Presentation of Awards

Bellur Rama Rao Award to K. Gopalakrishnan

Bellur Rama Rao award is one of the prestigious awards within the powers of the Geological Society of India to be given to a person who has distinguished himself in the study of the Precambrian. Emphasis is on field oriented studies. In conferring the award on K. Gopalakrishnan, former Director, Geological Survey of India, President of the Society said:

K. Gopalakrishnan was born in 1938 and obtained his postgraduate degree in Geology from Madras University, Chennai, obtaining many prizes instituted by the Presidency College, Chennai. Soon after he joined the Geological Survey of India and served that organisation for 37 years and retired from service in 1996. He has carried out wide ranging investigations in Tamil Nadu, Pondicherry, Karnataka and Goa, NE India and Bhutan.

K. Gopalakrishnan's main contribution pertains to the geological evolution of the granulite terrain of Tamil Nadu. During the early studies on lineaments of Tamil Nadu, he recognised that the Cauvery fault separated 'two distinct blocks of different lithological assemblages on either side of the Cauvery river.' This idea formed the basis for the tectonic framework of south India proposed by S.A Drury and co-workers largely on the basis of satellite imagery studies. Expanding this idea further, Gopalakrishnan suggested that the Palghat-Cauvery shear zone represented the craton-mobile belt boundary and suture between two tectonic blocks. He also identified several lineaments which marked the boundaries of different terranes, following the introduction of terrane concept to the Precambrian shield of India by B.P. Radhakrishna. Gopalakrishnan attempted the correlation of the terrane boundaries with those of the Eastern Ghat Mobile Belt. His geological mapping of Coimbatore district and adjacent areas led to the delineation of Sathyamangalam Supracrustals which were correlated with the Sargur Group of Karnataka. He also identified anorthositic rocks in Goa for the first time. Gopalakrishnan was instrumental in finalising the 1:500,000 geological and mineral map of Tamil Nadu and Pondichery and the preparation of a brochure to accompany the map.

Gopalakrishnan has had wide ranging experience in other fields also. He carried out the assessment of limestone resources in Meghalaya, Assam, as well as in the Kaladgi basin of Karnataka. He was also associated with several mineral investigations in different parts of the country. In the later stages of his career he was actively involved in geoenvironmental studies of

Tamil Nadu-Pondicherry coast which contributed a valuable database for Environmental Management Planning of the fragile coastal zone. In recognition of overall path-breaking field geological studies and synthesis of the geology of Tamil Nadu and Pondicherry, the Geological Society of India is pleased to confer on K. Gopalakrishnan the Bellur Rama Rao Award for the year 1998.

Reply by Gopalakrishnan

I am extremely overwhelmed by this great honour of being the recipient of the prestigious Bellur Rama Rao Centenary Award, 1998. I am thankful to Dr. Radhakrishna and other members of the Council of the Society for this rare honour. I am also thankful to Dr. Radhakrishna for the nice and kind words he has spoken about me. I do not know how worthy I am for this award. But if I am worthy of anything, then I owe it to a number of people who shaped, guided and influenced me and made me the professional geologist I am today.

First of all I owe it to my family particularly my wife who stood by me throughout my professional career, looked after the family during my long absence of over six months continuously for years during my field working days. I owe it to my department, Geological Survey of India where I served for 37 years which gave me the opportunity of working in different parts of India.

I started my professional career in northeastern India under the late Sri S. Narayanswami, one of the finest field geologists of our time, from whom I learnt the rudiments of field geological mapping of early Tertiary sediments. From Assam, I came over to Bangalore and I had the opportunity of working on the Proterozoic Kaladgi sediments and the greenstone belts of Chitradurga and Goa. Mapping in Goa was a challenge as the terrain was covered by thick and extensive laterite. During those days in Bangalore we had a number of stalwart geologists and used to have regular meetings of the Geological Club every week. Those meetings helped me a lot in understanding the Precambrian Geology of South India. I had two Superintending Geologists at that time, Sri S.P. Nautiyal and Dr. S.V.P. Iyengar who gave us full freedom to come out with our findings and ideas. The approach of Sri Nautiyal to apply Himalayan Tectonics to Peninsular India kindled in me my natural instinct to look at things in a different manner from the routine way.

