

Government of Goa

Directorate of Art and culture

State level committee (SLC) to celebrate Damodar Dharmanand Kosambi (DDK) birth centenary

(July 31, 2007 –July 31, 2008)



A brief introduction of Prof. D. D. Kosambi : Scientist, Indologist, humanist and peace activist-a great son of Goa and India

Two great Goans, the father and son duo - renowned Buddhist scholar, Acharya Dharmanand Kosambi and mathematician turned Indologist, Damodar Kosambi have carved unique niches in history. Acharya Dharmanand is more famous in Buddhist countries than in Goa and Damodar Kosambi is well known in Europe, Russia , China and the United States. Both were intellectual giants. The centenary year of Damodar Kosambi begins from July 31. Damodar was born at Kasabem, on July 31, 1907. His pet name was 'baba'. His colleagues at Harvard university also used to call him by this name. From 1912 to 1918 he completed his school education at Pune. Then he was sent to Cambridge, Massachusetts. In 1929, he graduated from Harvard University. From 1929 to 1937 Prof. Damodar taught at Benarus Hindu University where he won the prestigious Ramanujan memorial award. In 1930 he published his first research paper. Then there was no looking back. In his research and writing career spanning 36 years, DDK published more than 150 research papers, many in French and German. On May 7, 1931 Dr. Damodar married Ms. Nalini Madgaonkar. Then he joined Pune's Fergusson college. His interest in Indology, prehistory, numismatics was nurtured by that city of intellectuals. He got an offer to join the Mathematics division of newly established Tata

institute of fundamental research (TIFR) in 1947 where he continued to work till 1962. Dr. Damodar Kosambi was far ahead of his time. He created ripples among the critics in 1956 after publication of his first book-Introduction to the study of Indian history'. This was followed by 'Exasperating Essays'. His next book was an objective lesson in interdisciplinary research. When 'Myth and reality, studies in formation of Indian culture' was published it proved a landmark in scholarly research. Dr. Damodar crowned this book with his magnum opus in 1965 - 'The culture and civilization of ancient India – a historical outline'. This book has seen several editions since then and has been prescribed in several universities in India and abroad. Dr. Damodar Kosambi caused a radical paradigm shift in contemporary interpretations of Indian history. He has to be credited for having offered the Indians a 'people's perspective of history as compared to earlier focus on royalty, kingdoms, aristocratic and feudal class, battles and the populist myths. As a mathematician, he became curious about genetics. He discovered the Kosambi formula for calculating the length of chromosomes. He contributed to tensor analysis, probability statistics, path geometry but at the same time he was commenting on Bhartihari and Kautilya. His interest in numismatics was brought out in "Indian numismatics' a book published posthumously. Dr. Kosambi stood for ethics in science. He condemned science, which was engaged in violent research. He attempted to combine science and humanism in his essays. "Steps in science', Science and freedom', 'the social functions of science', 'Sin and science-introduction' were some of his much discussed essays. In 1964 he wrote 'Scientific attitude and religion' and challenged certain popular beliefs. He rejected the thesis that population explosion was leading to a rise in poverty. Dr. Kosambi was overwhelmed by the scientific and technological progress made by the erstwhile Soviet Union. His impressions were reflected in 'revolution and the progress of science. He vehemently opposed nuclear weapons and pleaded for global nuclear disarmament. In 1964, Dr. Kosambi again wrote on 'Solar energy for underdeveloped world'. Dr. Kosambi had a vision of making India a global superpower in solar energy research. Dr. Kosambi's genius was recognized by the Chinese government. He was invited to find the mathematical and statistical solutions for Chinese agricultural sector. Dr. Kosambi's views on science are extremely relevant in the 21st century. He was of the firm opinion that scientists would feel themselves truly free and liberated when they would engage themselves in pursuing research only for human welfare. Historian Kosambi died at Pune on June 29, 1966. On July 9 the citizens of Pune, assembled to condole his death and resolved to bring out a volume in his memory. Dr V V Giri chaired the committee. In 1974 this volume 'Science and human progress' was published. We have compiled some impressions of this great personality as excerpts from this memorial volume.

