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A Special Toast to Govindjee Govindjee on Celebrating his 90th Birthday on 24 October 2022

Michael Seibert[1]*, Autar Mattoo[2] and Ashwani Kumar[3]

[1]National Renewable Energy Laboratory (NREL), Golden, CO, 80401 USA
[2]United States Department of Agriculture (USDA), Sustainable Agricultural Systems Lab, Beltsville, MD, 20705 USA
[3]Department of Botany and Biotechnology, University of Rajasthan, Jaipur-302004, Rajasthan, India
*Corresponding author email id: mseibert71@gmail.com

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ABSTRACT

We are honoured to provide a very special toast to Govindjee, 'Mister Photosynthesis', who celebrated his 90th birthday on 24 October 2022. Here we present 26 messages from those others who have known Prof. Govindjee, but who for various reasons could not submit their posts for publication by Naithani *et al.* (2022), which highlighted more than 100 messages. In this special toast to Govindjee, we also provide recent photographs of Govindjee (~24 October, 2022).

Keywords: Birthday, Celebrating, Special toast

INTRODUCTION

Govindjee's 90th birthday was celebrated a year in advance (see Kumar *et al.*, 2021), which was followed by an in-depth article (Block, 2022) on his life from Allahabad (India), where he was born (24 October 1932), to many decades spent in Urbana, Illinois, USA. Thereafter, Stirbet *et al.* (2022) published a major article on Govindjee's scientific contributions, many of which were made during his retirement years (2000–2020). To remember and celebrate this iconic legend, a friend of all, both young and old, Govindjee, who is dubbed as Mister Photosynthesis, Naithani *et al.* (2022) published over 100 messages from his friends, colleagues and others including some Nobel laureates for his birthday (see Appendix 1 for names). Also, see, in this issue, Lichtenthaler *et al.* (2022) for a paper on Govindjee's single-authored publications. Appendix 2 provides the background for the change in his name from Govind Ji to Govindjee Govindjee.

Here, we provide a special toast to Govindjee for his 90th birthday, which also happened to be his 65th wedding anniversary with his beloved Dr Rajni Govindjee (see Ebrey, 2015; Balashov *et al.,* 2022 for information on her discoveries in photosynthesis and in the photochemistry and photobiology of bacteriorhodopsin). The new 26 messages are arranged alphabetically starting with the last name of each sender. We begin with (1) 'Sotsuju', celebrated as 'graduation' in Japan (Figure 1; courtesy of Sushila Narsimhan, India; e-mail: sushila@narsimhan.com); and (2) a photograph of Rajni

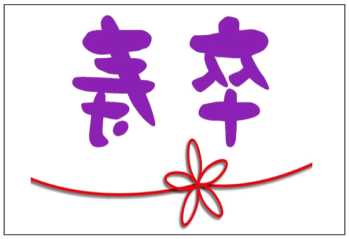

Figure 1: 'Sotsuju' Wishes, for Govindjee's 90th Birthday, in Japanese (Sushila Narsimhan).

Figure 2: Rajni (left) and Govindjee (standing), at their home in Urbana, Illinois, at his 90th birthday and their 65th wedding anniversary, October 2022 (Photo: Courtesy of Dilip Chhajed).

and Govindjee at their 65th wedding anniversary (Figure 2; courtesy of Dilip Chhajed, Champaign-Urbana, Illinois, USA)

MESSAGES

Presented below are messages, in addition to those by the authors (AK and MS), from-Govindjee's past graduate students (Glenn Bedell; Oliver Holub; John C. Munday; Hyunsuk Shim; and Daniel Wong), from visiting scientists (Mrinmoyee Das; Teruo Ogawa and Alaka Srivastava); from those others whom he visited abroad: Suleyman Allakhverdiev, Russia; Wolfgang Junge, Germany; Deepika Kandoi, India; Kamal Ruhil, India; Kumud Mishra, The Czech Republic; and Wilbert Veit, Caymen Island. Also presented are those from a few others with whom he is professionally associated, namely, Mathew Cheng; Ganesh Dixit; Jacco Flipsen; Sudhir Kumar Guru; Eric Lam; Darsh Panda; Vasily Ptushenko; Alexandr Shitov; Alexandrina Stirbet and K.N. Shrivastava.

Suleyman Allakhverdiev (from Russia; E-mail: suleyman.allakhverdiev@gmail.com)

With all my heart, I congratulate Govindjee on his bright, wonderful birthday day on 24 October 2022. We all sincerely wish that his life always be filled with joyful events, kindness, love and great success, not only in research but also in his personal life. We wish that his purposeful plans will contribute to the fulfilment of his cherished desires with boundless happiness. Gov, 'Be always cheerful, sociable, responsive, responsible, hardworking and a valuable professional, as you always have been'. We wish Govindjee very good health and a prosperous future.

I would be remiss if I did not remind the readers about the wonderful times we had together at conferences and writing about some of them (see, e.g. Allakhverdiev *et al.*, 2011, 2014, 2016; Borisova-Mubarakshina *et al.*, 2020; Tsygankov *et al.*, 2017). In addition, we had great satisfaction in honouring many scientists, including Slava Klimov (Allakhverdiev *et al.*, 2018); Jalal Aliyev (Huseyneva *et al.*, 2016); George Papageorgiou (Stamatakis *et al.*, 2016); and some others from India (Subramanyam *et al.*, 2019). From scientific and educational points of view, we had great fun writing reviews and overviews on key aspects of 'Photosynthesis' (see, e.g. Kalaji *et al.* (2012), Najafpour *et al.* (2012) and Kalaji *et al.* (2014) on the exploration of chlorophyll *a* fluorescence that he loves much). I expect Govindjee to continue to guide young scientists around the world. Best wishes from me and all his friends in Russia.

Glenn Bedell (from USA; E-mail: gbedell_2000@gmail.com)

My experience as Govindjee's student from 1965 to 1972. Chance brought me to the University of Illinois at Urbana-Champaign (UIUC) during my transition from classical/phenomenological-to modern/molecular biology in 1964. While finishing my master's degree, it was suggested that I take a plant physiology course from a dynamic, new professor named Govindjee. That course changed my life. Govindjee was a superb teacher who imparted excitement to learning, plus he showed a real interest in whatever I did.