From the Granite-Greenstone terrain of Karnataka, I them moved on to Chennai, where I worked on the Granulite-Gneiss terrain of Tamil Nadu. I had the guidance of two Directors at Chennai. One was the late Sri N.A. Vemban, another good field geologist and petrologist, whose inspection notes were very critical and his editing excellent. From him, I learnt the art of proper projection of data and interpretation. I had also the benefit of guidance from Dr. M.V.N. Murthy who instilled a competitive spirit among the geoscientists and made them come out with new data and models. It is during this period, I started participating and presenting papers in Seminars and Symposia. The recognition and demarcation of Sathyamangalam Supracrustals as equivalents of the Sargur Group of Karnataka as well as eclogitic rocks tectonically squeezed and emplaced into the amphibolite grade gneisses in Central Tamil Nadu in a probable suture zone were presented by me during this period.

I underwent training at the Indian Photo Interpretation Institute Dehra Dun in Photogeology and Remote Sensing which helped me to have a regional outlook and to understand the limitations of the remote sensing technique. My assignments as Instructor in the field training camps at Bagmarpet, Tamil Nadu and in Raipur, M.P. had fine tuned my outlook and approach by the incisive queries of the trainees.

Then I had the finest opportunity of my career by being posted to work in Central Headquarters,

where I was assigned the monitoring of the Field Season Programme of the department, from formulation to execution stage for over 5 years. This assignment gave me an in-depth knowledge of the geological setting and mineral resources of different sectors of the country as well as the necessity to have a regional outlook and an integrated approach with geology, geophysics and geochemistry to solve problems.

Lastly I was posted to Bhutan, where I got the benefit of working on the frontal Himalaya and study Tethyan sediments. It rekindled my desire to apply Himalayan tectonics to Peninsular geology. In later years I presented a geotectonic evolutionary model for the Southern Granulite Terrain, which envisaged the amalgamation of distinct and discrete microterranes along palaeo sutures, similar to Himalayan orogeny, which was subsequently supplemented by data on metallogeny, seismic activity and geothermal manifestations.

I accept this award with all humility and dedicate the same to all those people who shaped, guided and influenced my career.

I am grateful to Dr. Radhakrishna for the commendations made on the recently published 1:500,000 scale Geological and Mineral Map of Tamil Nadu and Pondicherry. The above map had been compiled with a data base up to 1984 from the field geological maps produced essentially from the Systematic Mapping (on 1:63,360/50,000 scale) and to a limited extent from the Second Generation Mapping (on 1:25,000 scale) programmes of GSI and contains all the data which could be shown on the half a million scale map. The map exhibits field geological data as collected by the geologists; additional remotely sensed data available from satellite imagery, aerial photos etc. are not included. As a policy of GSI for Half a Million Scale map series, the legend for this State map is based on the composite legend for the Southern Region prepared by GSI in mid-seventies. As a consequence, the new data generated from other techniques and modern concepts and ideas are not reflected in the above map. However, in the exhaustive Explanatory Brochure prepared for the map, attempts have been made to incorporate these data under suitable heads. Both the map and explanatory brochure are now available for sale at the Publication Divisions of GSI at Chennai, Hyderabad and Calcutta.

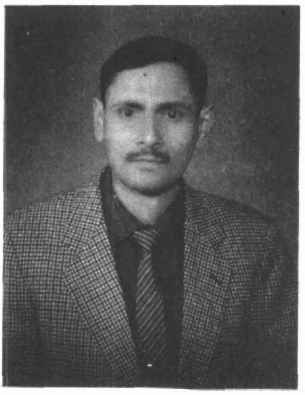
I greatly admire persons like Dr. B.P. Radhakrishna, Dr. Kurien Jacob and Sri. R.N.P. Arogyaswamy who even in such old age show remarkable enthusiasm and interest in geoscientific activities, and I pray to Almighty to give them more health and long life to guide us. I pray to God to give me also both mental and physical strength to emulate them and do my bit to geoscience in my humble way. I once again thank the Society for honouring me with this coveted award.

M.R. Srinivasa Rao Award to Anand Mohan

M.R. Srinivasa Rao Award was instituted in the year 1993 and is to be given once in two years to a scientist who has distinguished himself in the field of Petrology. In bestowing the Award to Anand Mohan, Department of Geology, Banaras Hindu University, the President said:

Dr. Anand Mohan was born in 1957 and had his graduate and post-graduate education in the Banaras Hindu University, Varanasi, and had a distinguished academic career. For his Ph.D. thesis he worked on the mineralogy and petrology of the area around Ganguvarpatti, Madurai district, Tamil Nadu, under the supervision of R.K. Lal. Currently he is in the faculty of the Department of Geology, Banaras Hindu University, Varanasi.

