



Pt. Govind Ballabh Pant  
Memorial Lecture : XXII

(ABSTRACT)

Krishnaswamy VijayRaghavan

10<sup>th</sup> September 2016  
at  
Kosi-Katarmal, Almora



**G.B. Pant National Institute of Himalayan Environment and Sustainable Development**

(An Autonomous Institute of Ministry of Environment, Forest & Climate Change, Govt. of India)

Kosi-Katarmal, Almora - 263 643, Uttarakhand (India)





## Krishnaswamy VijayRaghavan

(b. February 3, 1954)

### Secretary

Department of Biotechnology Ministry of Science and Technology

Government of India

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Professor K. VijayRaghavan obtained his B.Tech. (Chemical Engg.) & M.Tech. degree in 1975 and 1977, respectively from IIT, Kanpur. He completed his Ph.D. (Molecular Biology) in 1983 from the Tata Institute of Fundamental Research, Mumbai. He carried out post-doctoral work, from 1984 to 1985 as Research Fellow and then, from 1986 to 1988, as Senior Research Fellow at the California Institute of Technology.

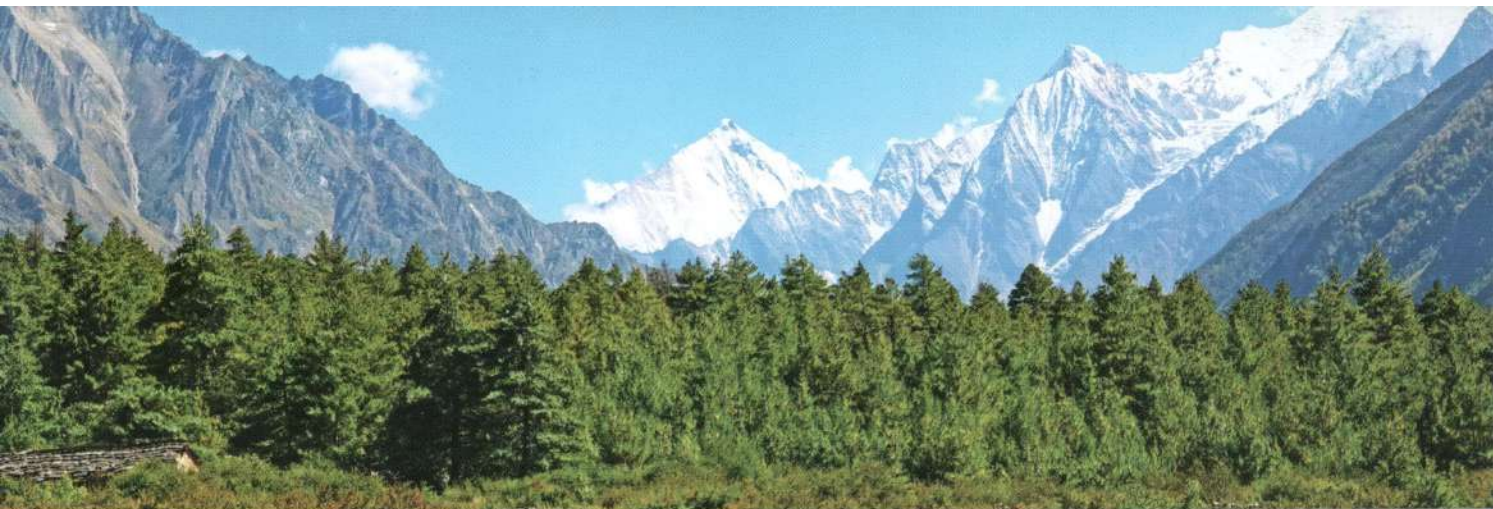
His fields of specialization are Developmental Biology, Genetics and Neurogenetics. His research primarily focuses on the important principles and mechanisms that control nervous system and muscles during development and how these neuromuscular systems direct specific locomotor behaviours. This was achieved by using the fruit fly, *Drosophila melanogaster* as a model system. By patterning the segmental organization of the fly body plan, his research was able to shed more light on the functions of Hox genes in directing neuromuscular connectivity and motor behaviours.

He was instrumental in the establishment of the National Centre for Biological Sciences, and steered it as its Director between 1997 and 2013. He is a Distinguished Professor of this Centre.

### Awards & Honours

- Prof. VijayRaghavan is a Fellow of the Royal Society (London).
- He is a Fellow of the Indian National Science Academy, the Indian Academy of Sciences and the National Academy of Sciences of India.
- He is a recipient of the S.S. Bhatnagar Award for Science and Technology by the Council of Scientific and Industrial Research in 1998. Honorary Faculty Member of the Jawaharlal Nehru Centre for Advanced Scientific Research from 1999.
- He became Member of the Editorial Board of Journal of Genetics in the year 2000 and a Member of the Asia-Pacific International Molecular Biology Network in the year 2001.
- Received the Distinguished Alumnus Award of IIT Kanpur in 2003 and the J.C. Bose Fellowship in 2006. Recipient of the Infosys Prize in the Life Sciences category in 2009.
- In 2010, he was elected Fellow of TWAS, the Academy of Sciences for the Developing World.
- In 2012, he received the HK Firodia Award for his original contributions to the field of Life Sciences, particularly to developmental biology, genetics and neurogenetics
- He is on the Management Board of the International Centre for Theoretical Sciences (ICTS) of TIFR and of the TIFR Centre for Interdisciplinary Sciences, coming up in Hyderabad.
- Prof. VijayRaghavan is also a Director of the Centre for Cellular and Molecular Platforms and a member of the Board of Governors of the Okinawa Institute of Science and Technology, the Advisory Committee of the Janelia Farm Research Centre of the HHMI, and a Senior Editor of the journal eLife.
- He was conferred the honour of the Padma Shri by the Govt. of India on 26th January, 2013.
- He assumed charge as the Secretary of the Department of Biotechnology in January 2013.
- He was elected a Foreign Associate of the US National Academy of Sciences in April 2014.