Upon completion of my master's degree in 1965, Govindjee asked me to become one of his doctoral

students. Experiences as a graduate student of both Govindjee and the late Eugene Rabinowitch (see Govindjee *et al.*, 2019), allowed me to learn, not only molecular biology and biophysics in association with photosynthesis but also electronics (with Jobie Spencer, technical assistant of Govindjee), machine shop (with Ervie Ditzler), molecular genetics (with the late Carl Woese; https://en.wikipedia.org/wiki/Carl_Woese) and much more. Further aiding my educational experience, Govindjee placed me in charge of growing and maintaining the library of photosynthetic algae for the laboratory. Through my experience with Carl Woese regarding extremophiles, I brought the blue-green alga (a cyanobacterium), *Synechococcus lividus* (growing at 65^{o}C), to the collection in Govindjee's laboratory. His interest was sparked many years later in using a thermophilic *Synechocystis* sp. to understand the mechanism of thermoluminescence, while he was on sabbatical in Japan (Govindjee *et al.*, 1985).

One of the Govindjee's greatest contributions to me was his ethical professional diligence in giving credit to those to whom credit is due in both his speech and writing. He made me the first author in my first publication with him (Bedell and Govindjee, 1966), published in *Science* (he did not have to do this). It was a topic of close interest to him (maximum quantum yield and Emerson enhancement effect in deuterated green alga, Chlorella). For my PhD thesis, I chose to measure photophosphorylation in intact algae, using the then-novel luciferin-luciferase system (Bedell and Govindjee, 1973) and I remember that he appreciated and encouraged my initiative.

He taught me the essentials of scientific investigation and writing. These and other experiences provided the foundation for my later success as a scientist. For these, I am eternally grateful to Govindjee.

Matthew Hong Kei Cheng (Springer, from Germany; E-mail: matthew.cheng@springernature.com)

I would like to wish Govindjee a very happy birthday on 24 October 2022. I understand that he turned 90 and I would like to send him my best wishes. With all his achievements, I am grateful for his continued interest and involvement with the journal *Photosynthesis Research*, which he had guided for years (see Govindjee *et al.*, 2002). It's been a pleasure to get to know him *via* the journal. Wishing him much happiness and good health in the coming years.

Mrinmoyee Das (from India; E-mail: mrinmoyeedas 20@gmail.com)

Dear Govindjee, I wish to add some to what I wrote earlier (Naithani *et al.*, 2022). Praying for your good health and many returns on this auspicious day. In addition, I would like to remember the valuable help you gave me in my early research career when I was at the UIUC (see e.g. Rabinowitch *et al.*, 1967). In our paper (Das and Govindjee, 1967), we clearly identified the long wave absorbing species of chlorophyll *a* that was responsible for both the 'red drop' in chlorophyll *a* fluorescence at room temperature and for the F720 band at low temperatures (such as 77K). And, not to forget, our attempts to see if any of this can be checked by solvent extraction. We found that 'it was not really possible' (Das and Govindjee, 1975). Yes, those were the 'good old days'. Best wishes for a continued exciting, active life.

Ganesh Dixit (from New Zealand; E-mail: dixit@ xtra.co.nz)

Dear Govindjee, Happy 90th Birthday. Greetings to you on this special Birthday of yours. I hope it is not too late to greet you on your Special Day. Wishing you good health and to keep busy as ever with your academic involvement. With very Best Wishes to you and Rajni Ji.

Jacco Flipsen (from The Netherlands; E-mail: jacco. flipsen@springer.com)

It has been a while since I have been in contact with Govindjee and although now I am not directly involved with the publication of the journal *Photosynthesis Research* (see Govindjee *et al.*, 2002) and the Book

Series *Advances in Photosynthesis and Respiration* (see e.g. Govindjee, 2006), I haven't forgotten him at all. We had a great association for years!

24 October 2022 was his very special birthday, his 90th. I wish him a happy birthday and hope he gets many surprises! I hope he is doing well too!

Sudhir Kumar Guru (from India; E-mail: sk.guru@gbpuat-cbsk.ac.in)

Dear Prof. Govindjee: I wish to add some to what I wrote earlier (see Naithani *et al.*, 2022). I am now sending this message not only on my behalf but also on my wife, Sunita, our daughters (Monalisa and Lopamudra) and my parents (Shrimati Puspa Guru and Shri Rama Chandra Guru).

As the sun rose in the morning sky on the 24th of October 2022, we had the greatest pleasure of joining a whole world of admirers, students, teachers, scientists and colleagues of 'Mr. Photosynthesis' to say **Many Happy Returns of the day Professor Govindjee.** We all join the dancing electrons, jumping between their ground and excited states, to show *How much we love you for enriching our lives*. As you have touched the 90th milestone in the journey of your life, we keep on wondering 'What a marvelous and extraordinary journey it has been, unravelling those deep secrets of nature and telling them to us in the simplest ways and words'. More than everything, your personal affection for thousands of us has been a priceless treasure—we will cherish forever. We pray to Almighty to shower his blessings on your path, making smooth every step you take forward and keep you in good health and cheerful spirits as ever in your extraordinary and illustrious journey of life.

Here, in India, we just celebrated the festival of lights, Deepawali. This year, we dedicated this festival to your contribution to society. For the last many decades, you have been illuminating our lives with your knowledge of Photosynthesis. You have enlightened hundreds of lives, including those of our students, colleagues, admirers and most importantly, the present generation of students through your talks. Heartiest wishes and warmest personal regards to the extraordinary persons in our lives: you and your dear wife, Dr Rajni Govindjee; we also pray to the Almighty to keep you both in good health. With best regards and loving wishes.

Oliver Holub (from Germany; E-mail: ollihol@web.de)

Dear Govindjee, I wish you a very Happy 90th Birthday. I was travelling in Egypt that day and did not have a good internet connection. Thinking back, I remember the wonderful time I had working with you on exciting research dealing first with introducing 'fluorescence lifetime imaging' (FLI), a new technique in photosynthesis research (Holub *et al.*, 2000) and then exploiting it to understand the non-photochemical quenching (NPQ) of the excited state of chlorophyll *a*, as well as the effects of electron transport 'inhibitors' and of the so-called 'state changes' in regulating photosynthesis (Holub *et al.*, 2007).

I will be very much interested in knowing what you are working on next. There are always surprises from you. Keep happy and healthy! All my best wishes to you for the exciting new research in which you are involved with top scientists in China and in India.

Wolfgang Junge (from Germany; E-mail: wjunge@live.de)

Ninety years is an impressive period of time and I wish Govindjee at least another decade of cheerful agility with a flourishing interest in science and people, joy and good health. I would like to mention that we indeed did some interesting research together on the 'Bicarbonate Effect in Photosystem II', his favourite (see Khanna *et al.*, 1980). Herzliche Grüße!

Deepika Kandoi (from India; E-mail: kandoideepika@gmail.com)

It has been an honour of a lifetime working with Dear Govindjee. He is a person who enhances the capability and talents of others to an unmatched level. It is a

matter of pride for me to have been under his guidance and support for several years. For us, it is like having access to a 'knowledge library' available to us 24 × 7.