Anand Mohan's major research contribution is in the granulite belt of southern India with its significant sapphirine-bearing rocks. Anand Mohan has contributed to the P-T characterisation of granulite belt of southern India using diagnostic mineral assemblages, contrasting corona



textures, phase equilibria, mineralogic thermobarometry and microthermometric fluid inclusion data.

I first came to know Anand Mohan through the Journal of Metamorphic Petrology. That prestigious journal had selected him as a guest editor for one of its special issues. In recent years he has served in the panel of referees to the Journal of the Society. His review and comments were particularly helpful in evaluating work in the special field of Metamorphic Petrology.

In recognition of his contribution to our understanding of the tectonic-cum-petrologic scenario in granulite complex of southern India, the Geological Society of India is pleased to confer on Anand Mohan the M.R. Srinivasa Rao Award for 1998.

Reply by Anand Mohan

I am deeply touched by the presentation of M.R. Srinivasa Rao Award to me this evening. It is an honour and privilege to receive the award by the premier Geological Society of the country, which I accept in all humility. I am grateful to the Society and thank Dr. B.P. Radhakrishna, the doyen of Indian Geology, for his kind words.

The Geological Society of India, with its gifted mentor, Dr. B.P. Radhakrishna, has been rendering great service in encouraging research activities and undertaking publication of research work of merit. In a true sense, the Society is serving a noble cause by publishing innovative research. The Society has recognised and encouraged talent.

On this occasion, I wish to share my deep sense of gratitude for my teachers who have laid my foundation in Geology and instilled in me love for Earth Sciences. Since inception, in the Department of Geology at Banaras Hindu University, Professor M.S. Srinivasan and Professor R.K. Lal have provided me tremendous inspiration and sustained encouragement, in teaching as well as research. In selecting to work in the area of Metamorphic Petrology. I was fortunate to work under the eminent Professor R.K. Lal for my Ph.D. His ungrudging counsel, judicious advice, and many stimulating discussions on the metamorphic perspective of high-grade granulites have enriched my understanding of the granulite problem.

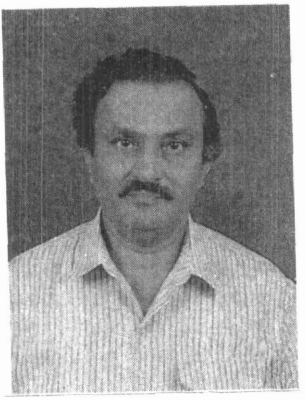
During post-doctoral stage, the coveted Leverhulme Commonwealth Fellowship enabled me to work with internationally renowned, Professor Brian F. Windley at the Leicester University, UK, which greatly strengthened my sound grasp and keen interest in Metamorphic Petrology. I could then undertake further research work in Southern Granulite Terrain and in the Eastern Ghats Granulite Belt as well. As a teacher, I believe without zeal in research, there is no vitality in teaching.

The M.R. Srinivasa Rao Award of the Geological Society of India provides me with an incentive for further work urging me to devote myself in greater measure to the challenging problems concerning the complex polymetamorphosed high-grade regional granulite terrains of South India. I thank you for this honour.

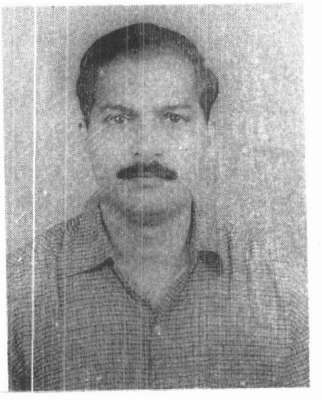
S. Narayanaswami Award jointly to S.A. Pandit and V. Natarajan

This award instituted in the year 1981 is to be given to scientists who have made significant contribution in the field of economic geology of India. The Council has chosen S.A. Pandit and V. Natarajan of the Atomic Minerals Division of the Department of Atomic Energy, for the award this year.

S.A. Pandit and V. Natarajan of the Atomic Minerals Division, Bangalore have hit the headlines by their major discovery of high grade uranium mineral deposit in the Proterozoic Bhima Basin at Gogi in Gulbarga district of Karnataka. This discovery was made as a result of an integrated approach involving exploration techniques such as terrain analysis using satellite imageries, jeep-borne radiation survey, regional hydrogeochemical sampling, ground radiometric survey and logging of bore wells drilled for water.



