Bill Ogren and I taught a course together; John Whitmarsh and I
- 641 wrote educational articles together; and Colin Wraight and I discussed almost everything related
- to our academic life. I always rely (and relied) on Don Ort's opinions on most things. He even

- 643 interviewed me for the Annual Reviews Inc (see:
- 644 https://www.youtube.com/watch?v=cOzuL0vxEi0).

645 At the end, I wish to mention Rudolph (Rudy) Marcus, who was on the faculty in the 646 Chemistry Department at UIUC, when I had the privilege of having him attend all my lectures on 647 Bioenergetics of Photosynthesis. I learned a lot from him from the questions he asked me during 648 and after almost all my lectures; he taught me a lot. I was thrilled beyond any imagination when 649 he received the 1992 Nobel Prize in Chemistry.

650 651

#### 652 Acknowledgments

653 I am highly grateful to many around the World (footnote 1) who hosted me during my visits to 654 their laboratories, whether it was short or a long visit. Since the list is too long, and I am sure to 655 miss many, I decided to thank them all without mentioning any names. However, I want to remember the hospitality of many who are no more; this includes: Warren Butler\*, Lou Duysens\*; 656 657 Stacy French\*; Bessel Kok\*; Hartmut Metzner\*; Prasanna Mohanty\*; Gernot Renger\*, Gauri

658 Shankar Singhal\*; and Jan B. Thomas\*.

659 Any letter of thanks of any kind will be incomplete without mentioning the kindness of Julian Eaton- Rye who has remembered me, in great depth, at my 75<sup>th</sup>, 80<sup>th</sup> and 85<sup>th</sup> birthday (Eaton- Rye 660 2007a, 2007b, 2012, 2013, 2018, 2019; also see Soni, 2018; and Soni and Kaur, 2018). The last 661 and not the least is the constant support of the past and the present Heads, the faculty members, 662 and the staff of the Department of Plant Biology (Botany in earlier days), Department of 663 664 Biochemistry, and the Center of Biophysics & Quantitative Biology, as well as all the current and the past members of the Office of Information Technology in the School of Integrative Biology 665 666 (SIB) & of Molecular & Cell Biology (MCB).

667

#### 668 669 Footnote 1

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670 During my academic career, I have interacted with scientists from a large number of countries,

671 and this has certainly enriched my life. My list of countries includes: Australia; Azerbaijan;

672 Belgium; Canada; China; Czech Republic; Egypt; Estonia; Finland; France; Germany; Greece;

673 Hungary; India; Iran; Iraq; Israel; Italy; Japan; Korea ((South); Mexico; Netherlands; New

674 Zealand; Pakistan; Poland; Romania; Russia; Slovakia; Spain; Sweden; Switzerland; Taiwan;

675 Tunisia; Turkey; UK (England and Scotland); and, USA.

\_\_\_\_\_ 676

#### 677 **Conflict of interest**

- 678 I have no conflict of interest with any person or any organization.
- 679
- 680 **Appendix 1**
- 681

#### 682 Some selected quotes of general interest, arranged by the year of birth of the author cited.

- 683 684 Quintus Horatius Flaccus (Horace) (65BC-8BC): 'When I find a bit of leisure, I trifle with my 685 papers. This is one of the lesser frailties.'
- 686 687

688

## Andrew Marvell (1621-1678):

'No white nor red was ever seen

- 689 So amorous as this lovely green.
- 690 Fond lovers, cruel as their flame,
- 691 Cut in these trees their mistress' name:
- 692Little alas! they know or heed
- 693 How far these beauties her exceed!
- 694Fair trees! Where'er your barks I wound,
- 695 No name shall but your own be found.' 696

697 Jonathan Swift (1657—1745): 'And he [the King of Brobdingnag) gave it for his opinion, that 698 whoever could make two ears of corn, or two blades of grass to grow upon a spot of ground where 699 only one grew before, would deserve better of mankind, and do more essential service to his 700 country, than the whole race of politicians put together.'

Jan Ingenhousz (1730-1799): 'I observed that plants not only have a faculty to correct bad air in
 six to ten days, by growing in it... but that they perform this important office in a complete
 manner in a few hours; that this wonderful operation is by no means owing to the vegetation of
 the plant, but to the influence of light of the sun upon the plant. '

- Johann Wolfgang von Goethe (1749-1832): 'Everything reasonable has been thought of before.
  We just have to try to think it once anew.'
- 710 Samuel Taylor Coleridge (1772- 1834): 'The tree is more valuable than its fruits. The intellect 711 itself –has it evolved? The methods of discovery, the mental experiences, the hidden mechanism 712 of intuition –have they not remained somewhat the same?'
- 713

- **Ralph Waldo Emerson (1803-1888):** 'Do not go where the path may lead, go instead where
  there is no path and leave a trail. '
- 717 James Prescott Joule (1818—1889): 'The scientist must be humble, diligent, energetic, patient, 718 and zealous. The first object of natural science is to elevate humanity in the scale of creatures, and 719 the second is to promote wellbeing.'
- 721 **Ernst Waldfried Josef Wenzel Mach (1838-1916):** 'It is hardly possible to state any truth 722 strongly without apparent injustice to some other.'
- 723
  724 Wynwood Reade (1838-1875):
  725 'Glorious Apollo is the parent of us all.
  726 Animal heat is solar heat;
  727 A blush is a stray sunbeam;
  728 Life is bottled sunshine,
  729 and Death the silent-footed butler who draws out the cork'
  730
- Albert Einstein (1879 1955) : 'I am enough of the artist to draw freely upon my imagination.
- Imagination is more important than knowledge. Knowledge is limited. Imagination encircles theworld.'
- 734

- Chandrasekhara Venkata Raman (1888-1970): 'Ask the right questions, and nature will open
  the doors to her secrets'; 'Success can come to you by courageous devotion to the task lying in
  front of you.'
- 738

C. Stacy French (1907- 1995; see Govindjee and Fork, 2006): 'In early 1928, a few lectures on
photosynthesis by Robert Emerson, who had recently returned with a PhD from Otto Warburg's
laboratory in Berlin, got me interested enough to take Emerson's course on photosynthesis the
following year, and I have stayed with the subject ever since.'

743

May Sarton (1912-995): '...unable to disentangle truth from its web of prejudice. Discoveries
 are evanescent, because they are soon replaced by better ones. Discoveries may be important, but
 personalities are infinitely more so.'

747

Martin Kamen (1913-2002; see Govindjee and Blankenship, 2018): '....Bone-tired and redeyed, I shut down the machine, rescued the remaining fragments of carbon target, which resembled
so many bits of intensely radioactive bird gravel, and shambled over to the ramshackle hut in which
[Dr] Samuel Ruben, my collaborator, worked and would be appearing shortly. These precious bits
of discouraged graphite hopefully contained evidence for the existence of a long-lived radiocarbon
form of carbon.'

754

Andre Jagendorf (1926-2017; see Govindjee, 2017): 'I had heard Peter Mitchell speak about chemiosmosis at a bioenergetics meeting in Sweden. His words went into one of my ears and out the other, leaving me feeling annoyed they allowed such a ridiculous and incompetent speaker in. But Geoffrey (Hind) read Nature. . . During the discussion, it occurred to us that we might be able to see the pH in the medium rise during light driven electron flow. I stayed in the lab late the same evening and watched the needle of the pH meter rise in the light and fall in the dark. It was the first time I remembered an immediately successful test of a working hypothesis – it was fun.'

- /62
- 763 764
- 765

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