I would like to thank him, especially for our last paper (Kandoi *et al.*, 2022). While I wasn't confident about my first draft, it was during our tea discussion that he asked to have a look at it; he approved! With his constant support and supervision along with that of Professor B.C. Tripathy, we were able to publish our paper in the *Plant Biotechnology Journal*, which has a high impact factor of 13.2. I wish him a very special *Happy Birthday* on this 90th, that has just passed and I wish him the best of health in years to come; these are my heartfelt wishes.

Ashwani Kumar (from India; E-mail: kumar.ashwani 104@gmail.com), One of the Authors of This Article

Happy to see Govindjee cutting cake on his 90th Birthday (Figure 2). A person like him with a heart of gold, a mind of diamond, a soul of platinum and the thoughts of an angel is seldom born in our World, who cares for the progress of youngsters and promotes them around the globe. I have felt his thoughts in his books (e.g. 'Photosynthesis' by Rabinowitch and Govindjee, 1969), which I had purchased long ago in Delhi and used for my teaching. In addition, I used his 'Bioenergetics of Photosynthesis' (Govindjee (Ed.), 1975), which I purchased in London (UK) from one of the biggest bookstores (Foyles, London) there, paying quite some pounds that I could spare from my visit in 1984. Reading his writings and talking with him, gives me the impression that his thoughts are always for the well-being of others. I remember his 'Foreword' for our book (Kumar *et al.* (Eds.), 2018):

> I am delighted to write this foreword to a timely and thorough book, Biofuels: Greenhouse Gas Mitigation and Global Warming, Next-Generation Biofuels and Role of Biotechnology, Springer Singapore, which is a topic of great interest to us all. I wish this book a great success.

We have dedicated our book (Kumar *et al.* (Eds.), 2020) *to* 'Govindjee, Mister Photosynthesis, an extraordinary ambassador of photosynthesis research to the World'.

I vividly remember my visit in 2008 to his laboratory at the UIUC, where he showed me around and when I stayed in his (and Rajni's) home overnight. One day, he showed me the Maize fields in the George E. Morrow plots. It was like a dream to talk to him and visit his department, which was fulfilled only in 2008, long after I had first listened to him at the 1982 Photobiology conference (held at Salve Regina College, Newport, Rhode Island). He chaired a session at that Conference. I am proud to tell the reader that at that time Govindjee was the President of the American Society of Photobiology (1981–1982). They say that 'Nothing grows under the banyan tree', but he proved this wrong and now I can say that the 'banyan tree protects and supports the small seedlings' and lets them grow to great heights as almost all of his formal and informal students are living legends in their fields (see his website: https://www.life.illinois.edu/govindjee/g/GraduateStudents.html). I also remember his wife Dr Rajni Govindjee (Rajni Ji), who once ran to pick up the lady who had fallen down in Urbana, during one of my visits there; she then helped the lady get an ambulance to be taken to a hospital. What a caring person she is! My frequent visits to Govindjee (in Plant Biology) and to Prof. Jack Widholm (in the College of Agriculture) enabled me to listen to significant lectures at UIUC, which has enriched my knowledge. On the personal side, I remember that Jack invited us for dinner at his sprawling 60-acre farm. Every moment was and is precious and the fact that Govindjee did his MSc at Allahabad University, in 1954, almost a decade later than my father to whom another book was dedicated: 'Professor Swami Dayal Tewari (14th November 1918 – 26th January 1992) the legendary teacher of botany and nature lover'. He completed his MSc in Botany, at the time when professors and department heads were either from or trained in Great Britain (UK), such as Shri Ranjan (MSc Cantab; DSc France), Govindjee's Professor. This also connects me to Govindjee with a personal bonding of unknown nature.

When I visited Urbana, Rajni ji was very kind to offer me a homemade dinner. In addition, I still remember that there was to be a 'TV interview' in August 2008 with Mr Barack Obama, which Govindjee wanted to watch but preferred to help Rajni ji in her kitchen by washing the 'dirty dishes'. Subsequently, Mr Barack Obama was elected President of the USA and later received the Nobel Peace Prize. Yes, Govindjee and Rajni ji were a 'working couple' during 1961–1999 and they are indeed 'made for each other'; 24 October 2022, was their 65th wedding anniversary.

I end my message with two photographs (Figures 3 and 4) from 2013 when I, along with my wife Vijay Rani, had the privilege of hosting Rajni and Govindjee.

May God bless them both with many years of togetherness and let Govindjee, Mister Photosynthesis, be a source of energy for the world of the science of photosynthesis.

Figure 3: Left to Right: Vijay Rani Kumar; Rajni Govindjee; Govindjee Govindjee; and Ashwani Kumar. Place: Home of Kumar's son in a suburb of Chicago, 2013. Source: Kumar family.

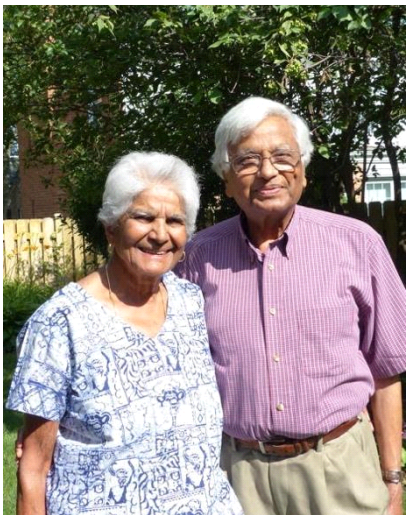

Figure 4: Left to Right: Rajni and Govindjee; A 2013 Photograph Outdoors at the Kumar residence (see the Legend of Figure 3). Source: Kumar family.

Eric Lam (from USA; E-mail: eric.lam@rutgers.edu)

A voice from years past…. Remembrance of a great encounter. I had the pleasure of meeting Govindjee in person in the Summer of 1984, at the Yangzhou Symposium on Photosynthesis in China. More than 38 years ago, I was a fresh PhD graduate from the University of California, Berkeley and was invited to participate by Prof. Kuang Ting-Yun from the Institute of Botany, Chinese Academy of Science, Beijing at a meeting. In this meeting of primarily Chinese students and scholars, I was with a handful of foreign participants, among whom were Govindjee and Bacon Ke. Both were well-known scientists in the Photosynthesis field and they left indelible impressions in my mind during the subsequent scientific journey throughout my career. They were kind, sincere and most personable to me and the other participants, both young and old. Govindjee, especially, impressed me with his humour and energy, always ready to make his hosts as well as young students comfortable and relaxed through his infectious laughter. We also occasionally bantered with our service people, who were quite shy with him since he was the most notable foreigner among all the invited guests. While I did not speak much Mandarin Chinese, I looked like a local nevertheless, being Cantonese by origin. One incident that is stuck in my memory is the fire and smoke that woke us up from bed one night. It was hot and there were lots of mosquitos in Yangzhou, so we slept with netting over our beds to keep the mosquitos away. The hotel was also burning special incense to chase the bloodsuckers away. One apparently fell over onto a rattan chair and it caught on fire at night while everyone was asleep. Suddenly, the whole floor was

full of smoke, which almost choked us unconsciously. Everyone luckily was woken up and ushered into the courtyard and we started to mill around until the smouldering chair was taken out and the smoke was cleared away. So, one may say that Govindjee and I narrowly escaped death by smoke inhalation one summer night in China long ago. ☺I am glad that we made it out, Govindjee, for now, I have the privilege to wish you a most wonderful Ninetieth Birthday!!! Enjoy life and smile every morning to start your new day (see Figure 5). My very best wishes to you!