A Brief Chronology of Major Events in his life

July 31, 1907...Born at Kosben, Goa.

1918 Early education in New English School, Poona.

1918-1925 Studied at Cambridge Grammar School and Latin High School, Cambridge, Mass., U.S.A.

1925-1929 Studied at Harvard University. Graduated with *S.B. 'Summa cum Laude'* and '*Phi-Beta- Kappa*' membership.

1930 First published paper on scientific subject "Processions of an Elliptical Orbit" in *Indian Journal of Physics*.

1929-1937 On the staff of Benares Hindu University

May 7, 1931 Married Nalini Madgavkar, Bombay.

1931-1932 On the Staff of Aligarh Muslim University.

1932 Papers first published in French and German.

1933 On the staff of Fergusson College, Poona.

November 10, 1935 First daughter born (now Mrs. Sarkar in Sweden) .

April 24, 1939 Second daughter (Meera) born. She has had a very brilliant academic career, both in India and in Sweden.

1947 Joined the Tata Institute of Fundamental Research (Mathematics Department), Bombay.

1956 *Introduction to the Study of Indian History* published by Popular Book Depot, Bombay.

1957 *Exasperating Essays* published by People's Book House, Poona

1960 Grand-daughter (Nandita) was born.

1962 *Myth and Reality: Studies in the Formation of Indian Culture* published by Popular Prakashan, Bombay.

1962 Retired from the Tata Institute of Fundamental Research, Bombay.

1965 *The Culture and Civilisation of Ancient India in Historical Outline* published by Routledge & Kegan Paul, London.

1965 Scientist Emeritus conferred by Council of Scientific and Industrial Research, New Delhi.

June 29, 1966 Passed away in sleep at Poona.

(Adopted from the Source:- Science & Human Progress, Essays in the Honour of late Prof. D.D. Kosambi, Popular Prakashan, Mumbai, 1974)

Collection of some tributes paid to him by famous personalities
(Compiled from Science & Human Progress, Essays in the Honour of late Prof. D.D. Kosambi, Popular Prakashan, Mumbai, 1974)

Lawrence B. Arguimbau, technologist gives his impressions

“During his student days one of his close associates was "young Wiener," son of his father's colleague, Leo Wiener. By the time Kosambi returned, young Wiener had become the international celebrity, Professor Norbert Wiener of M.I.T., who in those days spent many hours in my Tech office flopped in an easy chair talking about Cybernetics, radio engineering, Norbert's own science-fiction attempts, world politics, the BOMB, or perhaps the prices of motels or the dialects of my family's native island of Menorca. When they met again Professor Wiener greeted him with "Welcome, wise man from the East"--Professor Kosambi replied, "No, a wise-guy from Cambridge." I suppose I may be one of the few people who was close to both of these men. Except for physique they were strikingly similar. Both had interests as wide as the world. Both were professional mathematicians. Although I am not at all competent to judge their professional achievements, as people they impressed me as being quite similar in intellect and ability. Both had been friendly with fellow students from China and maintained life-long interests in that country. Both were authorities on scientific and cultural affairs entirely outside of their mathematical specialities. Both were outspoken critics of war and social injustice, attitudes that were not always appreciated. Amusingly enough, both were astonishing linguists. They had a fine sense of humour and of the ridiculous, and for all their complex natures both had kept simple homely touches and love of people”

B.K.R.Prasad, scholar, Biographer tells us about Dr. Kosambi's interests

“There was a call for Prof. Kosambi from the Fergusson College at Poona where his father was a Professor of Pall several years ago before he was called to the Harvard University in the USA. Here again he was very successful in raising the level of teaching mathematics to the highest standards. While here, he came into contact with a wider sphere of Mathematics as he got into close touch with the Indian Mathematical Society which included very eminent mathematicians from the Universities of Bombay, Mysore, Madras and Calcutta. He was called to serve on the Board of Studies in Mathematics of the different Universities of India. He also took part in Extra-Curricular activities in Poona by way of welfare works among the rural populations Notes and Reminiscences about Prof. D. D. Kosambi near Poona and outskirts. He developed interest in the study of Indian History as ascertained from archaeological discoveries and ancient coins.