S.A. Pandit



V. Natarajan

S.A. Pandit was born in 1948 and had his graduate and post-graduate education in the Bangalore University, Bangalore. He is presently a Scientific Officer-F in the Atomic Minerals Division, Bangalore. In the early stages, he was associated with uranium investigations in Siwalik foothills of Haryana and Himachal Pradesh and was also a member of multi-purpose expedition to the Puga valley of Ladakh. He carried out detailed geological investigation along the North Sarguja shear zone in Madhya Pradesh and helped establish the western continuity of the uranium zone of the well- known Jajawal mine. He carried out exploration for uranium along the basal quartz pebble conglomerate of the Dharwar supracrustal belts of Karnataka. For the last five years he has been guiding the exploration programme in the Proterozoic Kaladagi and Bhima basins in Karnataka. By adopting a novel technique of gamma-ray logging of borewells near Gogi significant uranium mineralisation was first identified. A potential zone in the vicinity of the Kurlagere-Gogi fault, where uranium is hosted in the brecciated limestones and fractured granitic rock, has been established by sub-surface drilling.

V. Natarajan was born in 1960 and had his university education in Madras University, Chennai. He obtained his M.Sc. degree in 1983 and is working as a Scientific Officer in the

Atomic Minerals Division, Bangalore. He was earlier associated with the uranium exploration in parts of Aravalli and Delhi Supergroups in Rajasthan and was responsible for identifying significant uranium mineralisation in the northeastern continuity of the well-known Umra occurrence. Since 1993 he has been associated with the AMD's exploration work in parts of Bhima Basin, Karnataka.

In recognition of their effort at locating significant uranium mineralisation in the Neoproterozoic Bhima Basin, S. Narayanaswami Award for 1998 has been given jointly to S.A. Pandit and V. Natarajan.

Reply by S.A. Pandit

I rise to receive the prestigious S. Narayaswami Award with a great sense of humility. I am of the firm opinion that this honour bestowed by the Geological Society of India is not only to me but to the dedicated efforts of all my colleagues who directly or indirectly have struggled to locate this exciting uranium mineralisation near Gogi in the Bhima Basin. I must mention the names of D.C. Banerjee, Director, Jagmer Singh, Additional Director, B.M. Swarnkar, Regional Director and R. Dhana Raju, for their constant guidance and encouragement without which this achievement would not have become possible.

To receive an award is everyone's dream, that too from a Scientific Organisation. I am grateful to the Geological Society of India for making me realise this dream. Added to that I do not have words to express my joy at receiving the award in the presence of two great masters who have shaped my life, career and profession. B.P. Radhakrishna, who is my guru, philosopher and guide and T.M. Mahadevan under whose guidance I started learning my first steps as a professional Atomic Mineral Geologist.

I am grateful to A.C. Narayana of Cochin University for all arrangements and making our stay a memorable event in this beautiful city of Cochin. I also take this opportunity to recall the cooperation extended by my wife and daughter to achieve something proud in my life.

Once again, I express my sincere thanks to the Geological Society of India for giving me this unique opportunity to receive the prestigious Narayanaswami award.

JGSI - Radhakrishna Prize to M.K. Samanta, C.P. Gavarshetty and Ashish Kumar

The JGSI - Radhakrishna Prize was instituted in the year 1995 and is to be given to the author or authors of the best paper published in the Journal of the Geological Society of India.

The Council has judged the paper 'Lithostratigraphy and Hydrocarbon Prospects of the Olpad Formation of Palaeocene - Early Eocene Age in Ahmedabad Mehsana Tectonic Block, Cambay Basin' by M.K. Samanta, C.P. Gavarshetty and Ashish Kumar of Oil and Natural Gas Corporation Limited, as the best paper published in the Journal for the year 1997.

This paper records the occurrence of hydrocarbon in the heterogeneous lithologic association of volcanic debris in the alluvial fan system belonging to Paleocene-Early Eocene Olpad Formation, opening out new avenues for location of hydrocarbon reservoirs.

M.K. Samanta is presently working as Superintending Geologist in the Oil and Natural Gas Corporation Ltd and has had an excellent professional career in that prestigious Organisation for about sixteen years. His field of research includes structure/tectonics and sedimentology of the hydrocarbon-producing/prospective basins of India such as Naga hills, Upper Assam plains and North Cambay Basin. The significant contribution of Samanta to hydrocarbon exploration especially lithostratigraphy and hydrocarbon prospects of the Olpad Formation in Ahmedabad-Mehsana

Tectonic Block, Cambay Basin is deserving of recognition. He has established different lithostratigraphic units of the Olpad Formation of Paleocene-Early Eocene age with their depositional model and identified several prospective areas for exploration in deeper sections in Gujarat. It is gratifying to learn that oil has since been struck based on the model outlined earlier by Samanta.