Your 'young' friend, Eric Lam

Figure 5: Eric Lam and Govindjee in China during the Summer of 1984. *Source:* Eric Lam.

Kumud Mishra (The Czech Republic; E-mail: Mishra .k@czechglobe.cz)

Dear Govindjee, On behalf of myself, my wife Anamika and our children (Mahika and Prakhar), I am sending you greetings on your 90th birthday, as well as for Diwali (celebration of light), which fell on the same day in 2022! I would like to tell you that I enjoy the fact that we both have an intimate connection with the great city of Allahabad (now Prayagraj) and that I have learned a lot from you during our research together. First of all, it was great fun for me to write a review on using chlorophyll *a* fluorescence, your favourite, as a tool for phenotyping plants (Mishra *et al.*, 2016). Then, it was fantastic for me to do experiments with you on an understanding of the unique physiological differences between the cold-acclimated and non-acclimated *Arabidopsis* plants, using parallel measurements on CO_2 uptake and chlorophyll *a* fluorescence (Mishra *et al.*, 2019). I thank you for all your help in the past and I look forward to future interactions. Enjoy your research and your life.

John C. Munday Jr. (from USA; E-mail: jmunday @avantrex.com; see https://www.life.illinois. edu/ govindjee/g/GraduateStudents.html)

Dr Govindjee always exhibited a wonderful spirit, both personally and professionally, in his research program in the Photosynthesis Laboratory at UIUC. For example, he demonstrated the life of a true scientist and teaching mentor. Choosing a major professor is a major decision for a graduate student. Dr Govindjee was a wise mentor, a steady guiding hand and an encourager of his graduate students. He was full of patience, showing a teaching spirit and painstaking care in instilling a sense of excellence and quality in research. He demonstrated in his own research what he strove to teach. He was ever-present in the laboratory. Always with a cheerful smile and obviously enjoying research, he made the laboratory a place where students, research associates and visiting faculty wanted to be. He organised seminars in the lab and at his home. His wife Rajni had the gift of hospitality and we enjoyed her refreshments. She also made significant contributions of her own in photosynthesis and bacteriorhodopsin research, while caring for their young family; see Ebrey (2015) and Balashov *et al.* (2022).

Along the way of my thesis research, Govindjee's comments and critiques about my research helped me move forward and taught me how to solve problems and think creatively. I distinctly remember various points he made about how to do quality research. He defended the core principle that what counts in scientific advance is peer-reviewed publication. In this and other ways, his great skill in building up all his graduate students facilitated our professional development and success. The lessons he taught built our confidence for the future. During my stay in Govindjee's laboratory, we published

several papers exploiting chlorophyll *a* fluorescence transients to understand the molecular events in the primary processes of photosynthesis (see Govindjee *et al.*, 1967; Mohanty *et al.*, 1970; Munday and Govindjee, 1969a, 1969b, 1969c).

Looking back over Govindjee's distinguished career and the large number of students he has guided, we can see the consistency in his research productivity and his mentoring skill. Even in retirement, he has worked to continue his contributions and to remain in contact with all his students over the years.

The ongoing freshness of his spirit is inspiring. He is a remarkable man. Dr Govindjee, I salute you and have great joy in honouring you and the richness of your life.

Teruo Ogawa (from Japan; E-mail: ogawater@xd6.so-net.ne.jp)

Congratulations to Govindjee on his 90th birthday. More than 40 years have passed since I met him at Rikagaku Kenkyüjyo (RIKEN) in Japan. I thank him for his friendship and help, especially during the several times I visited the UIUC and I greatly appreciate his contributions to starting the US-Japan collaboration project on 'Solar Energy Conversion by means of Photosynthesis', which lasted more than 10 years. In addition, I was fortunate to work with him and publish (1) an interesting *research paper* on the effects of cations and more on guard cells of *Vicia faba*, using chlorophyll *a* fluorescence that Govindjee loves so much (see Ogawa *et al.*, 1982) and (2) a Tribute to Bacon Ke, a great scientist, who had turned 100 (see Govindjee *et al.*, 2021, 2022).

I wish Govindjee, now Govindjee Govindjee, good health, continuous contribution to photosynthesis research and to celebrate his 100th birthday in 2032!

Darshan Panda (from India; E-mail: darshan.panda216@gmail.com)

I owe my love for photosynthesis to Govindjee and his lectures. It is my pleasure to get an opportunity here to express my feelings. He has inspired us and will keep on inspiring us forever.

Govindjee, a synonym for photosynthesis encyclopedia, is a meticulous speaker and has spoken volumes on the fundamentals of the relationship of light with plants and the aftermath of this interaction. He has promoted photosynthesis studies immensely and has made it popular among students around the World in close to 30 countries (https://www.life.illinois.edu/govindjee/CoauthorsOfGovindjeeThru22.pdf). His publications (more than 500; https://www.life.illinois.edu/govindjee/recent_papers.html and https://www.life.illinois.edu/govindjee/pubschroseen.html) with close to 600 co-authors across the world (from 25 countries) speaks loudly about his versatility and adaptability with different labs on various aspects of photosynthesis. For an article on his single-authored papers, see Lichtenthaler *et al.* (2022). Science is not just a subject for him, but a way of thinking that has developed due to his untiring efforts and perseverance. He has encouraged and affected the lives of each and every student with whom he came in contact. He is a real motivator and farsighted leader and influencer, who is a source of inspiration for all of us. In his 90s, his work ethics and punctuality are important lessons for all young researchers. His energy, enthusiasm and contribution to photosynthesis research and current challenges (see e.g., Hou *et al.*, 2014) and most importantly, his caring human nature will continue to inspire people of all ages. I pray for his healthy and peaceful life.