About the middle of 1943-44 Prof. Kosambi was invited by Prof. H. J. Bhabha to take up the Chair of Mathematics at the newly established "Tata Institute of Fundamental Research" at Bombay. Here he found a much wider field for mathematics as it had a very

important contribution to make in the researches in Atomic energy in India. He had a number of workers keenly interested in the mathematical developments which concerned the latest methods of solving intricate problems in nuclear physics and atomic energy. During his association with the Tata Institute of Fundamental Research Prof. Kosambi stayed with me as I happened to be associated with the Hydro-electric developments in Bombay state. For some time in the earlier days he used to commute daily from Poona to Bombay. But as this proved to be very tiresome he stayed with us for five years during five days in the week and went to Poona over week-ends, as Mrs. Kosambi and their children were staying at Poona. This system was rather strenuous for him and it must have adversely affected his health to some extent. “

Mj.Gen. habibullah (retd.) comments on Dr. Kosambi's qualities

“There are some persons who when they walk across the stage of life leave something of an aura, a presence, for which those who have the good fortune of being in their proximity are the richer for it. D. D. Kosambi was one such rare individual who strode across the great screen of human wisdom in all too rapid strides....His mind was always active, always probing and almost always original. His independence in thinking brought him face to face with many an intellectual giant; but nothing daunted him; for his intellect too was gigantic, unique. He had the most amazing tenacity and, so single minded a sense of dedication, that his own physical wants rarely stood in the way of his true and scientific approach.”

Mathematician J.D. Bernal writes about Dr. Kosambi's contributions to numismatics

“Kosambi introduced a new method into historical scholarship, essentially by application of modern mathematics. Indians were not themselves historians: they left few documents and never gave dates. One thing the ancient Indians did leave behind, however, were hoards of coins. These carry no inscriptions which list kings or date markings, but they had been in circulation before the hoard was buried and had suffered varying degrees of wear before burying. By statistical study of the weights of the coins, Kosambi was able to establish the amount of time that had elapsed while they were in circulation, and so set them in order, and to give some idea of their respective ages. In this way he was able to date these coins known as punch- marked coins, weighed pieces of silver of carefully standardized weight marked with various devices which connected them with a definite king, sometimes many with a single king such as the great Asoka of the Maurya dynasty.”

Scientist A.K. Banerjee' on Dr. Kosambi as mathematician

“Baba specialised in pure and applied mathematics (Tensor Analysis, Probability), theoretical and applied statistics (including work on the Indian population problem), and in these his reputation was unchallenged. He won the first award of the Ramanujan Memorial Prize in 1934 and a special Bhabha Prize in 1947. Baba was UNESCO Fellow to the U.S.A. and the U.K. for electronic calculating machine research in 1948-49,

Visiting Professor (Geometry) at Chicago in the winter term of 1949, and guest of the Institute for Advanced Study, Princeton, in 1949, where the main work covered several technical discussions with Einstein on his unified field theory and with O. Veblen on tensor analysis. Many invitations from abroad followed, but not all could be accepted. Among those accepted, however, was a personal invitation from the Soviet Academy of Sciences, in 1955, to lecture, and to attend their first conference for the peaceful uses of atomic energy, and a personal invitation from the Academia Sinica, Peking, to suggest statistical methods for the forecasting of Chinese food crops, and quality control in industry (these suggestions were discussed separately by Kuo Mo-Jo and Chou En-lai with Baba in person, and approved, but the results are not known).”