I have great pleasure in handing over the prize to you with my best wishes for your advancement in the profession. May this recognition inspire you to put further efforts in the discovery of oil, bringing you further laurels.

Reply by M.K. Samanta

I thank the Council members of the Geological Society of India for bestowing this honour for the paper 'Lithostratigraphy and Hydrocarbon Prospects of the Olpad Formation of Paleocene-Early Eocene Age in a part of Ahmedabad-Mehsana Tectonic Block, Cambay Basin'. It is one of the happiest moments in my life and in the history of Oil and Natural Gas Corporation Limited - receiving the prestigious "JGSI - Radhakrishna Prize - 1998" of the Geological Society of India. More so, in recognition of our contribution to the existing knowledge in the challenging field of oil exploration in deeper prospects like Olpad Formation. Subsequent drilling with positive results in the form of oil-strike from Olpad Formation proves the model envisaged by us. My colleagues S/Shri C.P. Gavarshetty and Ashish Kumar, too share this honour for their dedicated work and total support.

I am grateful to Director (Expl.) of ONGC and GGM (Expl.), WRBC, for their permission to publish this paper. I am thankful to Shri. C. Lal, GGM (Project), Dr. D. Ray, GM (Geol.), S/Shri C.L. Tikku (the then GM (Geol.), Retd.), A.K. Mandal, GM (Res.)/HEBG and A. Elias Ahmed, GM (GEOL), for guidance, encouragement and support. Thanks are also due to the fellow geoscientists of Geology Section, ONGC, Mehsana Project, for their help at various stages.

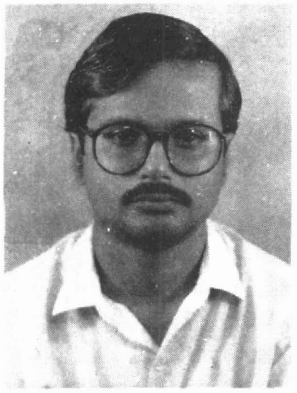
On behalf of them all, I gratefully accept this prize. It will give me tremendous support and encouragement in our R&D work in search of hydrocarbons.

K.Naha Award to Pulak Sengupta

This is an award newly instituted in memory of Professor K. Naha, distinguished structural geologist. The first award is bestowed to Pulak Sengupta of Jadavpur University in recognition of his work on Eastern Ghat Granulites.

Dr. Sengupta is a young earth scientist of Jadavpur University in his mid thirties. He obtained his Ph.D. from the same University and has had a distinguished academic career.

Sengupta has specialized in the field of mineralogy, petrology and geochemistry and has made significant contribution to our understanding of deep crustal processes through characterisation of an interesting suite of granulite facies rocks from the Precambrian Eastern Ghat belt and parts of the granulite belt of Rajasthan. He has applied the principles of chemical thermodynamics together with the geometrical relation of phase equilibria to understand physical conditions of the metamorphism in middle to lower crust; the composition and behaviour of the fluids and interaction



with the mineral assemblages under diverse physicochemical conditions, the nature of melting of the fertile protoliths and the composition and behaviour of the silicic melts in upper amphibolite and granulite facies conditions and the evolution of mineral assemblages in response to ambient tectonic milieu.

Reply by Pulak Sengupta

I am deeply honoured to receive this award - especially so because this award bears the name of the great Indian geoscientist, late Prof. Khitindramohan Naha, whose seminal work has opened up a new vista in the study of Structural geology and Precambrian geology in India. I am delighted to be here because it has given me the opportunity to express my sincere gratitude to those whose continuous support and encouragement over the years have been the driving force in my academic pursuits. In late sixties, my parents along with my brother and myself permanently migrated to Calcutta. Even under the stringent economic hardship, they ensured that their children received proper education. Their honesty, patience, dedication and ability to fight against all odds continue to be my inspiration. I would, therefore, dedicate this award to my parents.