Vasily Ptushenko (from Russia; E-mail: ptush@mail.ru)

When I was a student, I studied photosynthesis from his books (see e.g. Rabinowitch and Govindjee, 1969; Govindjee (Ed.), 1975, 1982a, 1982b); the Russian edition of one of his books, 'Photosynthesis', was actually the first book on photosynthesis I had ever read. Later, I was also able to appreciate how much he has done for the history of science (see e.g. Govindjee *et al.*, 2005). I am happy that 5 years ago I had the opportunity to write an article actually under his

editorship. I am extremely glad that I also had the opportunity to communicate with him at conferences.

My heartiest congratulations to Govindjee for his ever-expanding discoveries in 'oxygenic photosynthesis!'

Kamal Ruhil (from India; E-mail: kamalruhil@gmail.com)

Do people retire by age? If your answer is 'Yes', it means you have not met Govind Jee yet. It seems that the proverb 'Age is just a number', is made for him only. Happy 90th Birthday to our young and energetic Govind Jee. Knowing him for more than 15 years is not enough to really know and admire him not only as a scientist/professor but also as a human being. You really can't miss the aura of knowledge and kindness, which surrounds him giving the true reflection of the shloka 'गुरु गोविन्द दोऊ खड़े, काके लागू पाय। बलिहारी गुरु आपने, गोविन्द दियो बताय।' (Kabir says that Guru/ Teacher is even greater than God. He also says, if the teacher and God are both in front of me, who will I greet first? He then says it is only because of the teacher's teaching that I am able to see God.) When we talk of Govindjee, he is the rare incarnation of Guru and Govind in one personality known as 'Guru Govind'. I learnt chlorophyll fluorescence experimentation and interpretation of results in detail, fine-tuning into the editing of research papers and much more from him, but personally, his unconditional affection and support made me sail through my hard times. Recently we published a paper (Kandoi *et al.*, 2022) together with Govindjee, my mentor B.C. Tripathy and Deepika Kandoi. Govindjee's unimaginable enthusiasm and his consistent and persistent way of working have created a benchmark for all of us. His *mantra* of 'never give up' comes from the bundle of energy, care and motherhood known as Rajni ji, his soulmate. I have been blessed with knowing both of them academically and personally. On one hand, Govindjee taught me science and nurtured the scientist within me, but on the other hand, the motherly love, care and guidance from Rajni ji have given me the energy and encouragement to go ahead in life. It is a blessing to have received such an immense amount of knowledge and compassion in life from the two. A humble prayer to the Almighty to keep them healthy, happy and happening for many more years to come. My best wishes and sincere regards.

Michael Seibert (from USA; E-mail: mike.seibert@nrel.gov), One of the Authors

Govindjee at 90. I have always thought of Govindjee as the 'Energizer bunny' of photosynthesis. For those who may not be familiar with this characterisation, the reference is to the well-known subject of a TV, alkaline-battery commercial that has been on the air in the USA for many years. To further the analogy, Govindjee just 'keeps on going, and going, and going!' Starting at the UIUC in 1956 as a graduate student of Robert Emerson and Eugene Rabinowitch, Gov's scientific career has emphasised fluorescence, luminescence, thermoluminescence and delayed light emission associated with both Photosystem II (PSII) and PS I, as well as spectral and kinetic phenomena associated with the early events of photosynthesis. In addition, he has published many articles about the special effects of anions, particularly chloride and bicarbonate, on the function of photosynthesis. As of the end of 2021, he had published 479 peer-reviewed journal articles with an H-index of 82. About 30 years ago he became interested in the history of photosynthesis and began to publish articles that documented the people and the past events that often get forgotten as fields progress. Again, as of the end of 2021, he had published over 120 additional papers on many outstanding researchers who came before us and upon whose work we all push forward to gain more detailed knowledge and understanding.

Our association started in the early 1980s when Gov was President of the American Society of Photobiology. Subsequently, during quiet times at many Gordon conferences and other meetings for the next 30 years, I remember his personal reminiscences of many of the early giants of photosynthesis (William Arnold, Andy Benson, Melvin Calvin, Lou Duysens, Robert Emerson, André Jagendorf, Martin Kamen, Eugene Rabinowitch, Otto Warburg and many others), who stimulated the

growth of the field in the 1930s to the 1970s. His friendship is still of great value to me and we talk often by phone even to this day.

Though I was not a Govindjee student or postdoc, I did have the good fortune of collaborating with him on measurements of primary charge separation rates in PSII for over a decade. The work was carried out along with Michael Wasilewski and several talented postdocs from our respective three laboratories. Govindjee recognised that our successful stabilising of the isolated PSII reaction complex (RC, see Seibert *et al.*, 1988) could finally allow for spectroscopy and ultrafast kinetics to be measured on active preparations. For the better part of 2 years after Nanba and Satoh (1987) announced the successful isolation of the 4-Chl RC complex, numerous papers were published on the spectroscopy of 'dead' PSII complexes. I won't spend time here discussing details of the first kinetic measurements of the charge-separation rate in isolated PSII RCs in 1989 (Wasielewski *et al.*, 1989a) with 350 citations at this point; a recollection of this work has been published (see Govindjee and Seibert, 2010; Govindjee and Wasielewski, 1989). Nevertheless, the rates we published are still the accepted values almost 35 years later. There are also other notable papers published during this collaboration (Greenfield *et al.*, 1996, 1997; Wasielewski *et al.*, 1989b; Wiederrecht *et al.*, 1994).

Figure 6 shows Govindjee, Mike Wasielewski, me and a few others (see the figure legend) at Mike's 60th birthday (Govindjee and Seibert, 2010). My association with Govindjee has included attending together many conferences. Figure 7 shows one of them where James Barber (1940–2020; see Govindjee, 2021), another leading authority on photosynthesis was also present at a 2008 symposium honouring Govindjee (see Jajoo *et al.*, 2009). Figure 8 shows Govindjee with me (Mike S) and with Prasanna Mohanty (1934–2013; see Naithani and Govindjee, 2018; Tiwari *et al.*, 2014).

I feel very fortunate to have worked with Gov so closely on a project that resulted in 10 publications and have always admired his comprehensive knowledge of the literature and ability to find the exact reference that we needed. I have a feeling that at 90, he will not rest on his laurels.

Figure 6: Left to right: Michael Seibert, Gary Wiederrecht, Michael Wasielewski, Govindjee Govindjee and Mike Pellin at Mike Wasielewski's 60th Birthday Celebration at Northwestern University on 26 September 2009. Photo by Nancy Wasielewski; Reproduced from Figure 6 in Govindjee and Seibert (2010), with Permission.

Figure 7: Left to Right: Baishnab C. Tripathy, Govindjee Govindjee, the Late Prasanna Mohanty, the Late James Barber and Michael Seibert at the 2008 International Conference 'Photosynthesis in the Global Perspective' Indore, India, held in Govindjee's honour (see Jajoo *et al.*, 2009).