Archaeologist H.D. Sankalia remembers his association with Dr. Kosambi in field work to document prehistory

“Immediately afterwards he invited us to see the specimens of prehistoric carvings which he had collected and kept in his house and those which he had seen on the Vetal Hill. The latter could not be taken out, as they were in danger of being dynamited and he thought that I should use my influence and protect them from further damage. So my colleague Prof. S. N. Rajguru and I with one or two other colleagues went to him one day in the early morning at about 5.30 a.m. Unfortunately, it was on that very day we heard the shocking news of the death of Sri Lal Bahadur Shastri at Tashkent. Still both Prof. Kosambi and my- self were made of such stuff, that this news did not deter us from doing our job, and we spent 5 useful hours surveying in detail all the things that he had observed on the Vetal hill. And alas ! this was our last meeting.

Whether one agrees with his conclusions or not, one must admire the great tenacity of purpose and interest with which Prof. Kosambi had moved about in these parts of the Deccan and observed things for himself. “

Academician Namdar Khan, AMU, praised Dr. Kosambis’ qualities with affection

“A man of versatile genius, had practically mastered a number of European languages including French, German, Italian and Russian. He could speak in any one of these languages almost as if it were his mother-tongue. He had enough knowledge of Greek and Hebrew also. I know it personally in as much as he used to quote from Greek and Hebrew in his classroom lectures. He was a voracious reader and had a profound knowledge of European literature, history and economics. He was particularly conversant with the philosophy of dialectical materialism as propounded by Marx and Engels. “

Biographer, Mr. Chintamani Deshmukh’s remarks in his preface to Dr. Kosambi’s biography

“Damodar Dhrmananda Kosambi was one of the greatest scholar-researchers of India. His work as a mathematician, statistician and a compiler of critical editions of important ancient Sanskrit literature was more than enough to secure him a place in the galaxy of intellectuals. Yet in addition, although a mathematician by profession, he gave us an

original and fresh outlook towards historical research in India. This gained him international recognition. His path finding analysis of the inter-relation between science and society is as useful today as it was when he proposed it several decades ago. In a way, he is the propounder of the 'Lokavidnyan' (People's Science) movement that has taken root in India today. Even as he was very active in the peace movement opposing nuclear weapons, he vigorously supported research and use of solar energy in the 50's. Thus he played an important role in offering an alternative approach to the established model of development in the field of science and technology in India. Kosambi's multifarious activities in diverse fields of knowledge had a broad foundation of the Marxist philosophy. But his was not a mechanical application of Marxism. With a strong scientific outlook he used Marxist philosophy creatively moulding it to suit the Indian milieu. The situation in the country today, as well as the international atmosphere is altered and distorted to a large extent. Many conceptions and positions have turned upside down. Despite all this turmoil, Kosambi's views are not outdated."

For more information refer to:-

Books by D. D. Kosambi

- 1. An Introduction to the Study of Indian History (1956)**
- 2. Exasperating Essays: Exercises in the dialectical method (1957)**
- 3. Myth & Reality: Studies in the formation of Indian Culture (1962)**
- 4. The Culture & Civilization of Ancient India in Historical outline (1965)**
- 5. Indian Numismatics (1981)**
- 6. D. D. Kosambi on History & Society: Problems of Interpretation (1985)**
- 7. Science, Society & Peace , A collection of 15 essays, The Academy of Political and Social Studies, Pune**

(Damodar Kosambi's books are available as e-books (PDF files) for non commercial and reading/study purposes only, on IUCAA-Pune's scientist Aravind Gupta's website - <http://www.arvindguptatoys.com/>. Click on Books > English and scroll down to reach books by D D Kosambi (Birth centenary 2007). There are 16 downloadable files. SLC-DD birth centenary celebrations, Goa however bears no responsibility of the copyright issues of these uploaded files and all queries regarding the same should be directed to the webmaster of the above site.)

Compiled by Dr. Nandkumar M. Kamat, lecturer & scientist, Goa University and member SLC, for the SLC, DDK birth centenary celebration programme, July 2007.