The Department of Geological Sciences of Jadavpur University has a long tradition of imparting teaching in a very liberal environment. The affection, sincerity and elegance with which my teachers explained to us the complicated geological phenomenon continue to astonish me. Here, I had the great privilege to attend the inspiring lectures of Profs. Supriya Roy, Prasanto Bhattacharya and Somnath Dasgupta (to me Somnath Da) which attracted me to the fascinating high grade metamorphic rocks including the metamorphosed manganese deposits of the Eastern Ghats. In 1987 I started my Ph.D programme on the high grade rocks in Anantagiri and the adjoining areas of the Eastern Ghats under the supervision of Profs. Somnath Dasgupta and Prasanto Bhattacharya. They gave me complete freedom of research and whatever little success I have had so far I owe to their able guidance. Besides rendering their erudite academic advice, Profs. Supriya Roy, Somnath Dasgupta, Sanjib Chandra Sarkar and Dhruba Mukhopadhyay (of Calcutta University) always stood by me, inspired me and taught me to be optimistic in difficult phases of my life. I consider myself extremely fortunate to be associated with these great scientists and excellent human beings. I would like to thank my foreign collaborators, Profs. M. Fukuoka of the Hiroshima University, Japan and Michael Raith of the Bonn University, Germany whose analytical support, stimulating academic interactions and continuous encouragement have helped me in a big way. Stimulating discussion with my students and research fellows over the years have broadened my knowledge for which I am indebted to them.

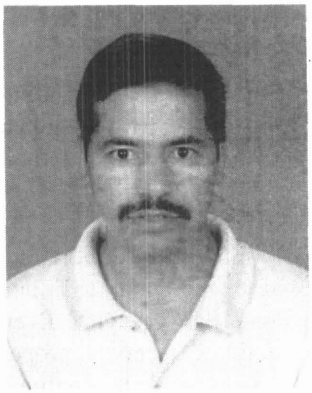
Last but not the least, I express my gratitude to Nandini, my wife, without whose inspiration and patience it would have been impossible for me to come to this point. I thank the Geological Society of India once again for this honour.

S.S. Merh Award (in absentia) to Laxman Singh Chamyal

S.S. Merh award is another fresh award instituted this year in honour of Prof. S.S. Merh and is to be given to a young geologist below the age of 45 years for sustained work on aspects of

Quaternary Geology of India. Laxman Singh Chamyal of the M.S. University of Baroda has been selected for the award for the year 1998.

Dr. Laxman Singh Chamyal was born in 1959 and had his graduate and post-graduate education in the Kumaun University, Nainital. He obtained his Ph.D. from M.S. University of Baroda and is presently leading a Quaternary research group at M.S. University, Baroda. He has carried out



sustained and systematic studies on the Quaternary deposits of Gujarat with particular focus on Mahi river basin. He has established the lithostratigraphy and correlation between the various exposed Quaternary deposits and has identified the various depositional environments and palaeoclimatic changes over the last 350 ka.

In recognition of his contribution to Quaternary Geology of Gujarat which has significantly advanced our understanding of the role of tectonism, sea-level changes and climate, in shaping the landscape of Gujarat alluvial plain, the Geological Society of India is pleased to confer on him the S.S. Merh Award for 1998.

Written reply by L.S. Chamyal

I am deeply indebted to the Geological Society of India for presenting me the first S.S. Merh award. I feel it a great honour to receive this award and I promise that I shall work hard to live up to the expectations of the Society. I am indeed very much indebted to Dr. B.P. Radhakrishna for his words of appreciation. He has been a great source of inspiration to me. I am also grateful to the Fellows and the Council members who considered me worthy of this honour.

I started my research work at the geology department of M S. University of Baroda under the inspiring guidance of Prof. S.S. Merh. It is a befitting tribute to him who actually inspired me to take up Quaternary studies in Gujarat and more so because the first award instituted by the Society in his name is presented to his own student. Quaternary geology was mainly taught by him and Dr. K.K. Pant. I am indebted to both of them.

In later years, I have had the opportunity of interacting with Profs. K.S. Valdiya, S. Prakash, S.K. Tandon, I.B. Singh, A.K. Singhvi, S.N. Rajaguru and S.K. Gupta, Vishwas S. Kale, S. Kusumgar, C.P. Rajendran, Navin Juyal, B.S. Kotlia, S.K. Wadhawan and many others.

I wish to express my sincere gratitude to all my colleagues and students in the Department who have rendered all possible help and cooperation in my endeavour.

DST has been the prime source of funding for my research and I would like to specially thank K.R. Gupta, Director, ESS for his help and moral support. I would also like to thank my family members Chitra, Niyati and Nilay for bearing my long spells of absence from home.