Happy Birthday, Govindjee!

Hyunsuk Shim (from USA; E-mail: hshim@emory.edu)

Dear Dr Govindjee, Happy Birthday!!! I asked my student to update our website for several weeks to

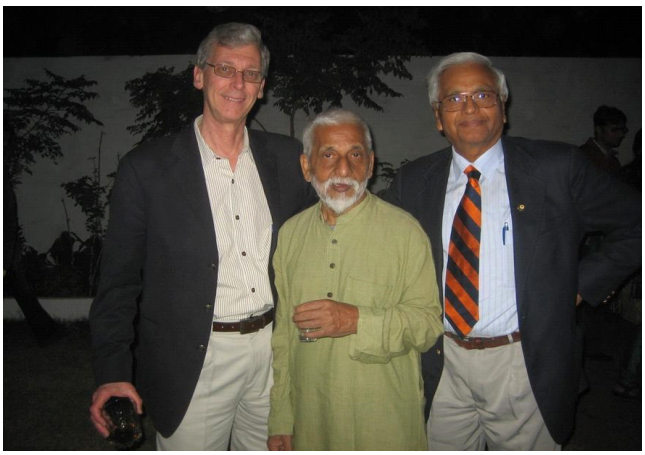

Figure 8: A 2008 Photograph from the Conference in Indore, India (see the legend of Figure 7). Left to Right: Michael Seibert, Prasanna Mohanty and Govindjee. *Source:* Anjana Jajoo.

share it with you, before your 90th birthday. He just completed major updates, although we need to add information on two more clinical trials. Here it is: https://brainimaging.emory.edu/. I am sending it to you now so that you will be the first to see this website! Many thanks for the wonderful training I received from you during my PhD days at UIUC. You helped me prepare 'active' PSII samples (see Shim *et al.*, 1990). Besides doing Mössbauer spectroscopy on PSII with Prof. Peter Debrunner and yourself for my PhD in Biophysics at UIUC (see Shim, 1992), I wrote 'I thank Professor Govindjee for his ideas and support… This project would not have been possible without his knowledge and insights'.

Alexandr Shitov (from Russia; E-mail: aleksshitow @rambler.ru)

I heartily congratulate Govindjee on his 90th birthday!!! Most importantly, I wish him good health! If he will have good health, then he will have new achievements! Also, I wish that people close to him always surround him with attention, care and understanding!!! Yes, I hope to continue to discuss the role of bicarbonate on the water oxidation site with him, in addition to its role on the plastoquinone reduction side of PSII, as he has so eloquently discovered! See e.g. his perspective on this problem, through some of his publications (Govindjee *et al.*, 1997; Shevela *et al.*, 2012; Xiong *et al.*, 1996).

K.N. Shrivastava (from India; Director, *India International Centre [IIC])*

Dear Prof. Govindjee: On behalf of the Management and Staff of IIC, I take this opportunity to wish you a very happy (90th) birthday. We hope you enjoy this day and have many more fulfilling years ahead.

Alaka Srivastava (from USA; E-mail: alaka101@ hotmail.com)

To write about Govindjee is like 'सूरज को दिया दिखलाना' (i.e. 'to show light to the Sun'). Happy 90th Birthday to Govindjee, the enthusiastic, inspiring, dedicated and well-recognised *photosynthesis scientist and scholar* of all times. I had heard about his work, while I was a student. However, in 1992 when I joined Professor Reto Strasser's lab at the University of Geneva in Switzerland, it was a pleasure and honour to finally meet Govindjee in person, when he was a Visiting Professor there. In Geneva, we did several experiments together using a Hansatech Plant Efficiency Analyzer (PEA) and in collaboration with Strasser, we were able to understand the fast (second range) chlorophyll *a* fluorescence transient in plants and algae. This collaboration resulted in several publications and presentations at international conferences (see e.g. Strasser *et al.,* 1995; Srivastava *et al.*, 1995a, 1995b). During this period, I learned a lot from Govindjee who happily explained, in detail, the various steps involved in oxygenic photosynthesis and their intricate relations to photosynthesis.

I left photosynthesis research almost 20 years ago; however, whenever I talk with Govindjee, he enthusiastically, updates me with ongoing discoveries in this field and, above all, with the research he is involved with around the world. Govindjee's presence, mentorship and interest over the years are really inspiring and greatly appreciated by me. I wish him a long and productive life and continued interaction with students and established international scientists. My heartfelt congratulations to Govindjee on his 90th birthday and I wish him and his dear wife, Rajni, good health.

Alexandrina Stirbet (from USA: Email: sstirbet@gmail.com)

I first met Govindjee in 1994 in Switzerland, at the Bioenergetics Laboratory (of the University of Geneva), directed by Reto Jörg Strasser. At that time, I was working on a mathematical model of the chlorophyll (Chl) *a* fluorescence induction curve, also known as the OJIP transient. [Note: 'O' (origin) is for the fluorecnce level as soon as light is turned on, P is for the peak of florescence, that apopears later, and J & I are intermediate levels]. Govindjee helped us in establishing the initial conditions of the model and in presenting the results of our earliest simulations (see: Stirbet *et al.*, 1998). In 2000, I moved to the USA, where, I had no affiliation. To my pleasure, Govindjee remained deeply interested in my modelling work and we continued our collaboration, mostly by e-mail exchanges and telephone calls. Govindjee's historical involvement in exploiting Chl *a* fluorescence to understand photosynthesis was well known to me since his 1960 discovery of the two-light effect through it (see Govindjee *et al.*, 1960) and much more (see e.g. Govindjee, 2004; Govindjee and Papageorgiou, 1971). In 2011, we wrote a review on the 'JIP-test' (a mathematical way to analyze chlorophyll a fluorescence data; see e.g., Stirbet and Govindjee, 2011), which involves the use of a set of specific parameters, using fluorescence data from the OJIP transient, developed earlier in Reto Strasser's lab. From then on, with Govindjee's enthusiastic collaboration, we published novel contributions on what is behind Chl *a* fluorescence change *in vivo* (Khan *et al.*, 2021; Stirbet *et al.*, 2018), especially on modelling (see e.g. Stirbet and Govindjee, 2016; Stirbet *et al.*, 2014, 2020) in terms of all the reactions of photosynthesis. What is important to me is that collaboration with Govindjee led me to be a part of an international group, which included scientists from China, The Czech Republic, India, Pakistan, Russia and the USA. I consider myself very privileged to have been able to work and learn from Govindjee and I wish him a very happy 90th birthday (that just passed) and many more prosperous years!