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## प्रकृति और पोषण: आधुनिक युग में जीव विज्ञान

के. विजयराघवन

सचिव, जैव प्रौद्योगिकी विभाग, विज्ञान एवं प्रौद्योगिकी मन्त्रालय, भारत सरकार  
ब्लॉक 2, सी.जी.ओ. कॉम्प्लेक्स, नई दिल्ली-110 003

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### सारांश

अन्तिम हिमयुग के बाद वर्तमान होलोसीन युग लगभग 12,000 वर्ष पुराना है। यह युग स्थिर जलवायु एवं मानव सभ्यता के विस्फोट से चिन्हित किया जाता है। इस दौरान प्राकृतिक वरण के फलस्वरूप उत्पन्न हुए मानव ने पृथ्वी के बदलाव में मुख्य प्रतिनिधि की भूमिका अदा की। प्रकृति को समझने के बजाय मानव स्वयं ही प्रकृति को बदलने में लगा है। पृथ्वी में आ रहे इस मानव जनित बदलाव को एक नये युग एन्थ्रोपोसीन नाम से भी जाना जाता है। आज के जटिल युग को समझने हेतु हालाँकि मानव के पास साधन उपलब्ध हैं लेकिन मुख्य चुनौती इस पृथ्वी को सुरक्षित भविष्य की ओर अग्रसर करने हेतु संसाधनों को विकसित करने की है। यह व्याख्यान उपरोक्त चुनौती को जीव-विज्ञान के माध्यम से हल करने पर केन्द्रित होगा।

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## Nature and Nurture: Biology in the Anthropocene

by K. VijayRaghavan

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Block 2, CGO Complex, New Delhi - 110 003

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### Abstract

The current epoch, the Holocene, since the last ice-age, is over 12,000 years old. This epoch is marked both by stable climate and the burst of human civilisation, where we have moved from being one of the consequences of evolution by natural selection to becoming the principal agent of change on this planet. In addition to our quest for understanding Nature's engineering, we have become the engineers of Nature. This change has been recognised recently by the announcement of a new epoch, the Anthropocene. The world of today is complex but understandable by the tools we have, but our challenge is to develop tools that can chart a safe course for the planet in its near future. In my talk, I will address how biology today can address this challenge.



## G.B. Pant Memorial Lectures

I

Dr. M.S. Swaminathan, Director, CRSARD, Madras – 1991

II

Dr. T.N. Khoshoo, Jawaharlal Nehru Fellow, TERI, New Delhi – 1992

III

Mr. V. Rajagopalan, Vice President, World Bank, Washington – 1993

IV

Prof. U.R. Rao, Member, Space Commission, New Delhi – 1994

V

Dr. S.Z. Qasim, Member, Planning Commission, New Delhi – 1995

VI

Prof. S.K. Joshi, Vikram Sarabhai Professor, JNCASR, Bangalore – 1996

VII

Prof. K.S. Valdiya, Bhatnagar Research Professor, JNCASR, Bangalore – 1997

VIII

Prof. Vinod K. Gaur, Distinguished Professor, IIA, Bangalore – 1998

IX

Prof. H.Y. Mohan Ram, INSA Senior Scientist, University of Delhi, New Delhi – 2000

X

Prof. J.S. Singh, Emeritus Professor, BHU, Varanasi – 2004

XI

Prof. Madhav Gadgil, Centre for Ecological Sciences, IISc, Bangalore – 2005

XII

Dr. S.S. Handa, Ex-Director, RRL (CSIR), Jammu – 2006

XIII

Dr. Lalji Singh, Director, CCMB, Hyderabad – 2007

XIV

Prof. Roddam Narasimha, Chairman, EMU, JNCASR, Bangalore – 2008

XV

Dr. R.S. Tolia, Chief Information Commissioner, Govt. Of Uttarakhand, Dehradun – 2009

XVI

Prof. Raghavendra Gadagkar, CES & CCS, IISc, Bangalore – 2010

XVII

Prof. Vidyanand Nanjundiah, IISc, Bangalore – 2011

XVIII

Dr. Kirit S Parikh, Chairman, Expert Group for LCSIG, Planning Commission, GoI – 2012

XIX

Prof. Jayanta Bandyopadhyay, Advisor, Water Diplomacy Programme, Fletcher School of Diplomacy, Tufts University, USA – 2013

XX

Prof. T.S. Papola, Honorary Professor, Institute for Studies in Industrial Development (ISID), New Delhi – 2014

XXI

Dr. David Molden, Director General, ICIMOD, Kathmandu, Nepal – 2015