Wilbert Veit Jr., DMD (from the Cayman Islands; E-mail: wilbertveitjr@gmail.com)

I present here a brief tribute to Govindjee, my friend and mentor. It was in the 1990s that my journey as an author began due to my fascination with the molecular process of photosynthesis. I had derived basic knowledge from molecular biology texts and was fortunate to find Govindjee's website on the internet (https://www.life.illinois.edu/govindjee/), which was the catalyst that propelled my progress. When I contacted him by email, he was so kind to offer me help to better understand the intricacies, which I endeavoured to express as metaphors in the two novels that I wrote (*The Music of Sunlight* and *Back to Plantonia*). The theme was to demonstrate complex biochemical and energy transformations in the form of 'experiential' adventures that even a non-chemist teenager could visualise and remember. I believe it was Govindjee's passion for education that led him to begin a mentoring relationship that lasted many years. Besides editing my two educational novels, we worked together to produce and distribute two educational versions of *Z scheme posters*, which decorate the walls of many classrooms today (https://www.life.illinois.edu/govindjee/newposters.html). He also introduced me to other leaders in the field, which was a such great inspiration. He and his wife, Rajni, even visited me and my family in the Cayman Islands for a vacation; it was such fun to spend time with them and their talented granddaughter, Sunita Christiansen. Although I have been a practising dentist for 47 years, Govindjee helped add such an inspiring and meaningful perspective of appreciation of this wonderful natural process that we study and share. I feel so fortunate and blessed to call him a friend and mentor.

Happy 90th birthday, Govindjee! It is a great pleasure to congratulate him on the occasion of this special birthday and to wish him good health and fruitful work!

Daniel Wong (from USA; E-mail: danielhisl.wong.y2022@gmail.com)

On this occasion of Govindjee's 90th birthday, I express my appreciation and gratitude for the privilege of being

his student and receiving 6 years of training in his laboratory from 1972 to 1978. Govindjee has been an excellent teacher, who provided coaching for me to become an independent scientist. He provided a nurturing environment that encouraged individual thinking. He hosted many weekly laboratory meetings in his home and on many occasions additional social get-togethers, with his wife, Rajni, treating us to many delicious home-cooked meals. I reminisce fondly about that time when most aspects of my life were much simpler.

Govindjee's work in photosynthesis is well known and he is well respected. I take this opportunity to share some memories of graduate student life in his laboratory as I experienced it. Daily work consisted of a steady stream of activities that can be described as a mix of interesting, demanding, exciting, tedious and repetitive. Lighter moments with fellow students included many jokes told by Paul Jursinic and humorous stories by Tom Wydrzynski and Rita Khanna, but the contents of which have since been forgotten.

However, two unique occurrences in Govindjee's laboratory remain vivid in my memory. The first was an aggravating incident in the summer of 1975 that probably contributed to Govindjee eventually adding Govindjee as his last name years later. It was mid-afternoon one weekday and I was sitting at my desk just outside Govindjee's office when he came in fuming. A brief moment later, he explained what had transpired. He had just had an infuriating encounter on the phone with an operator. Govindjee, the acting head of the Department of Botany, wanted to make a phone call overseas. The operator asked for his name and when he said Govindjee, she insisted that he provide his last name. When he said he did not have one, the operator wanted to speak to the head of the department, to which, Govindjee answered he was the head. I cannot recall if Govindjee disclosed what followed. At the time, the incident felt simultaneously absurd and somewhat humorous to me.

The other *Incident* occurred early in 1978 when we collaborated on a study with a leading circadian clock expert, Beatrice (Beazy) Sweeney (1914–1989) and her associate, Barbara Prezelin (1948–2021), from the University of California at Santa Barbara. We planned to run the experiment in two 12-h shifts each day for 3 days. Barbara and I took the first shift of the study, starting at 20:00 h and Govindjee and Beazy would take over at 8:00 h the following morning. Snow had fallen and was still falling when I left my shift; I took 20 min to go back to my dormitory room. Within an hour, Govindjee called to find out about some procedural aspects of the fluorescence instrument we were using. Apparently, some improvements were made that Govindjee was not made aware of prior, so I provided the information and went back to bed. Fifteen or twenty minutes later, Govindjee called again and that time I was compelled to go back to the laboratory to resolve the issue. I stayed past mid-morning before being able to catch some sleep. The experiment disrupted my circadian rhythm, after which I developed a great appreciation of work studying circadian cycles. Our joint experiments on the circadian clock in chlorophyll *a* fluorescence were published in Govindjee *et al.* (1979) and Sweeney *et al.* (1979). This is, however, not the topic I was working on for my PhD thesis (in Biophysics) under Govindjee's mentorship; this was just a fun 'side project'. My main research with Govindjee was on the regulation of the excitation energy distribution and redistribution in the two photosystems. It was a very productive time. Instead of describing the results, I will refer the readers to our detailed papers: Wong *et al.* (1978); Wong and Govindjee (1979); and Wong *et al.* (1979).

Before ending this message, I would like to appreciate the opportunity Govindjee gave me to associate (and publish) with international scientists who came to work with him, including Karel Vacek (The Czech Republic); Shmuel Malkin (1934–2017; Israel); Jack van Rensen (The Netherlands); and Jean-Marie Briantais (1936–2004; France). This was great for me as it broadened my knowledge not only of biophysical reactions in photosynthesis but of other cultures. I wish Govindjee the best in his life.

CONCLUDING REMARKS

We conclude this special toast to Govindjee with just a few photographs of Govindjee, taken on or close to his 90th birthday. Figure 9 shows Govindjee with his long-time associate, William Ogren, with whom he had taught a photosynthesis course long ago (see e.g. Portis and Govindjee, 2012). The two met again when Ogren was honoured in August 2022, at the UIUC (https://research.illinois.edu/news/feature/save-date-rubisco-oxygenase). Figure 10 shows Govindjee with Justin McGrath and others after a seminar given by Donald (Don) Ort celebrating Govindjee's 90th birthday at the UIUC Plant Biology Colloquium in October 2022. Figure 11 shows Govindjee and Rajni with several friends not only celebrating Govindjee's 90th birthday but also their 65th wedding anniversary.

We end this special toast to Govindjee and Rajni with two additional photographs, Figure 12 is with Rita Khanna (who had done a PhD under Govindjee's mentorship in 1980) and visited the two from the

Figure 9: Govindjee and William Ogren, together in 2022, at a Symposium Honoring Ogren. *Source:* Bill Ogren's family.

Figure 10: Left to Right: Scott Lakeram, Terence Sheldon Kwafo, Govindjee, Eric Vargas, Jesse McGrath and Justin McGrath, 21 October 2022. Courtesy of T.S. Kwafo.

Figure 11: A Photograph at Govindjee's Residence in October 2022. Sitting: Left to Right: Amita Sinha, Shyamla Balgopal, Rajni, Govindjee, Palsanna R. Balgopal. Standing: Left to Right: Rajeshwari Pandharipande, Shiv Gopal Kapoor, Deepa Madhubalan, Suresh Sethi, Rashmi Kapoor, Simrun Sethi, Madhu Vishwanathan, Aradhana Chhajed, Rita Mandhan and Narain Mandhan. Photo by Dilip Chhajed.

Figure 12: Rajni Govindjee (Center Forward) with (L to R) Govindjee and Rita Khanna, 24 October 2022. Photo by Vidya Tripathy.

Washington DC area and Figure 13 is with their friends Vidya and Deoki Tripathy (from Urbana, IL) celebrating both the 90th birthday and the 65th wedding anniversary of Rajni and Govindjee on 24 October 2022.

Figure 13: Rajni Govindjee (Center Forward) with (L to R) Deoki Nandan Tripathy, Vidya Tripathy and Govindjee, 24 October 2022. Photo by Rita Khanna.

ACKNOWLEDGMENTS

First of all, we acknowledge the wonderful earlier paper by Sushma Naithani, Alexandrina (Sandra) Stirbet, Dmitry (Dima) Shevela, Ashwani Pareek, Lars Olof Bjorn, Julian Eaton-Rye and Arthur Nonomura on enthusiastically presenting more than 100 messages for Govindjee's 90th birthday (Naithani *et al.*, 2022). The authors are highly thankful to the following for their contributions to this special toast to Govindjee: Suleyman Allakhverdiev; Glenn Bedell; Matthew Hong Kei Cheng; Mrinmoyee Das; Ganesh Dixit; Jacco Flippsen; Sudhir Kumar Guru; Oliver Holub; Wolfgang Junge; Deepika Kandoi; Eric Lam; Kumud Mishra; John C. Munday Jr.; Teruo Ogawa; Darshan Panda; Vasily Ptushenko; Kamal Ruhil; Hyunsuk Shim; Alexandr Shitov; K. N. Shrivastava; Alaka Srivastava; Sandra Stirbet; Wilbert Veit Jr.; and Daniel Wong.

Appendix 1: An alphabetical list of those who sent 90th birthday wishes for Govindjee to Naithani *et al.* (2022)

Ainsworth, Lisa; Alfano, Robert (Bob); Armstrong, William; Arntzen, Charles (Charlie); Bagga, Reema; Banks, Christina (Tina); Barupal, Meena; Benning, Christoph; Bernacchi, Carl; Bernat, Gabor; Biel, Karl;Bjorn, Lars-Olof; Block, Joy; Boardman, Keith; Bohnert, Hans and Regina; Bryant, Donald (Don); Cederstrand, Darlene; Chandra Family: Nandi, Seema, Anand and Gaurav; Chandra, Shimmi; Chow, Fred; Coleman, William (Bill); Critchley, Christa; Daniell, Henry; Das, Mrinmoyee; de Kouchkovsky, Yaroslav; DeVotta, Denise; Dismukes, Charles; Downie, Stephen and Deborah; El-Shintinawy, Fatma; Elchuri, Sailaja; Forest, Charlene; Foyer, Christine; Gantt, Elizabeth; Gilmore, Adam and Li, Xiaoping; Gisriel, Christopher (Chris); Guo, Ya (David); Guru, Sudhir K; Hock, Hans; Holub, Oliver (Olli); Hou, Harvey; Huseynova, Irada; Inoue, Yorinao; Jaiswal, Pankaj; Jajoo, Anjana; Joshi, Manoj Jursinic, Paul; Khanna, Rita; Kiang, Nancy Y; Knox, Robert (Bob); Komath, Sneh Sudha; Korres, Nicholas T; Krasnovsky, Alexander (Sasha); Kromdijk, Johannes (Wanne); Laisk, Agu; Larkum, Tony; Lauterbur, Elise; Lazar, Dusan; Leggett, Tony; Lewis, Christine M; Lichtenthaler, Hartmut; Mamedov, Mahir; Marcus, Rudolph (Rudy); Matta, Divya Kaur; Mattoo, Autar; McBride, Michael (Mike) S; Merchant, Sabeeha; Misra, Amarendra N; Moore, Gary and Eide, Brandy L; Mulo, Paula; Nair, Satish; Naithani, Sushma Najafpour, Mahdi; Narsimhan, Sushila; Nelson, C. Jerry; Nisha, Shabnam; Ogren, William (Bill); Padhi, Bernali; Paolillo, Dominick (Dom); Paradha-Saradhi, P; Pareek, Ashwani; Prasad, Raj (Raghubir); Pulles, Tinus (MPJ); Puthur, Jos T; Raghuram, N; Raven, Peter; Sane, Raj (PV); Sarin, Neera Bhalla; Scheer, Hugo; Sen, Ananya; Senan, Chandra; Shackira, AM; Sharkey, Thomas D; Shen, Jian-Ren; Shevela, Dima; Shitov, Alexander V; Siggel, Ulrich (Uli); Snel, Jan; Somerville, Christopher (Chris); Sree, Sowjanya; Stemler, Alan J; Subramanyam, Rajagopal; Tan, Jinglu; Tiwari, Swati; Turpin, Dave; VanRensen, Jack; Vermaas, Josh; Vredenberg, Wim;

Walker, Berkley; Walker, John; Whitmarsh, John; Yates, Diana; Yusuf, Md Aslam and Kumar, Deepak; Zhao, Jindong; Zilinskas, Barbara; and Zwicky, Fred.

Appendix 2: Govindjee's name changed over time

Govind Ji (1932–1955)

Govindjee's given name at birth. His father's name was 'Visheshwar Prasad'. He had dropped the family name 'Asthana' since it denoted caste and he was against the caste system. (Also note that in Hindi, Ji (or Jee) is a sign of respect for the person.)

Govind Jee (1956)

Govindjee changed the spelling of the second part of his name from 'Ji' to 'Jee'

Govindjee (1956–2019)

When Govindjee went to the bursar's office at UIUC to claim his fellowship, there was confusion about his last name. Jee was listed as his last name, but it was not. To resolve the issue (and get paid), he told the clerk that Govindjee must be used as his last name; from then on others used First Name Unknown (FNU) or No First Name (NFN) or just a dash (—) as initials before 'Govindjee'. This was fully accepted by US Government when he became a US Citizen as reflected on his Certificate of Immigration and his US Passport.

Govindjee Govindjee (2019–Present)

To resolve issues with several bank accounts, many government forms (especially those used at 'immigration' points of many countries) and the fact that all automatic systems have been deleting his name in his own papers since they look for two names, Govindjee decided to add 'Govindjee' as his first name, which, indeed is his first name.

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